Farming in Protected Landscapes

Community Geophysical Survey at Drumburgh

Report on Geophysical Survey at Drumburgh Castle Farm
Drumburgh, Wigton, Cumbria, CA7 5DW
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Summary

An application was successfully submitted to the Solway Coast National Landscape DEFRA Farming in Protected Landscapes (FIPL) Scheme to undertake an extended geophysical survey of land at Drumburgh Castle Farm in Cumbria. The aim was to use magnetometry and resistance survey to gain a fuller understanding of the extent of archaeological activity at Drumburgh.

The survey was undertaken between 25th November 2024 and 7th February 2025 and was successful in revealing a complex picture of archaeological activity, with anomalies identified in all survey areas. Accurate interpretation of the anomalies identified will only be possible with targeted excavation and this will be the focus of future community archaeology work.

Although the survey did not reveal any conclusive evidence for the fort of *Congavata*, some of the anomalies recorded may relate to Roman activity. In particular, the magnetometry and resistance survey show anomalies on the scheduled line of Hadrians Wall which may represent the wall and north ditch. Furthermore, the magnetometry survey revealed an arrangement of anomalies which would be consistent with the projected location of milecastle 76. Excavation of this site in the future will assist in our understanding of whether the wall continued across the marsh to the east.

This survey report identifies several archaeological anomalies of unknown date and function but will be an invaluable resource in helping to target future community fieldwork to deepen our understanding of the history of settlement and activity at Drumburgh.

Acknowledgements

We would like to thank the landowners, all of the Hodgson family, for permission to undertake the survey and for their warm welcome and enthusiasm throughout the project. In particular we would like to thank Sarah Hodgson for her time, local knowledge, enthusiasm and hospitality. We would like to thank our team of dedicated community volunteers, without whom the excavation could not have been completed.

We are also very grateful to Graeme Westmorland from the Solway Coast National Landscape and the DEFRA Farming in Protected Landscapes (FIPL) Scheme for funding this community research project.

1.0 Background

This project enabled a team of enthusiastic local volunteers, led by Grampus Heritage, to undertake an archaeological geophysical survey on land at Drumburgh Castle Farm, Cumbria. The survey was instigated at the request of the landowners due to the high archaeological potential of the location, the close proximity of the medieval site of Drumburgh Castle and the scheduled course of Hadrian's Wall on this land. The location of a proposed milecastle (Milecastle 76) was included in the survey area as the location of this has never been proven. The project aimed to complete a comprehensive survey, with both magnetometry and resistivity techniques, to gain as much information as possible about the nature and extent of archaeological activity in the area. The survey results can then be used as a basis for further community archaeology work.

2.0 Fieldwork Methodology

Magnetometry: The magnetometer survey was conducted using a Geoscan FM256 dual fluxgate gradiometer system, with data processed using Geoscan's Geoplot 3 software. The survey was conducted at the following resolution: 0.1nT readings, traverse interval 1m, readings taken every 0.25m in the traverse direction. (0.5 X 0.25).

Resistivity: The resistivity surveys were conducted using a Geoscan RM85 resistivity meter with multiplexer, a PA20 beam and parallel-twin four probe array. The survey was undertaken at a resolution of 1-meter traverse interval with readings taken every 0.5 metres in the traverse direction. (1 X 0.5)

A physical grid of 20m cells was established on each site using hand tapes and grid pegs. Traverse lines were established on each grid to enable accurate coverage of the survey area. The same survey grid was used for both magnetometry and resistivity to allow for a direct comparison of results.

Following completion of the geophysical survey, a total station (Leica TST) survey was conducted which included the grid and known reference points to allow for accurate georeferencing of the survey data and to enable anomalies to be located on the ground for future research.

3.0 Results

All figures are presented in Appendix 1 of this report. Figure 1 gives the survey location and. Figures 2 and 3 show the whole area surveyed. There are slight differences in the total area covered by magnetometry and resistance. Geophysical survey results are shown as composite plots of the main survey area around the village in figures 4 and 6, with the scheduled area as an overlay in figures 5 and 7. Separate plots for magnetometry and resistance are shown for each survey area where archaeological anomalies were found. Interpretation is offered for the main archaeological anomalies along with the survey results. The relevant figures will be referred to in the text below.

