

# WATERLOO UNCOVERED

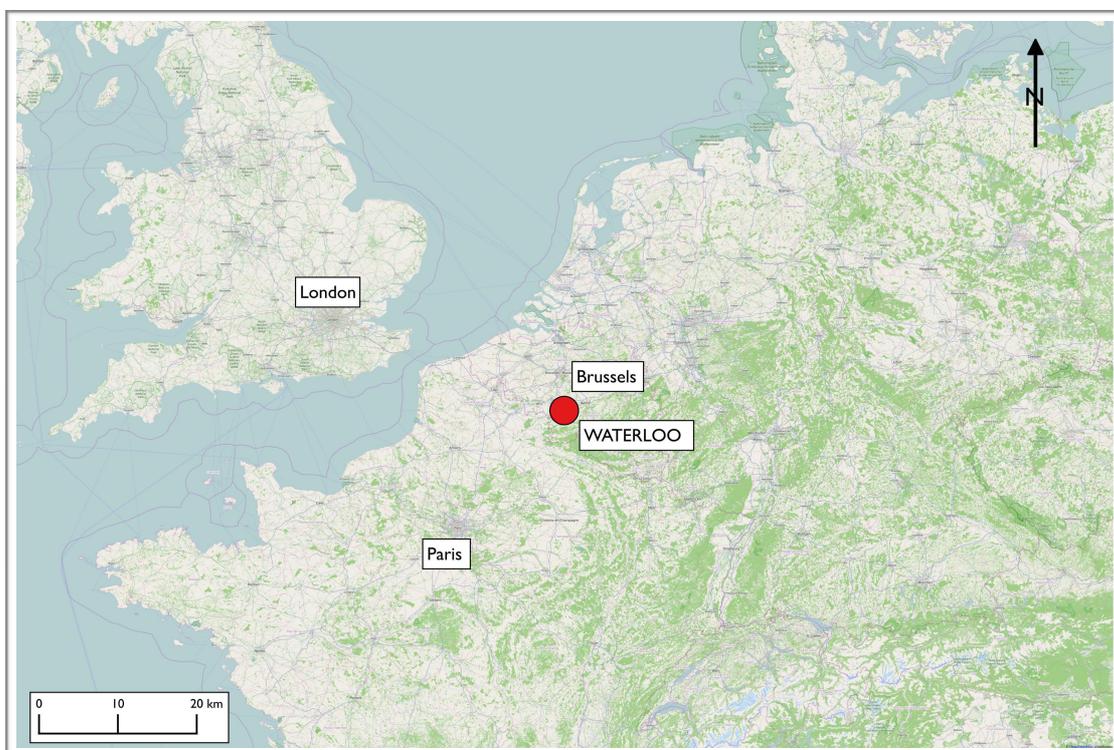
*An Archaeological Evaluation at Hougoumont Farm, Braine -l'Alleud*

*26th-29th April 2015*



## Introduction

This report provides an overview of the results obtained from a 4 day-long evaluation exercise focused on the locality of Hougoumont Farm on the Waterloo battlefield. This fieldwork marks a key stepping stone to a more intensive programme to be carried out by a larger team during the last two weeks of July, 2015. In turn, the archaeological investigation of Hougoumont Farm represents the first objective of a comprehensive survey of the battlefield under the auspices of Waterloo Uncovered; a collaboration between a number of academic institutions and specialist consultants, which is fully supported by the Walloon government on behalf of his Patrimony Minister, Maxime Prévot.



**Figure 1 - Waterloo Location**

A key aspiration of Waterloo Uncovered is to provide information on its work to the wider public as it progresses, in the first instance via the web and social media, with the ethos of open access underpinning the entire exercise. In order to speed the appearance of this initial report some liberty has been taken with the level of detail included at this stage (e.g. not all archaeological contexts are discussed, context numbers are not used, and there has been no attempt to tie in the discussion to historical accounts and eyewitness testimonies).

In addition to evaluating the archaeology at Hougomont, this exercise also provided an essential opportunity to formulate effective working practices and balanced inter-personal dynamics within a diverse team made up from professional archaeologists and volunteers. An important motivation for the project is to provide wounded service personnel the opportunity to take part in an archaeological project as part of their rehabilitation from both physical injury and combat stress. Accordingly, some of those on the team took part under the auspices of Operation Nightingale, which now has a well-established track record in this area, while others volunteered as serving members of the Coldstream Guards. It is gratifying to report that the two groups worked very well together with the professional archaeologists on the team (a number of those from Nightingale had previous archaeological experience and training was provided for those without).

The electronic version of this report contains a number of hyperlinks that link to the project database and allow further exploration of the raw data, including individual finds and context records.

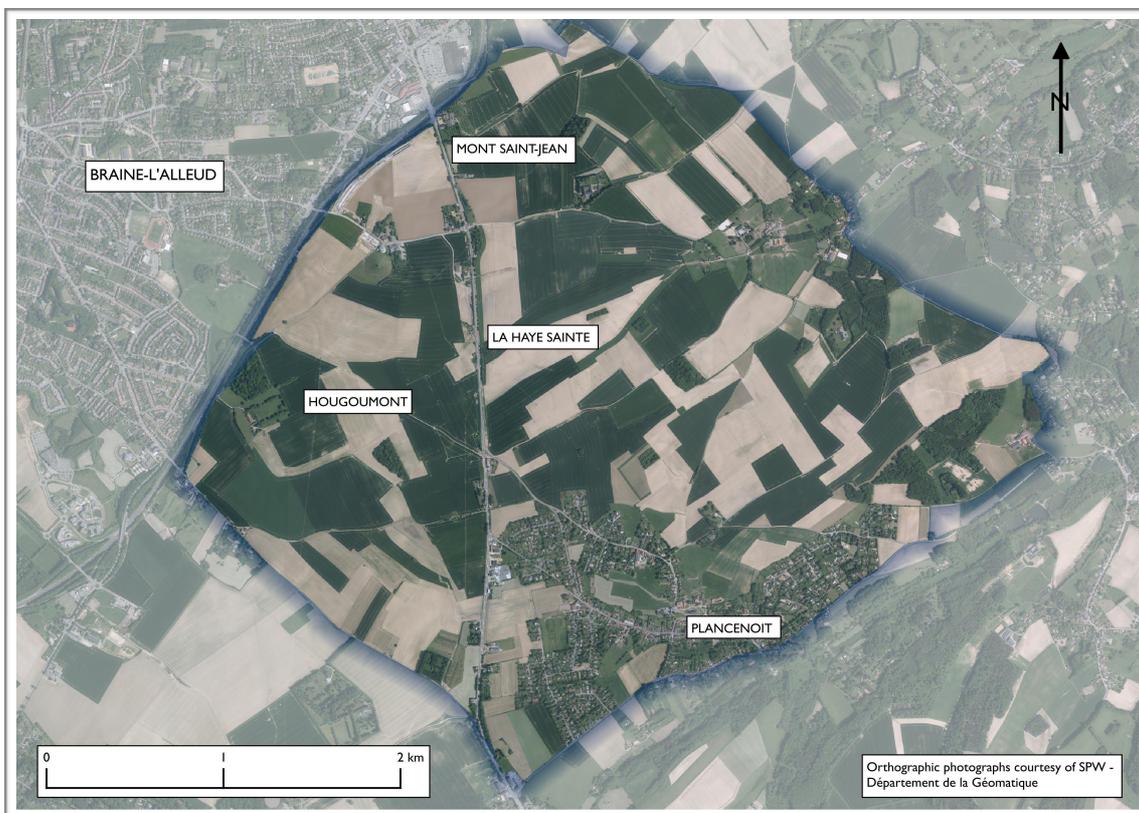


Figure 2 - The battlefield today with key locations

## A Brief History of Hougoumont

### *Medieval Origins*

According to Jacques Logie, in *Waterloo l'évitable défaite* (1984), the free hold property of Gomont, the original form of Goumont, which later became Hougoumont, appears in a court record in 1358. In 1386 there is mention of a 'tenure et maison' (tenancy and house) of Gomont in the lordship of the manor of Braine L'Alleud (*ibid*: 102 -103). In 1474, the Order of Malta (St John of Jerusalem), the successors to the Knights Templar, appears to have acquired the land from Jean del Tour - Tarlier et Wauters, (*ibid*: 104).

