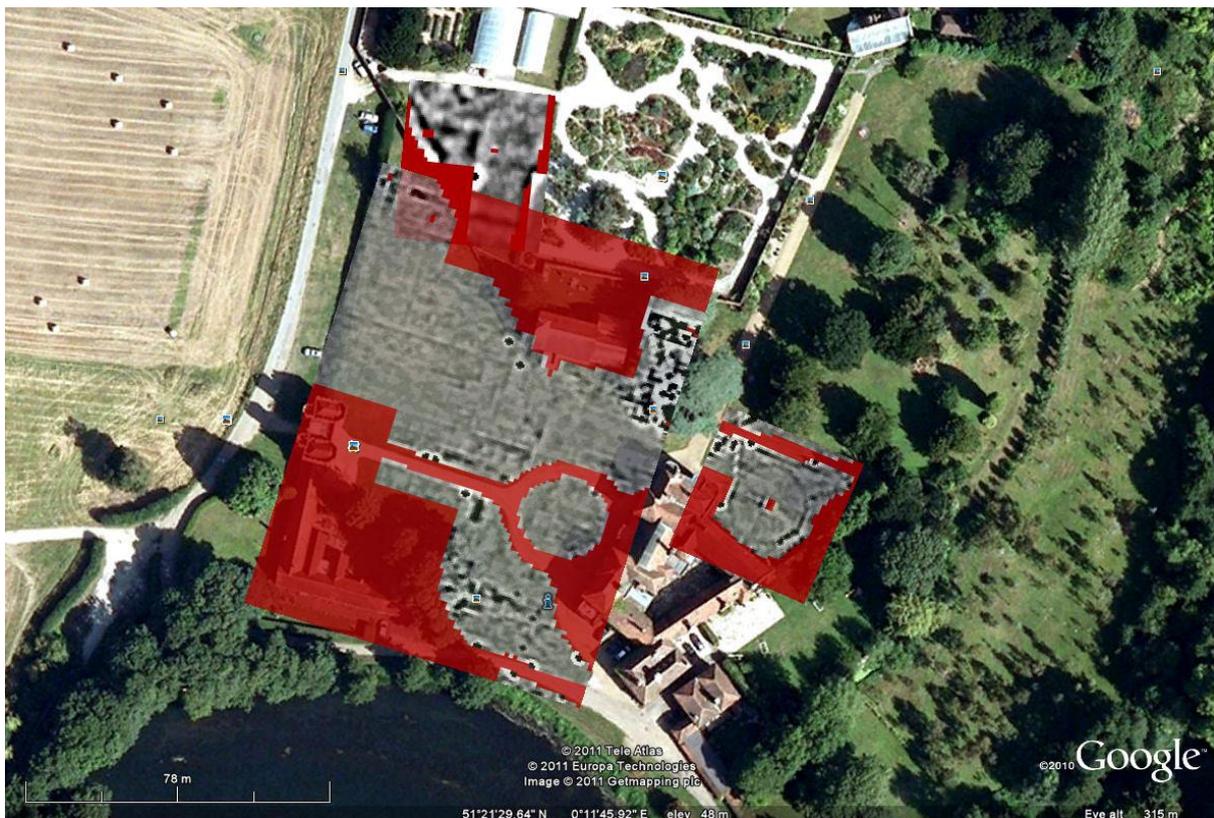


Lullingstone Castle Geophysical Resistivity Survey Eynsford, Kent



by

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Over view of the site

The site is situated beside the River Darent at grid reference TQ 5301 6437,

The site is suspected to date to Saxon era and the early Saxon church of St John The Baptist would suggest the presence of a vibrant population dating to this era.

Evidence to support this belief was enforced by a find at the nearby monumental railway viaduct. During its construction in 1861, the Lullingstone bowl a remarkable bronze-hanging bowl was found in a disturbed Saxon grave.

However the site has substantial Roman activity and demonstrated by the location 800 meters from the site of Lullingstone Roman villa.