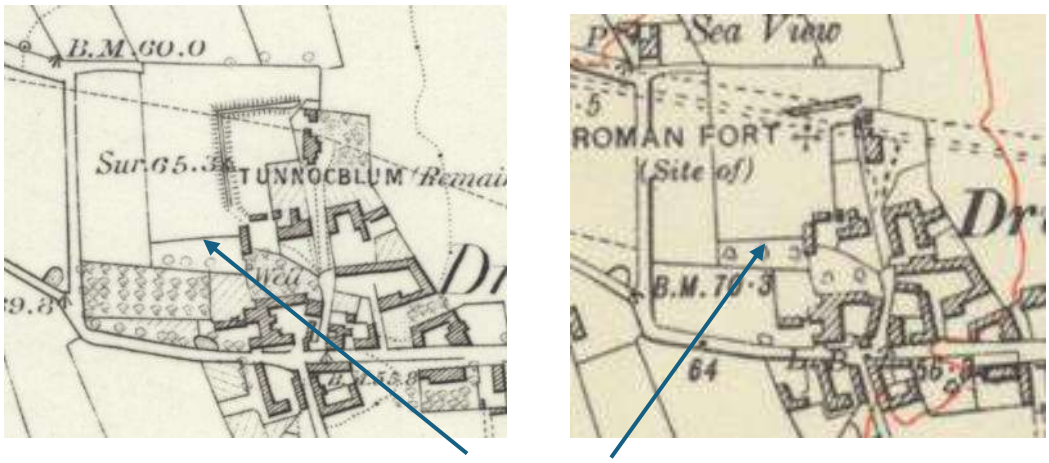
3.1 Northern Survey Area

3.1.1 Northern Survey Area Magnetometry

The survey began in the field immediately to the north of the Grange. This area contains a visible earthwork in the form of an L-shaped ditch, interpreted as part of a medieval Grange (Haverfield. 1899). A large part of the area is a scheduled monument protecting the course of Hadrian's Wall and the fort of *Congavata*, as interpreted from the 1947 excavations (Simpson & Richmond. 1952). The magnetometry survey in this area worked well with an overall low magnetic variation across the field (Figure 8). The strongest magnetic responses are in the southeastern part of the field, close to the Grange. The strong magnetic disturbance in this area is likely modern and related to activity at the farm. The landowner informed us that this was the location of a sileage heap as painted by local artist Sheila Fell.

The northern part of the surveyed field found no evidence of archaeological activity, apart from the visible ridge and furrow pattern and some geological banding in the drumlin. A drainage pattern is visible in the western part of the field and a metal water pipe can clearly be seen curving across the central survey area. An old hedge boundary and trackway can be seen on an east/west alignment

in the northern part of figure 8. Three possible pits are highlighted in purple, two of which are on the platform defined by the L-Shaped ditch. The most interesting anomalies are in the southern part of this survey area where we can see linear anomalies on an east/west alignment and an area of magnetic disturbance. This area was defined by an east/west aligned boundary and is marked as an orchard from the first edition Ordnance Survey map of 1868 until 1951. This is significant as the orchard boundary hedge would still have been there during the 1947 excavations.



Left: 1868 OS Map Showing Orchard Boundary
Right: 1951 OS Map Showing Orchard Boundary

3.1.2 Northern Survey Area Resistance

The resistance survey in this area shows both high and low resistance anomalies and the results are shown in Figure 9. In the southwestern part of the survey, a circular feature can be seen as an outer low resistance arc (ditch?) with an inner higher resistance (stone?) band. The high resistance circle has a diameter of 10.7m. The southernmost part of the feature is underneath the garden of the bungalow to the south, but the overall feature is interpreted as circular or sub-circular. An area of relatively higher resistance to the north of the circle, with some higher resistance anomalies within, may be associated with the circular feature. A dotted purple line shows a possible structure within this area but this is offered with low confidence due to the faint nature of the anomaly. To the north of this, a rectilinear low resistance anomaly is highlighted in blue. This suggests a cut feature in the ground. To the east of the circle, a north/south band of high resistance marks the base of an old hedge field boundary.

In the southernmost part of the Figure 9 plot we can see the orchard boundary as a strong east/west aligned linear anomaly. The feature has a high resistance band in the centre (stone) bounded to the north and south by lower resistance. An area of high resistance at the eastern end of this feature suggests stone in the ground.

The metal waterpipe seen in the magnetometry results can be seen as a clear, low resistance curving linear anomaly in the central part of the plot. The old east/west aligned hedge boundary can be seen as two parallel lines of high resistance in the north of Figure 9. The ‘sileage heap’ position, seen as magnetic disturbance in figure 8, shows as a low resistance anomaly highlighted in green. The eastern side of the visible earthwork ditch shows as a north/south aligned high resistance band, suggesting a concentration of stone along the inner ditch edge. To the east of the north/south ditch, on the platform defined by the L-shaped ditch, we can see two low resistance anomalies highlighted in blue. These appear to meet the visible ditch which forms the western side of each of these features. The low resistance nature of the anomalies suggests cut features or ditches but these may

also be the result of stone robbing activity. It is worth noting that the low resistance feature in the northwest corner of the platform is very close to the location of the 1899 excavation (Haverfield. 1899) and may be related to this activity.

This survey area includes the scheduled course of Hadrian's Wall and the fort of *Congavata*. Without the benefit of previous excavations and research we would not identify any such features from these results. The magnetometry does not show the course of the wall or the eastern side of the fort, which is projected to be within this area. The resistance survey also does not show any evidence for the eastern side of the fort. A very faint anomaly can be seen in the resistance results which does correlate to the scheduled course of the wall. The anomaly is poorly defined but the lower resistance band is highlighted in dark blue in Figure 9. To the south of this is an irregular band of slightly higher resistance which may be equally relevant when attempting to locate the wall within these results.

3.1.3 Northern Area Discussion

The results of the survey work in this area show a good correlation with previous survey work undertaken by Alex Turner in 2021-2022, particularly in the high level of modern magnetic disturbance in the southeastern part of the survey area. The circular anomaly seen in the southwestern part of the resistance survey is clearly an archaeological feature but of unknown period and function. The lack of magnetic variation or disturbance in that area rules out an industrial purpose for the structure. Located on the western high point of the drumlin means that visibility within the landscape, or intervisibility with other locations, may be relevant. This would be important when positioning a burial mound or watch tower for example.