### *Post-Medieval Developments*

In 1536, the estate passed into the hands of the father of Pierre du Fief, a lawyer for the Council of Brabant, who extended the property by acquiring more land. By 1562 it belonged to Pierre Quarré, and remained in that family until 1637, when it was acquired by Arnold Schuyl, lord of Walhorn (although some suggest he was lord of Plancenoit). It appears that the château itself was built around this time (Logie 1984).

### *Before and During Waterloo*

In 1671, the estate was in the hands of Jeand'Arazola de Oñate (a Spaniard), at the time of the Spanish Lowlands, before passing via the female line to Philippe Gouret de Louville an Austrian officer who, in 1771, also built a house called "Hôtel d'Hougoumont" in Nivelles. In 1771, the land was mapped by Ferraris.

The Chevalier de Louville (presumably the same Philippe Gouret de Louville) did not live at Hougoumont, preferring to live in Nivelles. The farm was being worked by Antoine Dumonceau in 1815, and the formal garden (*le jardin à la française*) maintained by Jean-Joseph Cartier (Bosse 1999).

At the time of the battle, therefore, the chateau itself was uninhabited and the estate was operating as a farm, with elements of the earlier designed landscape

taken over by agricultural land, most notably the large formal garden to the south-east (lost garden on Fig. 3).

### *Post Waterloo*

After the battle, Chevalier de Louville, then aged 86, found it impossible to restore the château and sold it on 7 May 1816 (for 40,000 Francs) to the Comte Francois-Xaviers de Robiano who promised to preserve the remaining buildings. Then, thanks to various inheritance rules, it fell into the ownership of a branch of the d'Oultremont family.

In 2003 the Comte Guibert d'Oultrmont sold it for €1.5 million to the *Intercommunale 1815* together with 12 hectares including the garden (Meeuwissen 2003). After this time the complex underwent a programme of renovation by Project Hougoumont and now stands as a centerpiece for the Waterloo 200 commemoration.

### *Areas of Interest*

More information on the research questions associated with Hougoumont and background on the fight for the chateau can be found in project proposal available at <http://www.waterloouncovered.com/wp-content/uploads/2014/11/Waterloo-Uncovered%E2%80%93Project-Design.pdf>. Here it will suffice to concentrate on areas subject to investigation during the recently completed exercise, which was intended only as an evaluation of potential prior to further work, rather than a full-scale investigation.

A vital first step was to carry out a geophysical survey of as much of the area in and around Hougoumont Farm as possible given the time of year (this was carried out in April when a number of areas were off limits due to the agricultural cycle). Much of the work of the evaluation reported here was intended to shed more light on the anomalies identified during that survey (a full report on that phase of the operation will be available in the near future). For the present report it will suffice to say that the survey, which was carried out by a team from the University of Ghent, utilised an electromagnetic induction array, which combined both magnetic susceptibility and resistivity.

The areas covered by the geophysical survey (Fig. 3) consisted of:

- Field to south of farm complex, which at time of the battle was covered with woodland
- The area to the north of the walled garden (formal garden on Fig. 3), close to the covered way and referred to as the small orchard in some accounts.
- The field to the east of the walled garden, which at the time of the battle corresponded to the Great Orchard.
- The walled (formal) Garden, defined on three sides by a brick wall and on a fourth (north) by a hedge.
- The field to west of the building complex, which at the time of the battle accommodated kitchen gardens.
- The area between the north edge of the (former) wood and the garden wall to the south, previously referred to as the ‘killing zone’ (this was carried out during the evaluation week as logging operations occupied this area during the geophysical survey).

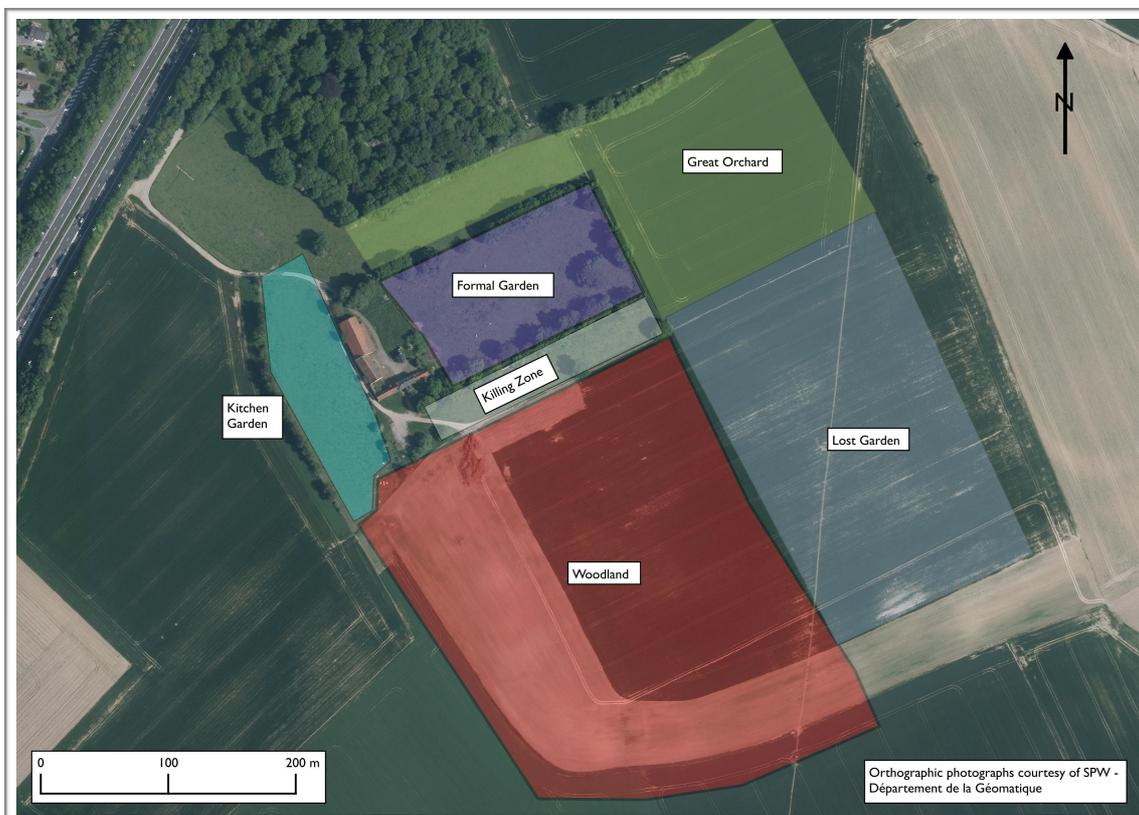


Figure 3 - Breakdown of Hougomont areas

It was not possible to subject the entire area of interest (Fig. 3) to geophysical survey due to the presence of freshly planted crops in some areas – notably the fields to the south corresponding to the eastern half of the wood and, to the east of the wood, the open fields previously occupied by another formal garden (lost garden on Fig. 3). Likewise, not all of those areas subject to geophysical survey were available for trenching – most specifically the area of the Great Orchard, with the testing of anomalies there limited to augering.