The villa built about 100 AD, with later phases of extensive rebuilding, expansion and remodeling, the site is particularly important for evidence of early Christianity. The first villa consisted of a large winged house originally built of wattle and daub on flint footings, constructed circa 100 AD.

It was rebuilt and expanded in stone in the second half of the second century. A point of interest for this phase is that finds from the site may suggest that the house could have been associated with Publius Helvius Pertinax, governor of Britain AD185-6 and briefly emperor in AD 193. Between 200-275 AD, the kitchen, found at the rear, was converted into a tannery however recent research has cast doubt on this and the tannery pit is now believed to be a ritual feature.

North of the main building are the remains of a mausoleum built in the early 4th century and incorporated into a late Saxon church. Further north are the remains of a circular building.

Between the villa and the river are the remains of a courtyard and on its north side the remains of a granary were excavated. The north side of the villa was remodeled circa between 275-350. From circa 360 the large apsed dining room was built. Also from circa 360 AD the north rooms were converted into a Christian chapel, pagan worship may have continued in a room below this.

The house-chapel contains a set of wall paintings with clear Christian symbolism, which is unique in the context of a Roman villa from Britain. The villa was apparently abandoned after a fire during the 5th century- possibly around 420, though because of the lack of coin evidence it is hard to be certain

The Church of St John the Baptist, (GR TQ 5298 6509) is situated outside the north gate of Lullingstone Park, and was united with Lullingstone Church in 1412. The site was in ruins when first recorded in Hasted History of Kent published in 1778

The flint rubble footings of this church were discovered during the excavation on the RB temple-mausoleum at TQ 5298 6509 which is part of the Lullingstone Roman Villa site.

It was a single cell, measuring some 32 feet by 16 feet externally, and orientated to take advantage of the cellar or cult chamber walls of the temple as foundations. About a dozen probably medieval burials were found to the South of the church.

Lullingstone Chapel is first mentioned in the Chrism Rent Roll of the diocese of Rochester in AD 1115, which may be an adaption of an existing Roll.

John Thorpe published an account of the chapel in 1788 in his book *Custumale Roffense*. He suggested that the church already in a ruinous state was of Saxon date.

The Domesday Survey of 1086 records three land holdings in the area under the name of Lolingeton(e), but does not record the chapel at Lullingstone.

Integration of the HER shows the presence of a Late Iron Age and Roman settlement Lullingstone Park. Excavated in 1964-5, revealing a ditched enclosure, approximately 60 by 67 feet, associated with stratified pottery of the first century.

A small village, now deserted, straddled the Roman villa site and was probably connected to the church and the development of the early manor house that more than likely lay on the current Castle site

The Peche family, from whom the present residents are descended, acquired Lullingstone from John de Rokesley [Ruxley], alderman of the City of London, soon after his death in 1361. Rokesley's is the oldest memorial in the church of St Botolph, which lies within the grounds of the castle, a brass plaque bearing his coat of arms—a cross with a chess rook, in a punning reference to his name.

The Peches were also prosperous merchants seeking gentrification by the acquisition of estates near London. John Peche (died 1380) was Lord Mayor of London in 1361, a draper and possibly a fish merchant, who briefly secured the monopoly for sales of sweet wine in London and enjoyed several royal appointments.

The present building was built in 1497 by John Peche, which has been passed down through generations of the same family for six hundred years, and is still owned by them today.

John Peche had spent much of his adolescence at the court of Henry VII, and took place in the Royal Jousts. His helmet still hangs in a place of honour, above the fireplace in the Dining Room at Lullingstone Castle. In 1495 he became the Sheriff of Kent, and two years later was knighted, following the Battle of Blackheath. It was about this time that Sir John Peche commissioned the Henry VII Gatehouse to be constructed - one of the first of its kind in England to be built entirely of bricks.

Although Lullingstone Castle has well-preserved Tudor features much of what is seen today dates from the extensive alterations and refurbishment carried out during the reign of Queen Anne, who was a frequent visitor to Lullingstone.