The east/west aligned orchard boundary to the south of the survey area shows particularly clearly in the resistance survey but with good correlation in magnetometry. It is perhaps no surprise that the boundary was detected, given its existence as a hedge boundary until the latter part of the 20th century. The signal and strength of the boundary in resistance is, however, somewhat surprising when we consider how other removed hedges appear in the results. The strong high resistance linear anomaly suggests a stone line bounded to the north and south by lower resistance. This may be a hedge bank, with corresponding ditch to either side, but such a signal may also be the result of a stone core with robbed facing stones. The potential of stone wall remains, fossilised into a hedge base, is worth further investigation. The area to the south of this old boundary may also have escaped extensive agricultural improvement, being used as an orchard since at least 1868. As such, any archaeological remains may have a better state of preservation than those to the north of the boundary.

It was noted in 1899 that the excavations encountered a significant depth of rubble on the interior of the ditched platform (Haverfield. 1899). The resistance survey shows the platform, defined by the L-shaped ditch to the north and west, as higher resistance than the land to the west, which supports this.

The survey revealed no conclusive evidence for the fort of *Congavata* in this field, unless the orchard boundary is a fossilised part of this structure. We would not have identified the course of Hadrian's Wall from the survey results alone, but close examination of the resistance survey results along the line of scheduling do show a faint anomaly in the form of an irregular band of low resistance with higher resistance to the south. Such faint anomalies would usually be attributed to changes in the natural underlying geology but, in this case, the anomaly is highlighted for discussion. Excavations in 1899 and 1947 concluded that the wall stone had been removed, which is to be expected in an area like Drumburgh with no natural building stone. A photograph from the

1947 excavation shows a line of flat sandstone slabs measuring one and a half feet in width. This is interpreted and labelled as "*Drumburgh: cracked flag footing of stone wall devoid of solid internal foundation. Looking E*" (Simpson & Richmond. 1952). The photograph and interpretation is surprising as the feature has the appearance of being a stone-slabbed water culvert or drain. The interpretation in the report states that "*The thin footing-flags, unprovided with adequate foundation, had almost everywhere snapped on the line of the face of the Wall, where its superincumbent weight cracked them*" It seems strange that a line of 1.5ft wide sandstone slabs, without clay bonding, would be used as a foundation for the stone-built wall, and only for the outer faces. Only one line of slabs was recorded and there is no record of whether the slabs were lifted to see if there was a drain beneath. Even if the wall was constructed in this way, it seems odd that such thorough 'stone robbers', having so neatly removed all of the wall above, would leave behind this useable and unbonded line of slabs. It is worth noting that the scheduled line of Hadrian's Wall at this point runs broadly east west and meets the corner of the visible L-shaped ditch earthwork. This would be a reasonable course for a stone-flagged drain to outflow into the pre-existing ditch at the eastern end.

3.2 Eastern Survey Area (The Croft)

3.2.1 Eastern Area Magnetometry

The magnetometry survey of 'The Croft' field worked well with no interference from underlying geology. The results are shown in figures 10 and 11. The scheduled line of Hadrian's Wall runs diagonally across the field from WNW to ESE, broadening at the eastern end of the field for the projected position of Milecastle 76. A visible broad ditch follows this line across the field on the northern side of the scheduling, culminating in a drain outflow at the eastern edge. The eastern edge of the field is where the drumlin would meet the marsh before the construction of the canal.

The magnetometry results show two intermittent anomalies which can be interpreted as two broadly parallel lines on the course of the scheduled monument. The northern line of positive anomalies is highlighted in brown in figure 11 and correlates well with the course of the visible ditch in the field. The cause of these anomalies may be related to varying fill of the ditch or the disturbance to lower fills during drainage. To the south of this, on a broadly parallel alignment, we can see another intermittent line of positive anomalies which are highlighted in green in figure 11. In the centre of the plot we can see two positive linear anomalies meeting the WNW / ESE alignment at right-angles. This creates an apparent rectilinear arrangement but raises some concern that the anomalies may be related to a drainage pattern. At the far eastern end of this alignment, we can see a rectilinear arrangement of anomalies formed by 4 large possible pits or postholes, highlighted in purple in figure 11. The feature appears to respect the line of anomalies highlighted in green, which forms the northern edge of the possible structure. These anomalies are located on something of a 'point' at the far eastern extent of the field, close to the projected position of milecastle 76. Linear positive and negative anomalies can be seen on a NE/SW alignment running to/from this feature parallel to the field boundary, highlighted in blue and red in figure 11. These follow the course of a visible low bank along the field edge. A single magnetic dipolar anomaly is highlighted in yellow which may be a kiln or oven, although there is no evidence of magnetic disturbance around the anomaly to support an industrial interpretation.