## Trial Excavation of Geophysical Anomalies

The evaluation took place in the week of 26 April, 2015. A key objective was to test, or ground-truth, a number of anomalies identified by the geophysical survey. This survey builds on the work of the Ghent team (Research Group Soil Spatial Inventory Techniques – ORBit) in the vicinity of the farm at La Haye Sainte (De Smedt and Van Meirvenne, 2014), which like Hougoumont served as strong-point in advance of the main allied line, and will hopefully provide a later focus for the work of Waterloo Uncovered. A full report on the geophysics will be produced in the near future. In the meantime, this report provides plots from the two techniques deployed utilising the electromagnetic induction method, these being electrical conductivity (Fig. 4) and magnetic susceptibility (Fig. 5). This work joins the survey by Tim Sutherland<sup>1</sup>, which differed in some of the areas covered and techniques used, and with which it would be interesting to compare results.

Anomalies were tested through a combination of augering (not reported on here) and small scale, trial excavation. All trenches were hand-dug and in the areas of pasture the turf was spade cut and stacked prior to careful replacement at the end of the fieldwork. Standard pro-forma context sheets were used for recording in the field, but all data, including drawings, photographs and find locations, has been inputted into ARK (Archaeological Recording Kit – <http://www.lparchaeology.com/waterloouncovered>), which will provide a fully interrogate-able on-line archive.

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<sup>1</sup><http://tls509.wix.com/archaeologyawaterloo>



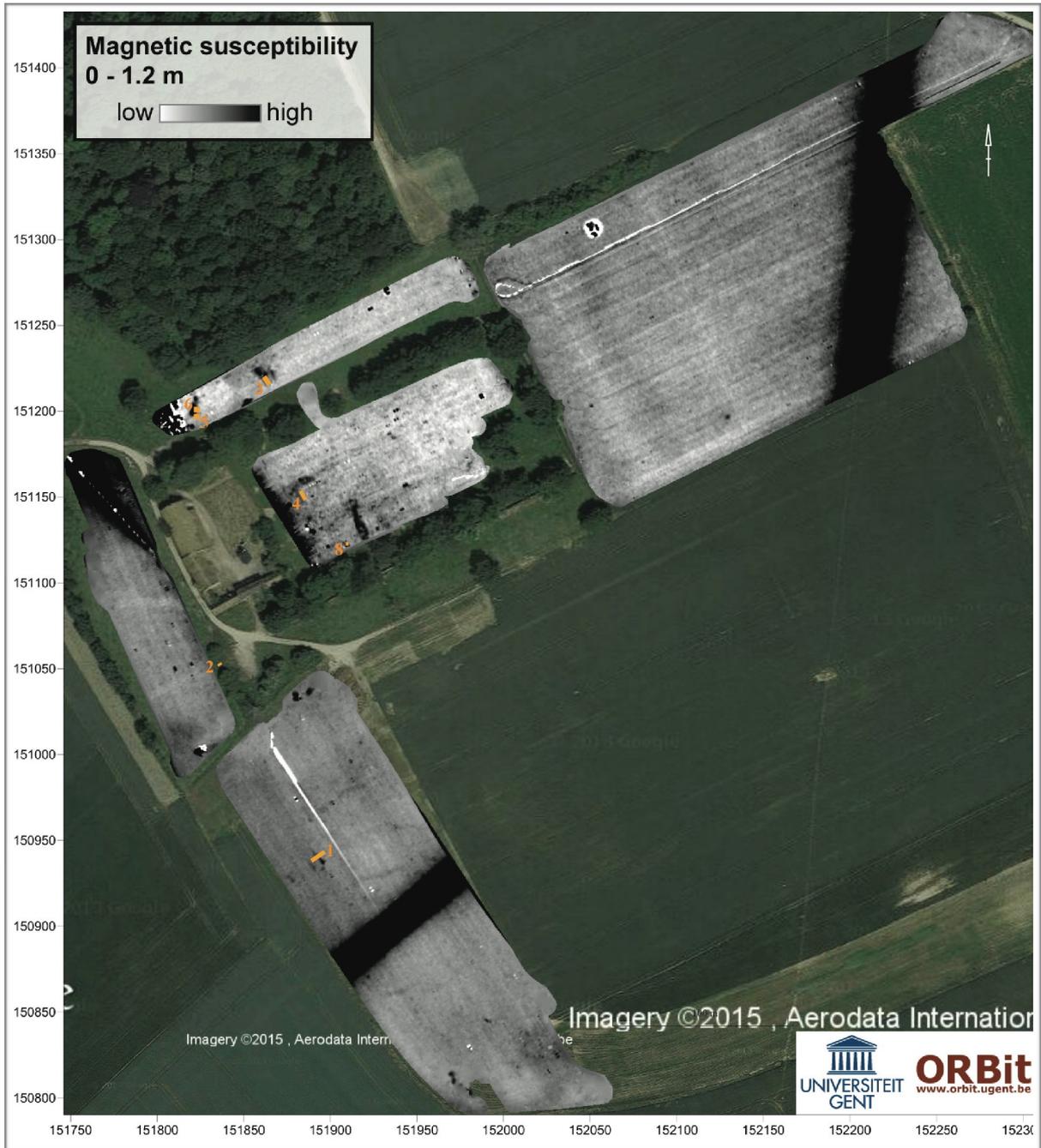


Figure 5 - Magnetic Susceptibility with trenches overlain

## Metal Detecting

In addition to trial excavation, a limited programme of metal detector survey was also carried out, with the main objective being to establish the extent and character of battle related metal artefacts across the area presently available for investigation. The metal detector survey was initially based on a series of transect lines spaced at 5 metre intervals, so as to provide a sample of material, but was expanded to total survey in several areas (Fig. 6), when it became clear that time permitted (in part a reflection of low artefact densities). The main objectives were:

1. To establish the extent of artefact removal through illegal metal detecting over past decades, and correspondingly the level of artefact survival.
2. To assess the character of any surviving assemblage – what sort of artefacts remain to be recovered by a full metal detector survey?
3. To confirm whether or not any recovered artefact scatters provide meaningful patterns which through analysis can shed more light on our understanding of the battle.
4. To provide an indication of the impact of soil conditions on artefact survival and recovery – e.g. has hill wash buried some artefacts beyond recovery via surface sweeps by metal detectors?