The building built in 1497 consisted of two courts, each entered through a brick

gatehouse. The inner court was surrounded by a moat, around which ran a low crenellated wall on both sides. Its form is known from several early views of the house, including a preparatory drawing for a lost oil painting of about 1670–80. The distinctive outer gatehouse survives, with paired polygonal towers of different sizes on its inner and outer faces. Other examples of this form of gatehouse survive, such as Henry VIII's gate to the lower ward at Windsor Castle, begun in 1509 and the nearby Otford Palace. All of them were probably designed by masons working from London.

The gatehouse displays Sir John's heraldic shield and retains its original doors. It has been much restored, having been hit by a V1 doodlebug in 1944.

The then owner demolished the second gatehouse in 1765, on the grounds that he could not abide having to cross a bridge every day to leave and enter his house. Its demolition left a vast lawn between entrance and house. Much of the fabric of Sir John's residence survives, however, behind the sash windows and hipped roof of the Queen Anne façade. It consisted of a two-storey hall in the centre with three-storey cross wings to either side, and service ranges running behind and around to form a courtyard at the back. This internal courtyard, although rendered, retains its 16th-century identity, with an original doorway and several mullioned windows

Outside in the grounds of Lullingstone Castle, the remains of a tiny Bath House can be found. The bath was located over a spring, whose waters was reputed to have medicinal properties, and was originally built for Queen Anne. The rectangular brick bath is about 12 feet long by 8 feet wide surrounded by brick and flint oval-shaped wall now ruined but rising to a height of about 8 feet. The building is listed as a Grade II structure.

Mentioned above and lying within the grounds of the Castle is the small church of St Botolph, which has been extensively restored since its Norman origins and contains many memorials to the Hart and Dyke families.

It has several unique features such as an ornate Flemish rood screen and a wall-mounted Queen Anne period 'cabinet' font.

The present church sits on Norman foundations but the dedication to St. Botolph (active in Kent and East Anglia 654 to 670AD) may indicate that the Norman church simply replaced a earlier Saxon one. The present walls are all thought to be early 14th century (Decorated Period) but the church has had some notable later additions.

The rood screen (circa 1502-1520) is Flemish but bears the Tudor Rose and pomegranate of Katherine of Aragon as well as the peach badge of Sir Jonh Peche. The screen is thought to have been inspired by the metal screenwork around the tomb of Henry VII at Westminster Abbey. It has been suggested that Westminster's Pietro Torregiano was responsible for Lullingstone's screen or at least the same Flemish craftsmen may have imitated their master's work.

Some of the stained glass also dates from this period and was fortunate to survive

the depredations of the Puritan period. Later glass is the work of William Peckitt (1731 - 1795) who also worked on York Minster. Successive owners of Lullingstone Castle, the Peches, the Harts and the Dykes appear to have employed the best craftsmen available.

Queen Anne was a frequent visitor to the castle and attended service in the church. It was during her reign that the church walls were raised about a metre with red brick (conspicuous outside) by Sir Percyvall Hart and a stunning Baroque plastered ceiling was installed inside.

The wall mounted cabinet font is also from this date but was stained following the Great War by former soldiers bringing back water from the River Jordan in the Holy Land to perform baptisms. It seems the water rusted the inside their military drinking flasks.

Also notable is the stunning North Chapel. The interior of this is a riot of heraldry as the owners of the castle displayed their connections to many historic families. The tomb of Sir John Peche lies at the entrance while, inside, is the table tomb of Sir George Hart and his wife Elizabeth Bowes. The entire west wall of the chapel is the memorial of Percyvall Hart family.

Close to the site lies A Second World War bombing decoy airfield. It was built to deflect enemy bombing from Royal Air Force Biggin Hill airfield. The site operated as both a 'K-type' day decoy and a 'Q-type' night decoy.

The 'K-type' decoy consisted of a replica airfield equipped with dummy Hurricane aircraft. It was operational from 1940 until its closure on 11th June 1942. The 'Q-type' decoy displayed a sequence of lights, which when seen at night resembled an active airfield.

This decoy was operational between 1940 and 1942. By the 1980s the site had become part of a golf course and no features of the decoy survive.