3.2.2 Eastern Area Resistance

The resistance survey of the croft field is heavily impacted by the plough pattern. North of the visible ditch running WNW/ESE the plough direction is broadly east/west but south of the ditch the field has also been ploughed in a north/south direction. This makes identification of archaeological anomalies difficult and creates a somewhat blurred image. Although the resistance survey did not cover the far eastern 'point', there is a correlation in the results with the line of scheduling. The correlation is hard to define by specific anomalies but an attempt is made to aid discussion in figure 13. With such faint anomalies in such heavily ploughed land we are at risk of 'joining up the dots' to find correlation with the scheduled line of the wall. Nonetheless, in ploughed land such as this, it is the case that we must sometimes join the dots between the plough furrows to identify once continuous features. A potential line of anomalies, highlighted in red and blue in figure 13, correlates with both the magnetometry and the line of scheduling and may be evidence for the course of Hadrian's Wall. The ditch to the north is also faintly visible, although this is likely due to the course of the drain inserted into the ditch.

A concentration of high resistance anomalies can be seen in the southern part of the plot and highlighted in brown in figure 13. These are also clearly cut through and spread by plough action but the results suggest stone in the ground and these may be the remains of stone-built structures.

3.2.3 Eastern Area Discussion (The Croft)

Both the resistivity and magnetometry surveys have a degree of correlation with the scheduled course of the wall. The magnetometry shows two broadly parallel lines of anomalies which may represent the course of the wall to the south (green in Fig 11) and the north ditch (brown in Fig 11). The magnetometry also offers two potential candidates for the position of milecastle 76. The first lies at the mid-point of figures 10 and 11, where two positive anomalies meet the possible course of the wall at right angles. There is no discernable southern wall or boundary to this arrangement. The second, and perhaps more convincing candidate, lies at the easternmost point of the field where the drumlin meets the marsh edge. Here we can see a rectilinear arrangement of anomalies measuring roughly 14m east/west by 15m north/south. If the northern extent of these anomalies is bounded by Hadrian's Wall then this is a very good candidate for milecastle 76.

3.3 Southeastern Survey Area

The magnetometry survey on the land southeast of Drumburgh Castle Farm covered an area above the old marsh edge to the west and an area on the old tidal marsh to the east called 'meadow field'. There are several linear features visible on the ground and from LIDAR on the old marsh in the eastern part of the survey.

3.3.1 Southeast Survey Magnetometry

The magnetometry results in this area showed only faintly magnetic anomalies, with the exception of a drainage pipe in the northeast of the surveyed area. The results are shown in figures 14 and 15. As anticipated, some evidence of water drainage channels can be seen on the old marsh, highlighted in blue. The fainter positive anomalies are shown in red and are interpreted as archaeological through comparison with the resistance results. The surveyed area included a visible low broad bank on the western side of the current field boundary aligned NNW/SSE. This boundary runs through the centre of Fig 15 and the parallel positive anomaly is highlighted on the western side of the fence in red.

3.3.2 Southeast Survey Resistance

The resistance survey of the southeastern area produced some striking visual results as shown in figures 16 to 18. A small paddock immediately to the east of Drumburgh castle was surveyed and is shown in the northwest corner of the plots. The landowner informed us that a borehole was dug in the western part of the small field and that water channels had been cut to manage the water flow during this process. These water channels are interpreted and shown in blue. There is a large variation in resistance in this field, with two high resistance areas highlighted in red.

In the southeastern part of the surveyed area the resistance shows a 'heart-shaped' enclosure, highlighted in purple in Figures 17 and 18. The results show a probable entrance structure, highlighted in red, on the southern part of the boundary. The heart-shape may be designed to funnel livestock into the entrance and, although undated, may relate to agricultural activity and livestock management.

The NNW/SSE field boundary running down the centre of figures 16 to 18 follows the line of the old marsh edge, with land to the west of the boundary higher than that to the east. An area of high resistance on the western side and parallel to the current fence line correlates with a visible broad low bank in the field. A positive linear anomaly was also visible in the magnetometry results in this area.

The arrangement of anomalies to the east of the field boundary is particularly interesting and relates, at least in part, to historic water management. A visible earthwork bank was targeted in the survey and can clearly be seen in the results, highlighted in yellow. The bank has higher resistance on either side, suggesting some degree of stone revetment. The feature does not show at all in magnetometry. The date and function of the earthwork is unknown and it may be a trackway, sea defense or both. The survey area just clipped the old railway track bed in the southeast corner of the surveyed area. Further to the east the railway cuts through this earthwork and the two are not thought to be related.

An area of very low resistance shows as white in the survey results and this is highlighted in blue in figure 17. It is likely that, before construction of the canal and railway, this area was tidal. The linear earthwork tapers to a narrower high resistance anomaly at the western end where it meets the very low resistance or tidal area. A white area of very low resistance represents an old water channel in the survey results aligned NNW/SSE. This watercourse was bridged by the railway embankment to the south by a stone culvert. At the western end of the linear earthwork, on the west side of the watercourse, we can see a rectilinear higher resistance anomaly. This appears to be a low platform, shown in pale green in figure 17. Immediately to the west of this we can see a higher platform in the topography and marked in darker green in figure 17.

Along the eastern side of the fence boundary the resistance survey shows an unusual arrangement of high resistance anomalies separated by low resistance. The cause of this is not clear but the lower resistance lines are highlighted as blue lines in figure 17. One possibility is that we are seeing the end of ridge and furrow lines continuing from the higher ground to the west, which are then cut through by drainage.