**Figure 6 - Areas subject to metal detector survey**

Metal detecting of areas of archaeological sensitivity in Belgium is not permitted – this definition is rather loose, but there is no question of the illegality of unauthorised metal detecting on the battlefield at Waterloo, as it has been designated a protected area by the Walloonian authorities. Despite this, it is well known that metal detecting has taken place across the battlefield over past decades (probably 30 years or more), with artefacts removed by private collectors and therefore separated from their archaeological context and the public domain. Hougoumont in particular appears to have been targeted by this activity, in part because of its iconic place in the history of the battle and also because it provides a place that allows detectorists to operate unobserved thanks to the shelter provided by walls and trees (as an example, two detectorists were encountered by the geophysics team during the survey – one was happy to talk while the other removed himself from the scene).

The detector survey was carried out by a team of three, consisting of two experienced detectorists from Scotland, with a background in working on archaeological projects, and one from the Project Nightingale contingent, who

took up the hobby several years ago as a way of ameliorating his PTSD symptoms. The results of what represents the first ordered metal detector survey of the Waterloo battlefield, are considered later in this report.

## Summary Trench Reports

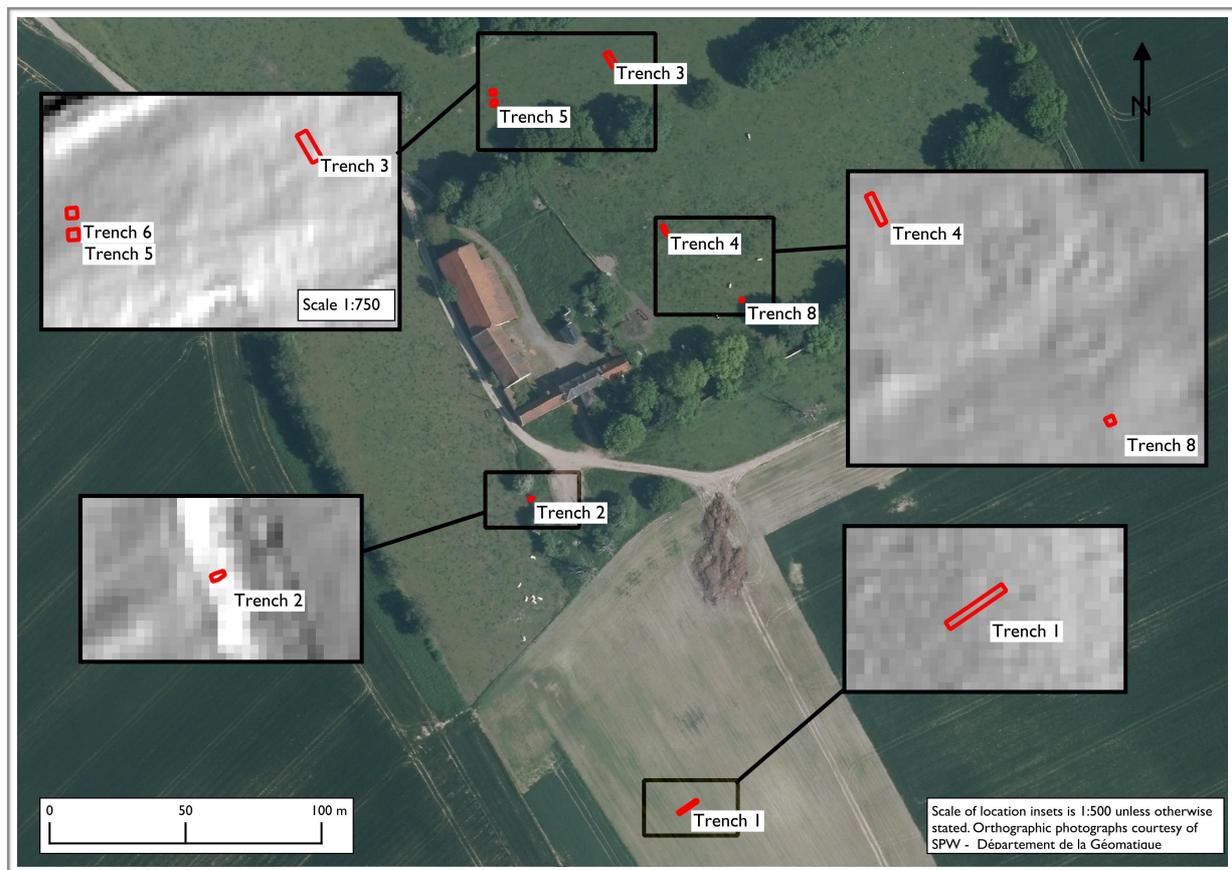


Figure 7 - Trench locations

### *Area 1 (former wood to south)*

This area was occupied by corn stubble during the geophysical survey and was still accessible during the evaluation phase. The geophysical survey revealed a number of features (Fig. 4 and 5), two of which were of primary interest during the evaluation. The first of these was a possible track that extended north to south in line with the south gate. This was thought to correspond to a track shown on a couple of the near contemporary maps of the Hougoumont area, these being the pre-battle 1777 map (page 7 in project outline) and the post-battle map by Sibourne (the latter drawn up as part of Sibourne's survey carried out prior to construction of his famous model of the battle – Fig. 17). Other maps do show a track through the south wood but those on Crann's 1816 map (page 4 in project outline) and Mackinnon's 1833 map (page 5 in project outline) run on a north-west to south-east diagonal. A diagonal track with the same orientation is also suggested by a recent Lidar survey of the area, which shows

the beginnings of a track running north-west to south-east, in the vicinity of the south gate, but with no further trace of it visible once it connects with the field to the south (Fig. 25, page 28 in project outline).

This feature was not trial trenched but was highlighted as notable by the artefact scatter revealed by the metal detector survey in this area (see below).

### Trench 1

The other geophysical anomaly to be considered here was an area of high magnetism, which on the plot looked like two opposing walls of a structure (Fig. 4 and 5). In response to this a hand-dug trench, measuring 1 x 8.5 metres, was excavated over the eastern side of the anomaly, as relocated utilising GPS (Fig. 7).

The trench revealed a clay-loam ploughsoil horizon some 0.45 m deep, which overlay yellow, sandy clay subsoil in which an area of bright orange burned soil was exposed – in the area identified as the western part of the anomaly. Further cleaning of this feature, which was explored via a deeper sondage along the north facing section face, revealed a compacted deposit of degraded brick with a charcoal and coal-rich silty clay matrix. Fragments of better-preserved bricks were also recovered from this context. Initial impressions suggested a building that had been subject to burning at high temperature. However, as this material was removed it became clear that it sat upon a hard baked clay surface, which extended across the base of the trench to the west. It was not possible within the time-frame to further investigate this feature, however probing suggests that the hard baked surface or floor extends for 8 metres to the west.



**Figure 8 - Trench 1. North facing section, showing brick waste lying in shallow pit, defined by baked clay sitting in subsoil**

By the time excavation of Trench 1 had ceased, the feature had been re-interpreted as brick kiln: on the basis of the application of high temperatures, the coal and charcoal matrix, degraded brick debris and the baked floor, and also very clear parallel evidence provided by trenches in the area to the north of the walled garden (see below).