Lullingstone was also the location of a 'Starfish' decoy to protect the city of London. The 'Starfish' decoy operated by lighting a series of controlled fires during an air raid, to replicate an urban area targeted by bombs. The site was decommissioned in September 1943.

The two sites were so closely located that they shared personnel and an operations room.

Geology

Bedrock Geology

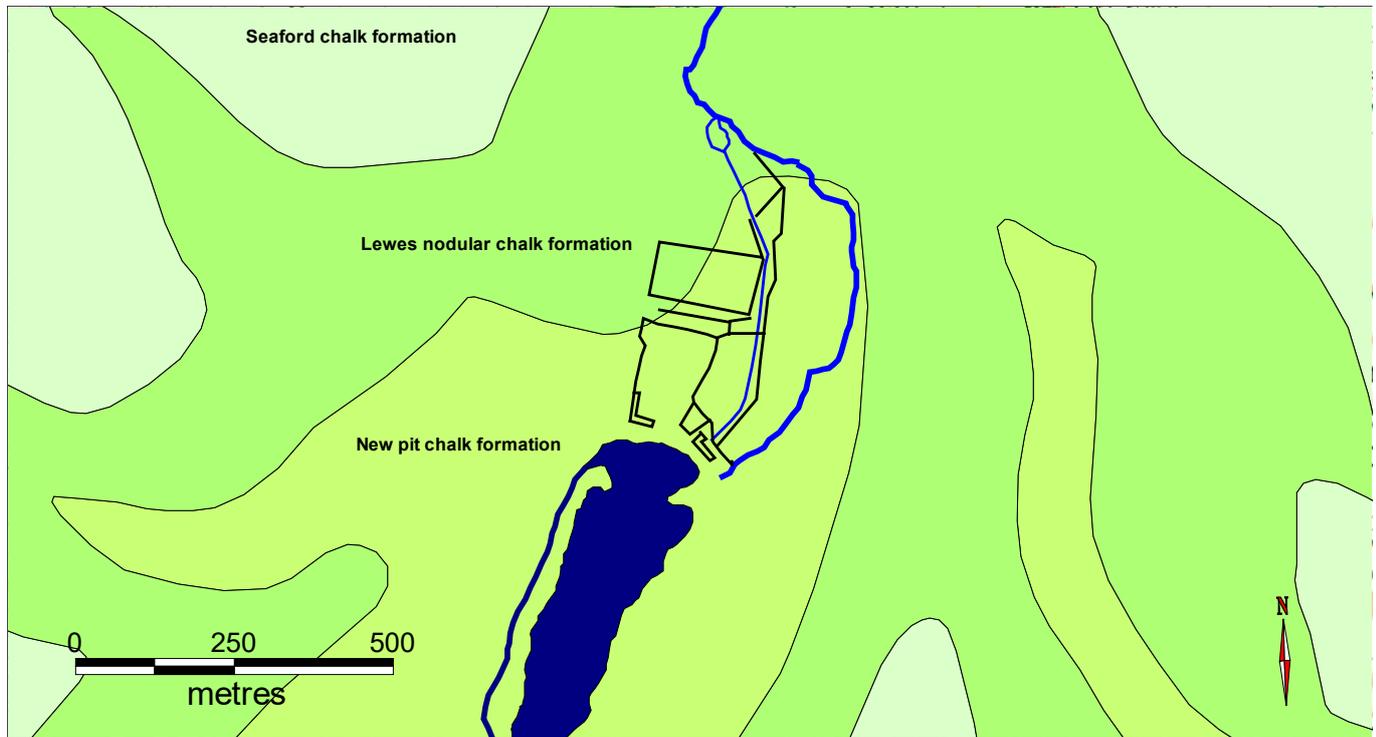


Figure 1. Bedrock geology formations in Lullingstone Castle area. (© Crown copyright / database right 2011. An Ordnance Survey / EDINA sponsored service)