A separate grid was surveyed to the south of this area to look at a larger area of the old marsh edge. This is shown in figure 18. Here we can see evidence of the continuation of the water channel, with a retaining bank on the western side of the channel (Dark Green, Fig 18), apparently terminating at an area of higher resistance.

3.3.3 Southeast Survey Discussion

The arrangement of anomalies along the 'fossil' marsh edge here is interesting and should be considered in a landscape prior to the canal and railway which now, both physically and visibly, separate this area from the sea. The anomalies warrant further investigation to find evidence of date and function. Water management is clearly important but, if this was at the tidal reach, then the location may also make a convenient and sheltered harbour.

"*Certain it is that for ships of small draught and tonnage the Drumburgh Bay offers a safer and better harbourage than Bowness, which is exposed to the prevailing gales. The development of the Drumburgh haven may well have been the reason for the foundation of the fort*". (Simpson & Richmond. 1952)

3.4 Central Paddock

The opportunity was taken to work with our volunteers to survey a small paddock immediately to the west of Drumburgh Castle garden. This undeveloped land, close to the centre of the village, is marked on ordnance survey maps as an orchard between 1868 and 1951. This is particularly interesting given the reference from William Hutton (1802) who states that "*The site of the station, now an orchard, garden &c, is, with the ramparts, perfectly plain*".

3.4.1 Central Paddock Magnetometry

The magnetometry results of this area (Figure 19) are dominated by an area of strong magnetic disturbance in the northeast corner of the plot. The overall area of magnetic disturbance is highlighted in red, although it should be noted that this disturbance is more concentrated on the western side of the anomaly. This should be compared with the curving 'arc' structure shown by resistance survey in figure 20. The magnetic disturbance correlates with this resistance feature and may be the result of an industrial process.

A linear magnetic anomaly in the northwest corner of the surveyed area. The anomaly is aligned NW/SE and may be a service pipe.

3.4.2 Central Paddock Resistance

The resistance survey of this area produced interesting results as shown in figure 20. A band of high resistance runs down the western side of the paddock alongside the road. The north/south road runs at a much lower level than the surface of the field and the high resistance may be the result of some stone revetment to stabilise the land along the eastern road edge. This band of high resistance is highlighted in red and appears to project into the field in the northern part. The high resistance extends into the field to the east by around 8 meters in the southern survey area, suggesting that revetment may not be the only cause for the anomaly. The anomaly also appears to have a regular and defined eastern extent, with a clear distinction between the black high resistance and paler low resistance of the majority of the field to the east of the anomaly. Where the high resistance band turns to project into the field on a northeast alignment, the edges of the anomaly are regular and clearly defined, suggesting purpose to the arrangement and potential buried stone structure.

To the north of the high resistance band, in the northwest corner of the surveyed area, there is a distinct change from the high resistance band to curving parallel linear high and low resistant anomalies. These turn from a NW orientation to the northeast at the northern survey extent. It

should be noted that the magnetometry shows a possible metal pipe in the same area on a NW/SE alignment, though this is straight and does not follow the same curve of the resistance anomalies.

Where the high resistance band parallel to the road turns into the field we see a clear line of three clear low resistance anomalies. These are shown in pale blue in figure 20. At the southwest, the low resistance anomaly lies within the broader band of high resistance while the other two are surrounded by a band of higher resistance (red in fig 20). The low resistance anomalies may be pits but the alignment has a planned appearance. It is possible that these are the positions of trees in the orchard, with some stone clearance perhaps gathered around longer-lived trees, but this is far from certain.

At the mid-point of the northern survey extent, we can see a clearly defined anomaly as an area of low resistance bounded by the arc of a high resistance linear feature (red line in fig 20). This appears to be a cut-feature bounded by a stone wall. The magnetometry correlates well with this feature and shows a high level of magnetic disturbance in this location. The structure measures 6m E/W (internal) and extends south into the survey area by 6.8m.

3.4.3 Central Paddock Discussion

The small field surveyed represents the closest we could bring the survey to the centre of the village and castle. As such, this area was considered of high archaeological potential. The concentration of anomalies in the northern part corresponds with a plateau at this end of the field. Apart from use as an orchard, there is no record of development or past structures on the site. The good correlation between the curved structure identified through resistance at the mid-point on the northern boundary and the high level of magnetic disturbance suggests an industrial function. It is possible that this reflects activity in a ‘back plot’ belonging to a building which may have fronted onto the main east/west route through the village.

3.5 Southern Survey Area

Open-source LIDAR data was consulted during the survey to identify potential archaeological remains and survey targets. A linear LIDAR anomaly was observed as a raised earthwork bank or trackway on a north/south orientation extending 500m south of Drumburgh before joining another linear bank heading to the southeast. A sandstone clapper bridge (now unused) crosses the drainage gutter which runs around the southern side of the drumlin. This clapper bridge is of the same 3-slab model identified at other sites on the Solway and is likely medieval in date. One of the sandstone slabs has broken and has been replaced by a concrete slab. The bridge corresponds with the point at which the north/south LIDAR anomaly meets the drumlin and where two roads conjoin heading south from the village. This has been a main access route between the village and the land to the south since at least the medieval period.