### Trench 2

This area was not subject to geophysics, as it corresponded to the face of terrace rising up for approximately 2 metres from the area of pasture to the west of the buildings (which was surveyed) and the area of concreted hard-standing (car park) outside the area of the southern gate (Fig. 7). Probing into the face of this bank and along its top suggested a solid feature such as a wall. This interpretation tied in with a long held local belief that the mass grave dug in the area now covered by concrete and shown in a contemporary painting (Fig. 22, page 26 in project outline) had been provided with a retaining wall during a phase of reburial. This was presumably necessitated by the rapid nature of initial burials, in shallow graves, followed by a wet winter which brought bodies back to the surface, It was at this time that the burning of bodies was attempted

as a means of disposal – this activity is shown on the same spot in another painting (Fig. 23, page 26 in project outline).



**Figure 9 - Trench 2. South facing section, showing tipped deposits containing rubble (limit of excavation)**

In order to test this hypothesis a trench was opened across the steeply sloping face of the terrace. This revealed a deposit of sandy overburden (200-202) representing material dumped down the face of the terrace from the upper surface – heavily burrowed and containing iron fence posts. Beneath this were various irregular chunks of concrete and masonry in sandy silt matrix (203)– all of which gave the impression of being deposited in the recent past. Limited further excavation at the top (eastern) end of the trench revealed evidence for more dumping but no trace of a wall.

It was clear at this juncture that the initial probing had made contact with the chunks of concrete encountered during excavation. Probing once these had been exposed revealed what appeared to be more of the same present within the soil matrix. If a wall was present then it was clear that it sat further away, to the east, from the face of the terrace than was previously thought, this seems to fit with the possible location of the pit suggested by a GPR scan of the car park

area by Tim Sutherland. At this point the trench was backfilled and the excavation team reallocated.

### *Area 2 – ‘small orchard’ to north of walled garden*

Again, several geophysical anomalies came to light in this area, which also accommodates the hollow way, which runs from east to west and provided an important avenue of communication during the battle.

The anomalies tested at this stage comprised two highly magnetic features positioned close to one another in the western portion of this area (Fig. 4 and 5). The anomalies were visible on the plot as concentrated areas of high magnetism surrounded by halos of marked, but lesser activity. The halo of the eastern-most feature, which had higher magnetism, appeared to overlap with the halo of the feature to the west. Contrastingly, the area to the west had slightly higher electrical conductivity levels than that to the east, though again distinguishing between the two ‘halos’ was not easy on the basis of the plots alone.

Prior to trial trenching, both areas were examined through the extraction of soil cores. Two cores from the eastern-most feature contained a thick deposit, c. 0.5 m of compacted brick debris (similar to that recovered from Trench 1) sitting below the topsoil, which in keeping with the garden environment was organically rich. By way of contrast, the cores from the western feature revealed a dense deposit of burnt material – charcoal and some masonry elements – sitting below a layer of sand.

In order to further understand the nature of these features trial trenches were located over both of them.

### *Trench 3*

This 2 m x 5 m trench was located over the eastern-most feature, characterised by degraded brick in the cores (Fig 7). Removal of the topsoil exposed a silty sand horizon rich in brick fragments. Given the depth suggested by the core the trench was deepened along its long access, with the eastern half dug down. This exercise revealed a more concentrated deposit of bricks around 1 m beneath the present ground surface. As had been the case with Trench 1, fragments of brick

were found to be present within the compacted deposit of what was essentially powdered brick. This deposit lay upon and within a surface comprised of hard baked clay, which to the south curved upwards to form a basin-like lip (see right hand end of *sondage* in photo).



**Figure 10 - Trench 3. West facing section. Thick deposit of brick waste with clay lip to right**

The upper part of the deposit was less uniform in character and might represent debris cleared from the area of the chateau, which was destroyed by fire during the battle. The area of what had previously been a brick kiln might at that time (decades after 1815) have been represented by a hollow, which would accommodate demolition debris from the former building.

### *Trenches 5 and 6*

These were 2m x 2m squares placed over the anomaly to the west, closer to the north gate than that investigated via trench 3 (Fig. 7). Coring indicated a deposit of charred material sitting beneath a layer of sand, which in turn sat beneath the topsoil. Excavation of the two trenches revealed a complex series of deposits, which in the upper, sand dominated horizons suggested recent

disturbance and truncation, not least through presence of expanded polystyrene within one deposit. Despite displaying stratigraphy of a less straightforward nature than encountered in trenches 1 and 3 both of these trenches contained fragments of brick suspended in a matrix of black, charred material, which included coal fragments (Fig. 11). Although time constraints did not permit full resolution of the nature of these deposits it seems highly likely that they related to a brick kiln, similar in form to those contained within trenches 1 and 3, though the possibility of variation should not be discounted on the basis of the limited excavation undertaken.



**Figure 11 - Trench 5. East facing section, showing truncated kiln deposits sealed lying beneath sand**



**Figure 12 - Trench 6. West facing section showing deposits of demolition rubble overlying kiln deposits sealed beneath sand horizon.**

The deposition of building rubble, probably associated with the clearance of debris from the destroyed chateau, was very apparent in the upper horizons of Trench 6, where they sat upon and were overlain by sand (Fig. 12). These features therefore represent activity associated with the construction of the chateau in around 1637, and its destruction in the early to mid 19th century.

### *Area 3: Walled Garden*

#### *Trench 4*

This 1m x 4m trench was located towards the western end of the walled garden (Fig. 7), in an area which corresponded to a further anomaly identified by the geophysical survey (Fig. 4 and 5). This might represent a pit post-dating more regular garden features – the flower beds, foot paths etc. shown on contemporary maps and showing up in the geophysical survey. The trench was also located in the vicinity, towards its northern end, of a road or track, which

on the maps is shown to run from the building complex to the east to the orchard in the east.

Excavation in this trench exposed an orange brown soil with no features obvious within it. A *sondage* was cut into the northern end of the trench and taken down a further 50 cm. Despite a soil change no features were evident. Due to time constraints excavation was ceased at this point.

### Trench 7

This was a metre square cut to the north of trench 4 (not shown on Fig. 7), at a point where the ground rose slightly, probably in response to the road or track beneath. Excavation exposed a loose deposit of broken brick and upper rubble, which appears to represent the upper layer of the road or material dumped on top of it.

### Trench 8

The final intervention was a metre square placed over a feature identified via a metal detector find but within an area previously identified as a geophysical anomaly (Fig. 13). This was located towards the southern edge of the garden, some 23 metres to the north of the wall (Fig. 7).

During the metal detector survey of the western half of the garden a concentrated deposit of lead waste, indicative of working with molten lead, was found just beneath the surface of the turf. Given multiple targets the area was subject to limited excavation, with the metre square centred on the find spot. This exercise exposed a deposit with a high charcoal content, indicative of a fire-spot or campfire. Further pieces of lead waste were recovered from the upper part of this deposit. The feature was half sectioned and found to be sitting within a shallow scoop in garden soil (Fig. 13). The presence of charcoal within the immediate underside of the turf indicated that this was a very recent feature, probably no more than five years old.

There can be little doubt this was a campfire related to the activities of Waterloo re-enactors, associated with the annual re-enactment of the battle. The lead

represents waste from the manufacture of lead balls, which is in activity popular in the 'living history' campsites of such events.



**Figure 13 - Trench 8. North facing section through shallow deposit of charred material.**

This encounter with re-enactor activity came as no great surprise, as several probable re-enactor items had already been recovered during the metal detector survey (see below).