Superficial geology

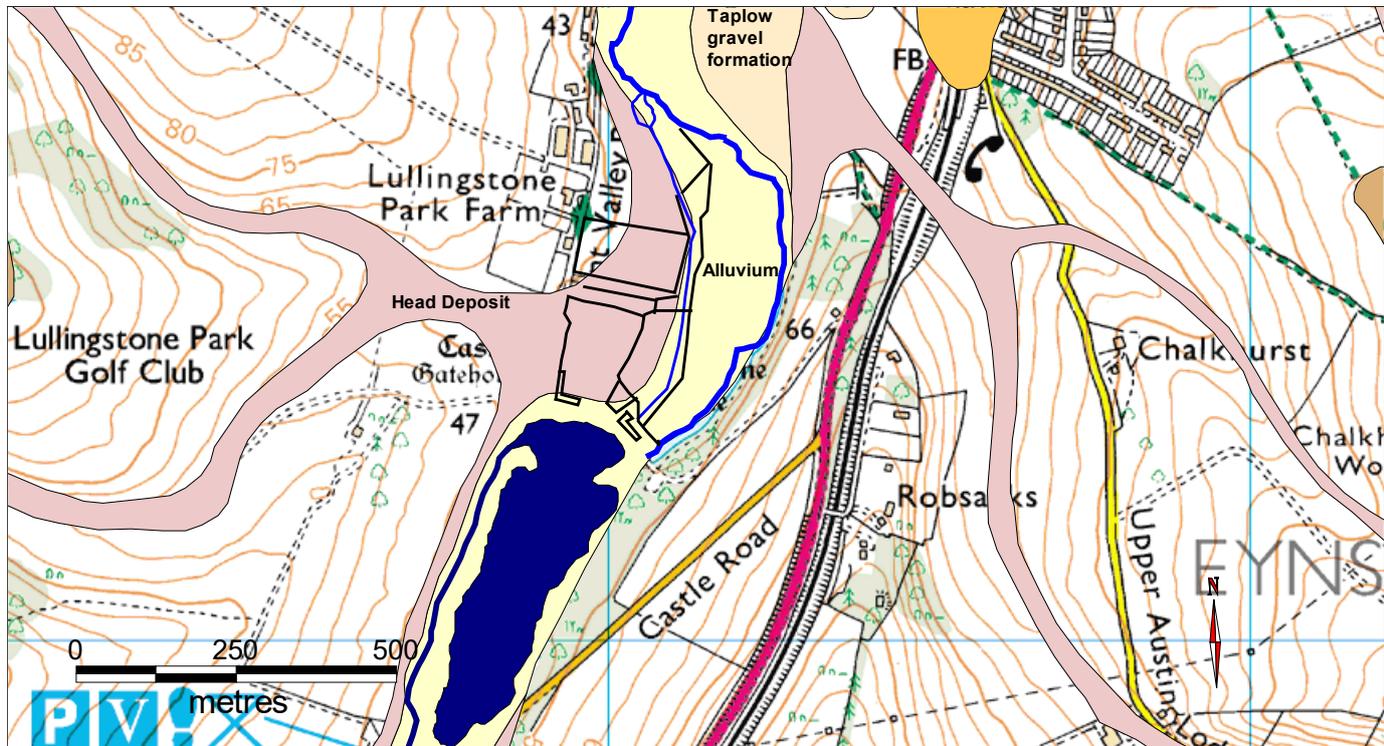


Figure 2. Superficial geology formations in Lullingstone Castle area. (© Crown copyright / database right 2011. An Ordnance Survey / EDINA sponsored service)

Survey Brief

The West Kent Archaeological Society were invited by the Hart-Dyke family to undertake a geophysical survey of the front lawn area in April 2011. They were particularly interested in trying to locate the position of the inner gate house and moat which were removed and filled in 1765. WKAS were also given permission to carry out a geophysical survey on part of the world garden area to the North West of the church.