The north/south anomaly had been recognised by the Roman Roads Research Association as ‘Link Road RR869 to Drumburgh Fort’ (Armstrong. 2022) but not the southeastern extension. The survey area was chosen to investigate the area where the north/south aligned anomaly appears to turn to the southeast.

3.5.1 Southern Area Magnetometry

The magnetometry results are shown in figure 21 and reveal only one archaeological feature. This is a dipolar anomaly which may be a small kiln or oven. An associated positive anomaly may be the ash rakeout from the feature.

3.5.2 Southern Area Resistance

The complexity of resistance anomalies in the area (figure 22) stands in contrast to the 'quiet' magnetometry results. The resistance survey showed several high resistance linear anomalies and a good correlation with the lidar anomaly alignments, changing from north/south to northwest/southeast at this point.

3.5.3 Southern Area Excavation

Two small trenches were opened to assist in the interpretation of these anomalies, with positions marked in Figure 22.

Trench 1 was aligned NNE/SSW and measured 9m by 1.5m. The trench was positioned to cross a NW/SE linear high resistance anomaly. A mechanical excavator with toothless ditching bucket was used to remove 20cm of ploughsoil. Below this lay the natural pale marine silt. In the southern part of the trench we found a ditch measuring 2.6m wide, corresponding with the high resistance anomaly. The ditch survived to a depth of 94cm from surface (74cm below ploughsoil). The cut of the ditch could be described as having a Punic profile, with the steeper north face at 60 degrees and the shallower south edge at 27 degrees. No dateable material or cultural artefacts were recovered from the excavated ditch fill and the central ditch fill was left in-situ due to time constraints. A land drain was recorded, though not excavated, in the northern part of the trench.

This small trench provided invaluable information in that we can now interpret the high resistance linear features as ditches, with the ditch fill offering relatively higher resistance than the natural marine silt. No associated bank or rampart remains were visible, although these may have been removed by the plough. From this small trench it is difficult to be sure about the function of the ditch. If defensive, the profile would suggest defense against incursion from the south. The ditch may be a boundary within an earlier field system, also providing surface drainage for agricultural land improvement of unknown date.

Above Left: Profile of Ditch in Trench 1, Facing Southeast.
Above Right: Ditch in Trench 1with Land Drain to the North. Facing Northwest

Trench 2 was located to investigate a narrow linear band of high resistance on a NNW/SSE alignment. The trench was 1.5m wide by 6.5m in length and aligned broadly east/west. A mechanical excavator with toothless ditching bucket removed 25cm of ploughsoil to reveal the natural marine silt. A slightly curving gully was identified on a broadly SW/NE alignment, curving slightly towards the east at the south side of the trench. The steep sided cut had a uniform dark soil fill and measured 33cm wide. The depth in the centre of the cut was 19cm. No artefacts or dateable material were recovered. The feature may be the bottom of a heavily plough-eroded ditch.

Above Left: Gully in Trench 2. Facing South
Above Right: Gully in Trench 2 Half-Section. Facing North

Both trenches revealed archaeological cut features. We are undoubtedly seeing the lower part of these features, which have been severely eroded by the plough. Agricultural activity could explain both the ditch and the gully (lower part of ditch?) but this activity remains undated. A larger excavation area would be needed to further understand the activity in this area. The dipolar anomaly shown in the magnetometry results, suggesting a small kiln, oven or hearth, is indicative of settlement activity and could be investigated in the future.

4.0 Conclusion

The geophysical survey at Drumburgh was completed by an enthusiastic and determined group of local volunteers during, at times, extremely difficult weather conditions. Archaeological anomalies have been identified in all of the areas surveyed.

As always, there are limits to our ability to offer interpretation of anomalies using survey alone. There is strong evidence for industrial activity in the central ‘paddock’ survey area, but the date and nature of this cannot be further interpreted without excavation. It is also important to remember that geophysics has the potential to show multiple phases of activity at the same time. This makes it very difficult to accurately determine relationships between features, even if they are near each other. Drumburgh clearly has significant Roman and Medieval heritage, but geophysical anomalies are rarely diagnostic enough to be accurately assigned to a specific period. The strongest evidence for the course of Hadrian’s Wall comes from the eastern area or ‘croft’ field. Here we can see a reasonable correlation between the survey results and scheduled area. We can interpret this as the course of the Wall and north ditch, leading to milecastle 76 at the eastern survey extent, pending clarification through excavation.

The many anomalies discovered during this survey demonstrate a rich archaeological landscape at Drumburgh Castle Farm. By engaging the local community in future excavations, to investigate some of these features, we will truly rewrite the history of Drumburgh.

5.0 Recommendations for Future Research

Targeted excavation of anomalies:

Northern Area: Circular feature and old orchard boundary, including land to the south of the boundary.

Eastern Area (The Croft): Proposed position of Milecastle 76. High resistance anomalies to the north and east of the barn.

Southeastern Area (Incl. Meadow Field): Possible entrance structure into 'heart-shaped' enclosure. Lower platform of possible harbour/wharf arrangement (evidence of timber piling or stone revetment?).

Central Paddock: Industrial structure in the northeast corner of the field.

Geophysical Survey:

Resistivity and magnetometry survey on land immediately to the south of the clapper bridge. Search for evidence of occupation and/or agricultural field systems along the trackway to the south.