## Discussion of Evaluation Excavation

A total of eight excavation interventions were made, with the majority of these targeted on anomalies identified during the geophysical survey. The results were almost entirely positive in that all the geophysical anomalies proved to relate to archaeological features (the exception was trench 5, but here work was curtailed prematurely due to time constraints. Archaeological features probably exist at a greater depth).

The most striking features were those in trenches 1, 3, 5 and 6, all of which related to brick kilns. Despite the limited extent of excavation, this was an evaluation exercise only, enough evidence was revealed, in the form of brick waste, intact bricks, charred by-products (of coal and charcoal) and baked clay/earth deposits representing kiln floors and pit/basin-like features to be confident about this interpretation.

Probing of the baked floor surface cleaned onto in Trench 1 suggested a feature some 8 metres long, east to west. This dimension is very much in keeping with the size of a brick kiln previously excavated in Belgium. This apparently close parallel was excavated at Steendorp in the north of Belgium, where the brick wall of the kiln was sealed within a baked silt crust (Hus, Ech-Chakrouni, Jordanova & Geeraerts 2003). Only the basal layer (floor) of the baked crust was encountered in Trench 1, though some of the bricks recovered might have come from demolished walls rather than representing bricks left in the kiln after manufacture. The Steendorp kiln appears to have had a long life with the last firing, dated through archeo-magnetic techniques, taking place around 1650. There is speculation as to whether the kiln was used to manufacture bricks used in the construction of a nearby country house, built between 1579 and 1597, though continuous use of the kiln from that period to the last firing in 1650 is seen as unlikely (*ibid*, 244).

It seems probable, given the location of the three kiln sites encountered at Hougoumont and the similarity of the bricks to those from the chateau, that they were used to produce the bricks used in the construction of the farm complex. Further excavation would shed more light on the character and date of these features and it is hoped that the project will return to them in the

future. It is interesting to note however that those to the immediate north of the buildings (trenches 3, 4 and 5) were later used as areas into which debris associated with the burning down and later demolition of the chateau was dumped. This would suggest that despite being long demolished - there is no mention of these features in any accounts of the battle nor do they appear on any of the maps (see below) - they might have left some sort of hollow, which was later filled with the rubble.

It seems likely that if the kilns were created with the express function of providing bricks for the construction of the chateau and related buildings, they would be demolished once that function ceased. In a manicured landscape they would be an unwanted intrusion and the bricks used in their construction might also have been put to use elsewhere.

Trench 2 was not located on the basis of a geophysical anomaly but excavated in order to test the assumption that a wall had been constructed to retain a mass grave dug in the area outside the south gate. By the time excavation ceased no trace of a wall had been encountered. Rubble, including concrete, and earth deposited in recent times might indicate that any such wall is to be found much further to the east, beneath the present hard standing.

Excavation within the formal garden (Trenches 4, 7 and 8) revealed more evidence for rubble deposition (Trench 7), perhaps as hard standing for a track, but further work will be required in order to establish the character of garden features revealed in the geophysical survey and possibly later anomalies which might represent pits associated with post-battle burials. The encounter with a re-enactor fire (Trench 8) might not shed light on the battle or the chateau but it does demonstrate a continued interest in the site and the events of 1815. It also alerts to the presence of material deposited in the modern era that could, without a cautious approach, be mistaken for activity associated with the battle.

## Metal Detector Survey Results

In addition to the testing of geophysical anomalies and a general attempt to characterise the nature of the archaeology on the site, an assessment of the character and extent of metal debris scatters relating to the battle was also a high priority of the evaluation programme. Metal detector survey plays a key role in the archaeological investigation of battlefields, and the ability of accurately mapped surveys to shed new light on 18th and 19th century battles has been well established (e.g. Scott et.al and Pollard 2009). This will also hopefully hold true at Waterloo, where, given the scale of the battle, huge quantities of material should have been deposited. To get some idea of the scale one only has to consider the number of musket balls fired. Atkin, for instance, has suggested that the French alone fired around 190,000 rounds during the fight over Hougoumont (2005: 343), though this is perhaps a somewhat excessive estimate.

On perhaps a slightly more pessimistic note, however, another aim of the metal detector survey was to establish the extent to which the battle archaeology, as represented by unstratified metal artefacts within the topsoil, has been denuded through the activities of metal detectorists operating over several decades. Despite the protected status of the battlefield, which makes unauthorised metal detecting on it illegal, there is plentiful evidence that detectorists have been very active.

This was the first time that a formal detector survey has been attempted anywhere on the Waterloo battlefield, and to this end a team of three detectorists was deployed over the course of the evaluation. The original aim was to subject selected areas to sample survey across 5 m transects, which, it was hoped, would give an idea of scatter densities and location prior to more intensive survey at a later stage.

The first area selected was that described as the 'killing zone' in the project outline. This is the area of open ground, some 30 m wide, to the south of the garden wall and the north of the wood. It was in this area that many French casualties were incurred, as men rushed from the wood to assault the defended walls. Many men were killed by British and allied troops firing from behind the

walls, through loopholes and from firing steps, with piles of bodies observed in this zone after the battle. Given good survival this area was expected to have contained numerous musket balls fired by both sides. It was a disappointment to encounter just two musket balls (35 & 43) during the metal detector survey. One of these (43) was a Brown Bess round displaying clear signs of impact, lying close to where the edge of the wood, possibly defined by a hedge, would have been.

It was unfortunately clear from the outset that unauthorised metal detecting has had a profound negative impact on the battle archaeology. Indeed on the basis of this first element of the survey it was feared that very little evidence for the battle might survive in the form of metal objects. A slightly more positive conclusion was reached when the survey moved onto the large open field to the south (Fig. 6), which represented the western portion of the wood at the time of the battle (this was an area subjected to geophysical survey and it also accommodated Trench 1).

Given the sparse distribution of finds in the killing zone it was decided to switch from detecting along 5 metre transects to 100% survey in designated areas, thus maximising the possibility of recovery in areas of low density (this was first done in the killing zone). To do this the transects were still set out using canes, in order to control coverage, but the gaps between them were also surveyed. Work in this area commenced around half way along the field, in the zone to the south of Trench 1. Several finds of musket balls were made early on and recovery continued at a reasonable rate but the quantities recovered were still indicative of heavy illicit removal.

Detectors were set to respond to all metals – rather than to discriminate against iron - in order to maximise recovery. On some sites this would not be practical due to the high amount of scrap iron in the fields – the normal background noise of centuries of human activity, with much of it representing small pieces of farm machinery (tractor parts etc.) and various other types of junk. At Hougoumont, however, very little background noise was encountered. This was good on the one hand, as it meant that most of the objects were of interest, but had a negative connotation on the other, as again it was a sign that a lot of material had been removed. The presence of crushed drink cans on the surface

provided a further indication of this, as they had been dug up and abandoned in recent months. Even more obvious were the fresh holes left by detectorists.

As more of this area was surveyed it became apparent that the level of preservation increased in those areas furthest away from the farm, which means that some caution will need to be exercised when interpreting patterns in the results, as these might represent more than activity during the battle. This perhaps reflects unwillingness by detectorists to operate out in the open, where away from the cover provided by trees and walls they would be exposed and unable to remove themselves rapidly if challenged.

The most obvious evidence for the battle took the form of projectiles fired by both sides – which included musket and pistol balls (Fig. 14). A total of 51 lead projectiles were recovered, with a rapid assessment (see below) suggesting a roughly equal proportion of musket balls that were not distorted to the point where definition was lost (17 French, 18 British, 11 heavily distorted and 6 pistol balls). These occurred in their highest densities towards the southern end of the field, which corresponds to the southern edge of the wood. Even taking into account the caveat related to detector behaviour it is tempting to regard this as a meaningful pattern, which, given its location, might represent some of the first shots fired in the battle, as French troops met opposition as they advanced into the wood from the south. It should be noted, however, that a strip of open ground running along this southern fringe allowed detecting to extend further to the east than elsewhere, and this again might have provided a somewhat misleading picture, though this does not negate the suggestion that at least some of this material might relate to the opening stages of the battle.



**Figure 14 - Distribution of musket and pistol balls (Allied/British musket balls not distinguished from French)**

Lead projectiles were also found further to the north, in the main area of detection in what was the western part of the wood. These finds presumably reflected fighting taking place within the body of the wood – perhaps representing the French advance, resistance to this, and the Allied counter-attack that pushed the French back.

Relevant metal detector finds were not limited to musket balls and other projectiles. Those indicative of combat include a lug from the trigger guard of a musket – possibly Brown Bess. This small spur of brass (63) was set into the wooden stock of the weapon with an iron pin and formed an essential role in securing the trigger guard to the weapon. It has previously been observed (Pollard 2009) that these pieces are prone to snapping and breaking away, possibly during hand-to-hand combat where the weapon is hefted in bayonet combat.

A small brass tube with a loop for a securing chain at the closed end (59) represents a small brush used to clean the pan on the musket so as to prevent it

becoming clogged with powder residue. The opposite end, which is open, would have accommodated the bristles of the brush. The chain would be used to secure the small brush to a soldier's cross belt. This would have been accompanied by a needle or pricker used to unclog the touch hole next to the pan. A more complete example of this brush was found within the walled garden (see below).

### *The Walled Garden*

The final area of metal detecting was located within the walled garden - confined to the western half of the area known from geophysical survey to relate to the formal garden, but which for a considerable time has been a grassed paddock. Once again, five metre transect lines provided the basis for total coverage within this area.

A number of notable finds were made in this area, though it is now clear that contamination by modern replica objects deposited by re-enactors in recent years is an issue here. Perhaps the most dramatic find was a near intact pan brush (198), which unlike the example found in the field to the south, still had its chain attached and even the bristles intact. Although the crushed nature of the tube and the condition of the metal gives the impression of an original piece the presence of the bristles is highly suspicious and at present there is uncertainty as to the authenticity of this object. There is certainly a difference in the design of the two pieces, with the example from the former wood being of better quality than that from the garden, though this need not be as a result of one being a modern copy.

More definite evidence for re-enactor activity took the form of two brass buttons adorned with the number 7 (224, 225). The condition of these and the fact that two were found close together, not far away from the re-enactor fire previously described, raised suspicions. An online search for Napoleonic re-enactment groups established that they represent the Dutch 7th Line Infantry Battalion, which is portrayed by re-enactment groups in Belgium and Holland. Photos on the Belgian group's website clearly show this type of button being worn, with the larger of the two on the front of the tunic and the smaller versions on the

cuffs. The unit fought at Waterloo but was in the left part of the Anglo-Allied line and theoretically nowhere near Hougoumont.



**Figure 15 - Re-enactor button**

The group website also very helpfully includes a photo of a camp fire, with pots and pans sitting on grate over an open fire burning in a shallow pit created by cutting back turf sods, which would leave exactly the same signature as that excavated (Trench 8), once the turfs were replaced (<https://www.flickr.com/photos/7elinie/13898059123/in/set>).

### *Discussion of Metal Detector Finds: Projectiles*

Before any firm conclusions can be drawn as to the meaning of musket ball distributions a wider area must be detected and the artefacts subject to detailed analysis. The observations offered below are a preliminary statement only and based on nothing more than a rapid visual inspection of the objects in the field and a consideration of their location. The assemblage has not yet been subject to cleaning, measurement and weighing, a task that will commence during the next stage of fieldwork.

The majority of musket balls were recovered from the field corresponding to the wooded area to the south of the farm complex. Both French (0.69 calibre) and British/Allied (0.75 calibre) projectiles were encountered in this area, with the strongest densities coming from the southern portion of the field (edge of the wood). As far as our understanding of the fighting in this area of the wood is concerned, the initial French attack (in part at least represented by the French musket balls in this area) was faced by German troops in the form of Hanoverians and Nassauers. Many of the German troops in the wood were armed with rifles but some of the Hanoverian units used the Brown Bess musket. A number of Brown Bess musket balls were recovered towards the southern edge of the wood and as yet no obvious rifle bullets have been encountered. This might suggest that men with rifles were further to the east, in an area not yet detected, but also that the majority of German rounds fired in this early stage of the battle will not be in the wood but in the open ground beyond it, across the which the French advanced into the attack. Again though, a word of caution is required here. It is possible that some of the smaller musket balls, which have initially been suggested to be French, might on cleaning and closer inspection turn out to be rifle bullets, which were of a similar calibre.



**Figure 16 - Impacted Brown Bess musket ball (left) and French musket ball (right)**

It took the French some time to take control of the wood, with the pushing back of German troops, first to the sunken lane behind the chateau, taking around an hour. This was followed by a counter-attack by British foot guards (2nd), which pushed the French back out of the wood prior to its recapture by a strengthened attack.

It is of course possible that the projectiles found at the southern of the wood represent, at least in part, evidence for this counter-attack – and the Brown Bess was certainly used by the British troops involved. Alternatively they might relate to the final pushing back of the French late in the day, by units including the King's German Legion. It does seem probable, however, that at least some of the French balls located along the southern lip of the wood represent incoming fire delivered during the original attack.

Before moving on from musket shot one further comment must be made about their distribution. Some of the contemporary maps show a tree lined avenue passing north to south through the wood, leading out from the south gate of the complex, e.g. the 1777 map (see project outline page 7) and Siborne's map (Fig. 17). There is also a reference to such a track in Matthew Clay's account of the British counter-attack: 'We continued firing and retiring down the road up which we had advanced (Franklin 2011, 98).' Some suggestion of this track, which no longer exists - there is a track between fields further to the east but this is a more recent feature - was apparent in the results of the geophysical survey. The presence of this feature was made more obvious through the distribution of musket balls along a line with a correspondence to this route through the wood.