Resistivity and magnetometry survey on land to the southwest and west of the village.

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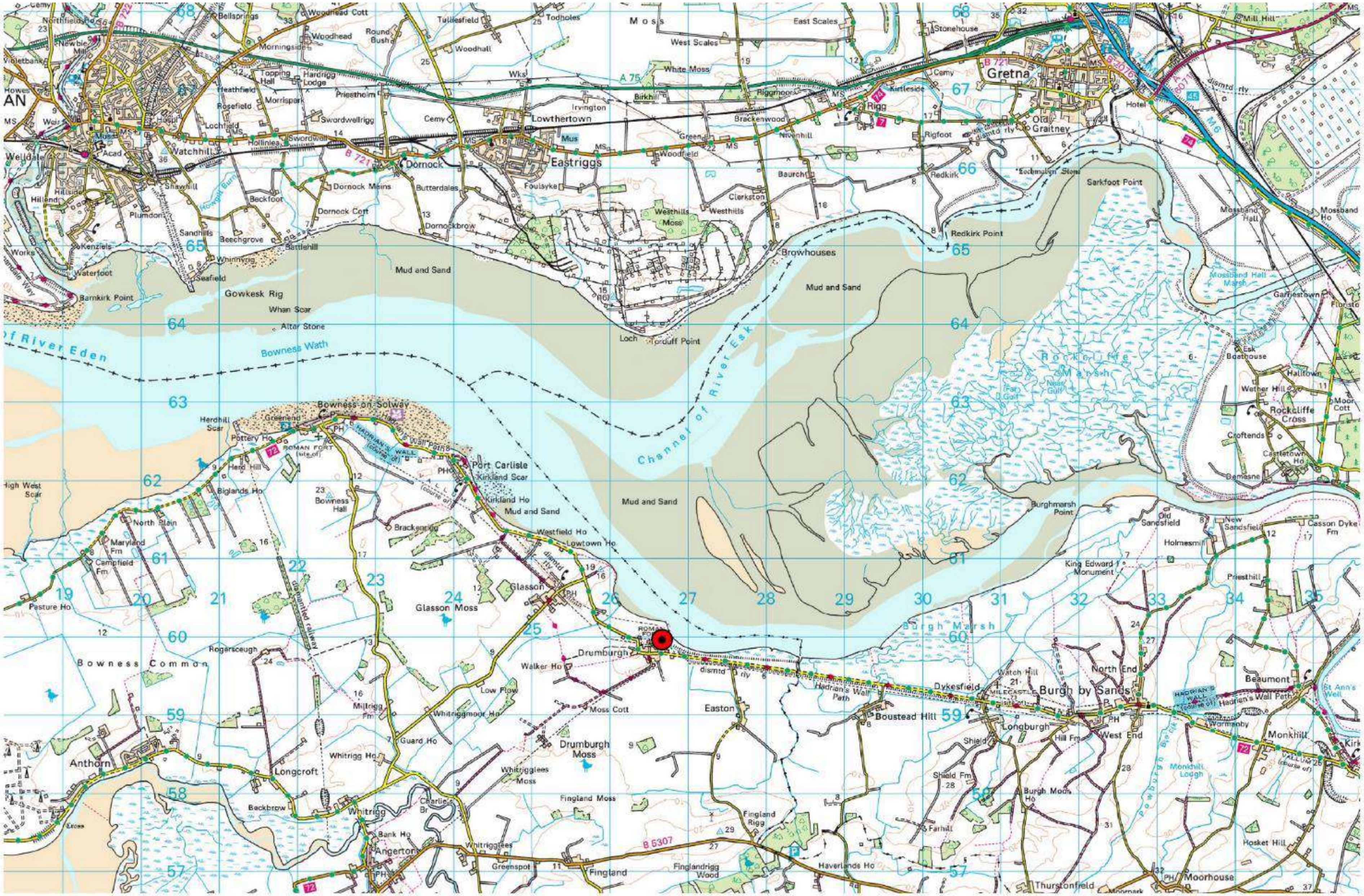
Maps: National Library of Scotland
https://maps.nls.uk/index.html

APPENDIX 1

SURVEY PLOTS

FIGURES 1 to 24



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FIPL Application
Community Archaeology
Drumburgh Geophysical Survey

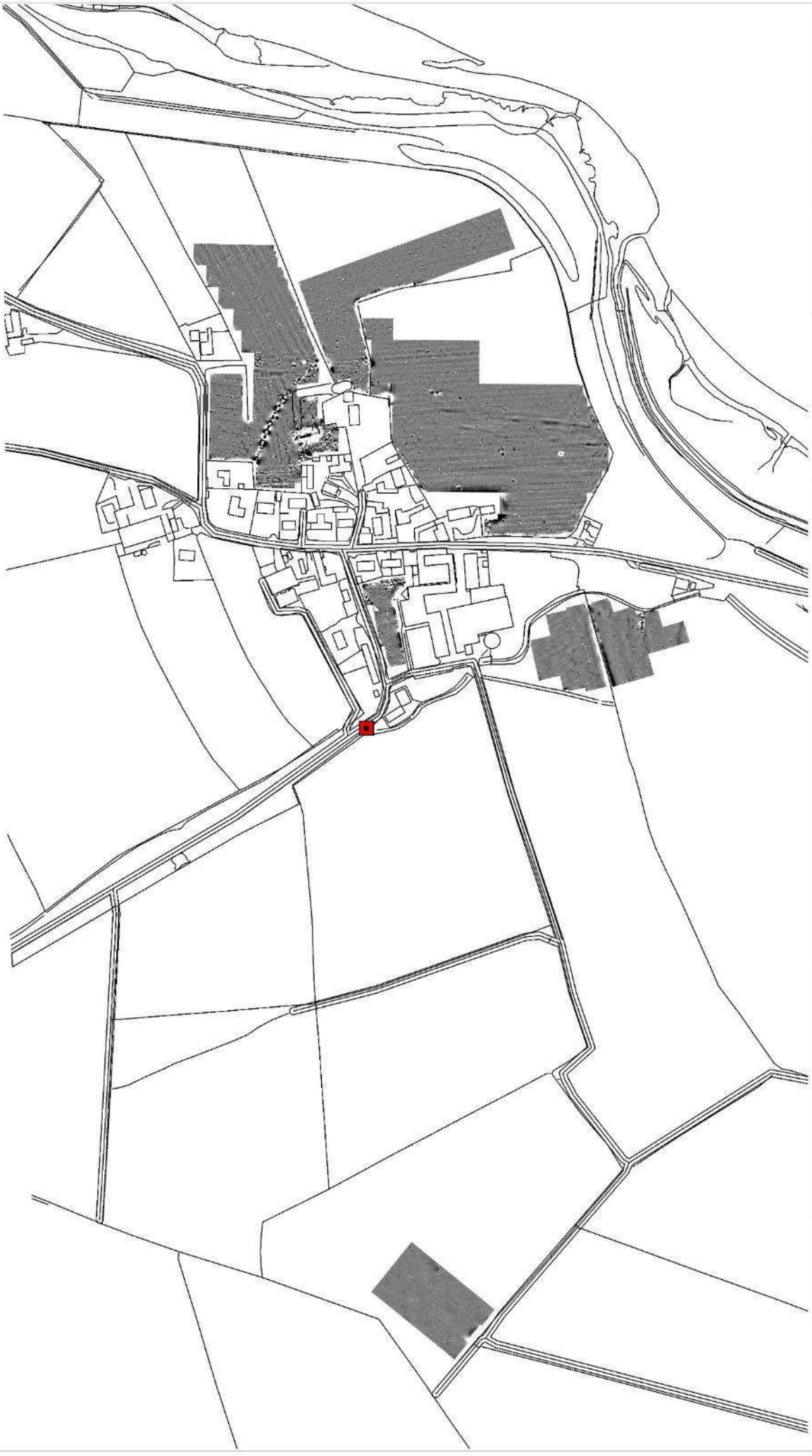
NY 2648 5992

Drawn By: MG

Date: February 2025

Survey Location

Figure 1: Drumburgh Survey Location Map



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Community Geophysical Survey
Drumburgh, Cumbria, CA7 5DW

Funded by Solway Coast National Landscape's DEFRA Farming in Protected Landscapes Scheme (FIPL)

NGR NY 2645 , 5989

Scale 1 : 5,000 (At A4)

Drawn By: MG

Date: February 2025

N

SURVEY PARAMETERS

Positive Greyscale Plot
Instrument: Geoscan RM85 Resistance Meter with Multiplexer
Gain X10
Traverse interval: 1m
Readings taken every 0.5m
Zig Zag
Grid size: 20mX20m cells
Data downloaded and processed using Geoplot 3.

Clapper Bridge

Plot Parameters

Composite Plot
+- 2.5 Standard Deviation

0 100 200 300 400 500 Meters

Figure 2: Whole Survey Area Magnetometry

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N

SURVEY PARAMETERS

Positive Greyscale Plot
Instrument: Geoscan RM85 Resistance Meter with Multiplexer
Gain X10
Traverse interval: 1m
Readings taken every 0.5m
Zig Zag
Grid size: 20mX20m cells
Data downloaded and processed using Geoplot 3.

Plot Parameters

Composite Plot
+- 2.5 Standard Deviation

Figure 3: Whole Survey Area Resistance

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Scale 1 : 2,500 (At A4)

Drawn By: MG

Date: February 2025

N

Survey Parameters

Positive Greyscale Plot
Raw Data
Instrument: Geoscan FM256
Dual System
Resolution: 0.1nT
Traverse interval: 0.5m
Readings taken: every 0.25m in traverse direction.
Zig Zag
Log zero drift function used.
Grid size: 20mX20m cells
Data downloaded and processed using Geoplot 3.

+7 nT
-7 nT

Figure 4: Main Survey Area Magnetometry

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NGR NY 2645 , 5989

Scale 1 : 2,500 (At A4)

Drawn By: MG

Date: February 2025

N

Survey Parameters

Positive Greyscale Plot
Instrument: Geoscan RM85 Resistance Meter
with Multiplexer
Gain X10
Traverse interval: 1m
Readings taken every 0.5m
Zig Zag
Grid size: 20mX20m cells
Data downloaded and processed using Geoplot 3.

Composite Plot
+- 2.5 Standard Deviation

Scheduled Area

Figure 5: Scheduled Area Magnetometry