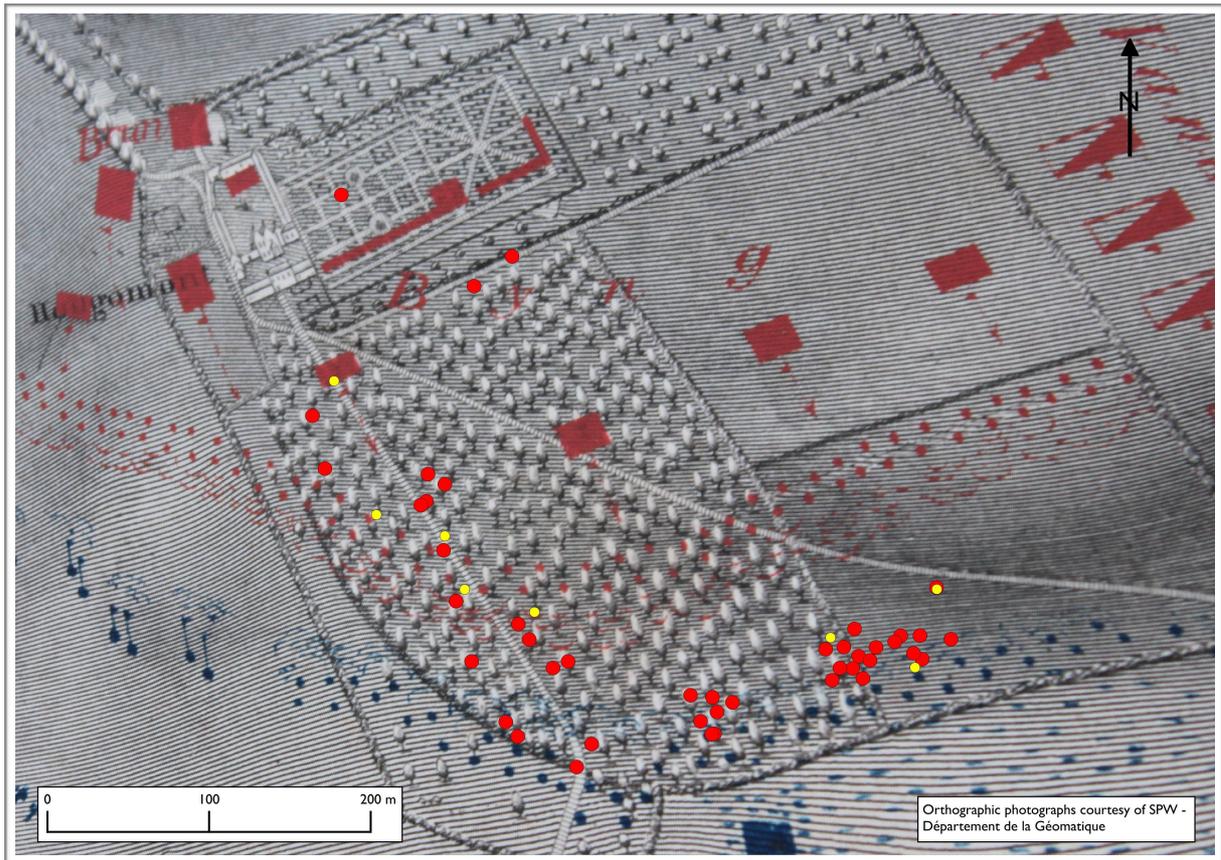


Figure 17 - Musket and pistol balls overlain on Siborne map

The implication of this patterning, with what looks like a thinning concentration on either side of the track, is that it played a role in the actions within the wood. It might well have permitted rapid advance by the French in the initial attack and is mentioned by Clay as the route of the British foray from the north. Freedom of movement might have outweighed the obvious risks of exposure against fire delivered from the cover of trees – the presence of these balls on the track is indicative of fire delivered onto or up the track. Some caution must however be displayed at this early stage as only a limited parcel of land has been surveyed and the effect might be magnified by the removal of artefacts from elsewhere.

In addition to musket shot a number of pistol balls were recovered. These were of a variety of calibres but all markedly smaller than those fired by muskets. Further analysis will shed more light on these but what their presence is indicative of is close-quarter fighting. Pistols at the time had a very limited range in comparison to muskets (as modern pistols do in comparison to rifles) and would only be used when fighting was virtually hand-to-hand, which fits well

with descriptions of the fighting in the woods. It is interesting that most of these were not found near the fringes of the wood but some distance into it, which would suggest that the combat took on more of a close quarter character within the trees.

## Conclusion

The foregoing has hopefully demonstrated that the short field evaluation has contributed important insights into the nature of archaeology in the vicinity of Hougoumont Farm. While previous excavations have concentrated on the core of the complex, most recently associated with the renovation work carried out by Project Hougoumont, the work reported here has extended across the wider environs of the complex. A key aim of these limited interventions was to ‘ground-truth’ geophysical anomalies resulting from the widespread survey carried out by the team from the University of Ghent. In a number of cases trial trenching verified the nature of the anomalies – with three of them relating to brick kilns, while another represented the less extensive remains of the reenactor’s campfire. Other trenches, namely Trench 2, cut into the side of the bank close to the south gate, and Trench 4 in the garden, were less conclusive and will require further work before firm conclusions can be drawn.

Although the main objective of *Waterloo Uncovered* is to shed fresh light on the Battle of Waterloo through archaeological investigation, the presence of brick kilns associated with the construction of the chateau and associated farm complex at Hougoumont has made a useful contribution to our knowledge of the broader history of the area. Although the location of grave pits was not a high priority of the evaluation the foregoing has served as clear demonstration, if it were needed, that not every pit-like anomaly at Hougoumont relates to a grave. What the evaluation has effectively done is demonstrate what grave pits do not look like, which might make the task of finding them in the future a little less daunting.

Given the sensitivities associated with the graves of the dead, on a battlefield or anywhere else, it is vital that any archaeological project that seeks to locate graves is clear about its motivations and objectives. It can be stated here that any attempt to accomplish this at Hougoumont would be as low key and unintrusive as possible. There is much to be said for locating the graves, in the first instance via geophysics and then verifying their presence through limited excavation, in order that they can be preserved for future generations and suitably marked. Additionally, marking graves at Hougoumont would serve to remind visitors of the costs of warfare and the realities of a battle, which it is all

to easy to romanticise and objectify. To this end it is likely that any long-term programme of research will have the identification of graves on the agenda.

The evaluation made an obvious contribution to our understanding of archaeology directly associated to the battle through the deployment of metal detector surveys. This element of the project had several objectives, with the most basic being an assessment of the nature and extent of artefact scatters related to the battle and their potential for providing fresh insight into our understanding of the events of 1815. A further objective was to assess the impact of illicit metal detecting and collecting.

It was clear from the relatively small quantities of material recovered, given the massive quantities that must originally have been deposited, that much damage has been done to the archaeological resource by hobbyist detectorists. The initial plan to limit these surveys to sample transects spaced at five metre intervals was soon abandoned as it became apparent that metal artefacts were present in relatively small numbers and in diffuse concentrations. Despite this expansion, the surveys were still limited in scale, not least because large areas of interest were un-accessible due to the presence of crops in fields. Perhaps the most telling result was that only 51 lead projectiles were recovered from areas where many thousands must have originally existed, in places such as the killing zone directly in front of the defended garden wall, where just two were found.

On a more positive note, concentrations of artefacts were identified elsewhere, and despite low densities these appear to reflect patterns of combat activity, though as noted above it is still too early to draw firm conclusions.

The results of the work outlined above will form the basis for a fuller technical report (Data Structure Report) that will appear in due course (in which, for instance, all contexts will be included). The intention here has been to produce as full a report as possible within as short a time frame as possible following the initial phase of fieldwork.

The results of the evaluation will go on to inform a project design, which will detail the nature of the fieldwork to be carried out during the next phase of the project (July 2015).

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Project Hougoumont

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