Methodology

The site was surveyed using a RM15 Resistivity Meter, using 20 x 20m grids, with the lines separated by 1m and readings taken every 1m, making a total of 400 data points per grid. The weather was dry with little rain over the preceding week

The results were processed using Snuffler geophysics software and the following filters were used to clarify the initial data;

- 1) Destripe
- 2) Edge correction
- 3) Despiking
- 4) Interpolation

Grid reference for the 4 corners of the main survey area;

NW - TQ 552936 164465
NE - TQ 553868 164417
SE - TQ 552914 164377
SW - TQ 552988 164358

Results

Main Lawn Area

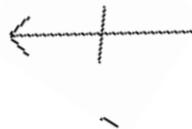


Fig 3. Resistivity survey results April 2011. Linear / greyscale display settings.
Grid size 240 x 160, size in metres 120m x 80m.

World Garden Area

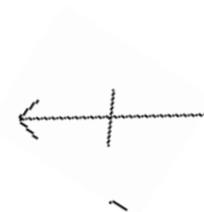
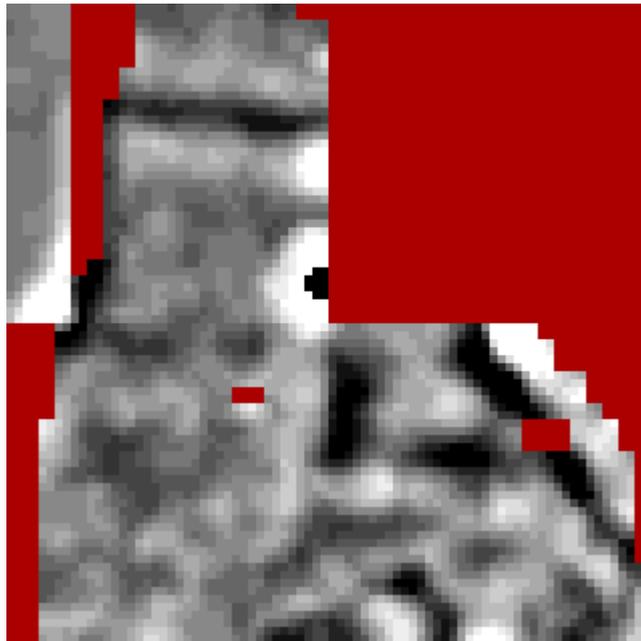


Fig 5. Resistivity survey results April 2011. Linear / greyscale display settings.
Grid size 80 x 80, size in metres 40 x 40

North Wing Lawn

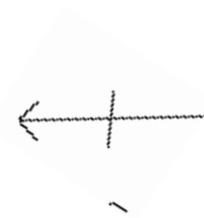
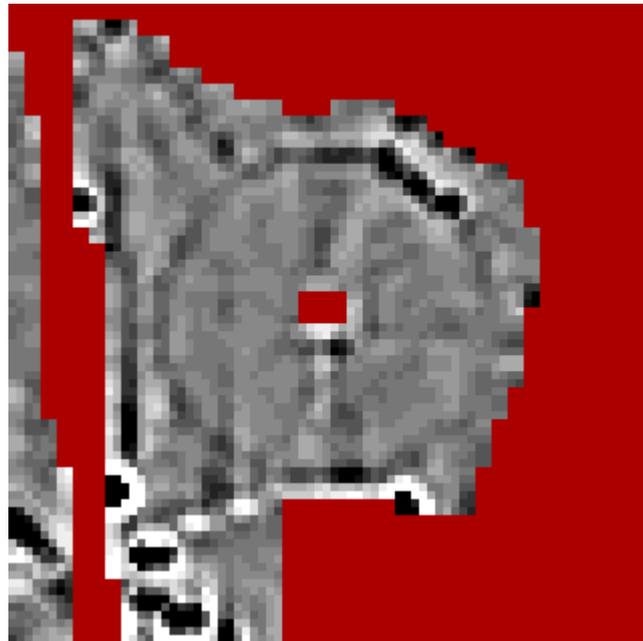


Fig 6. Resistivity survey results April 2011. Linear / greyscale display settings.
Grid size 80 x 80, size in metres 40 x 40

Overlay of geophysical survey results onto Google Earth

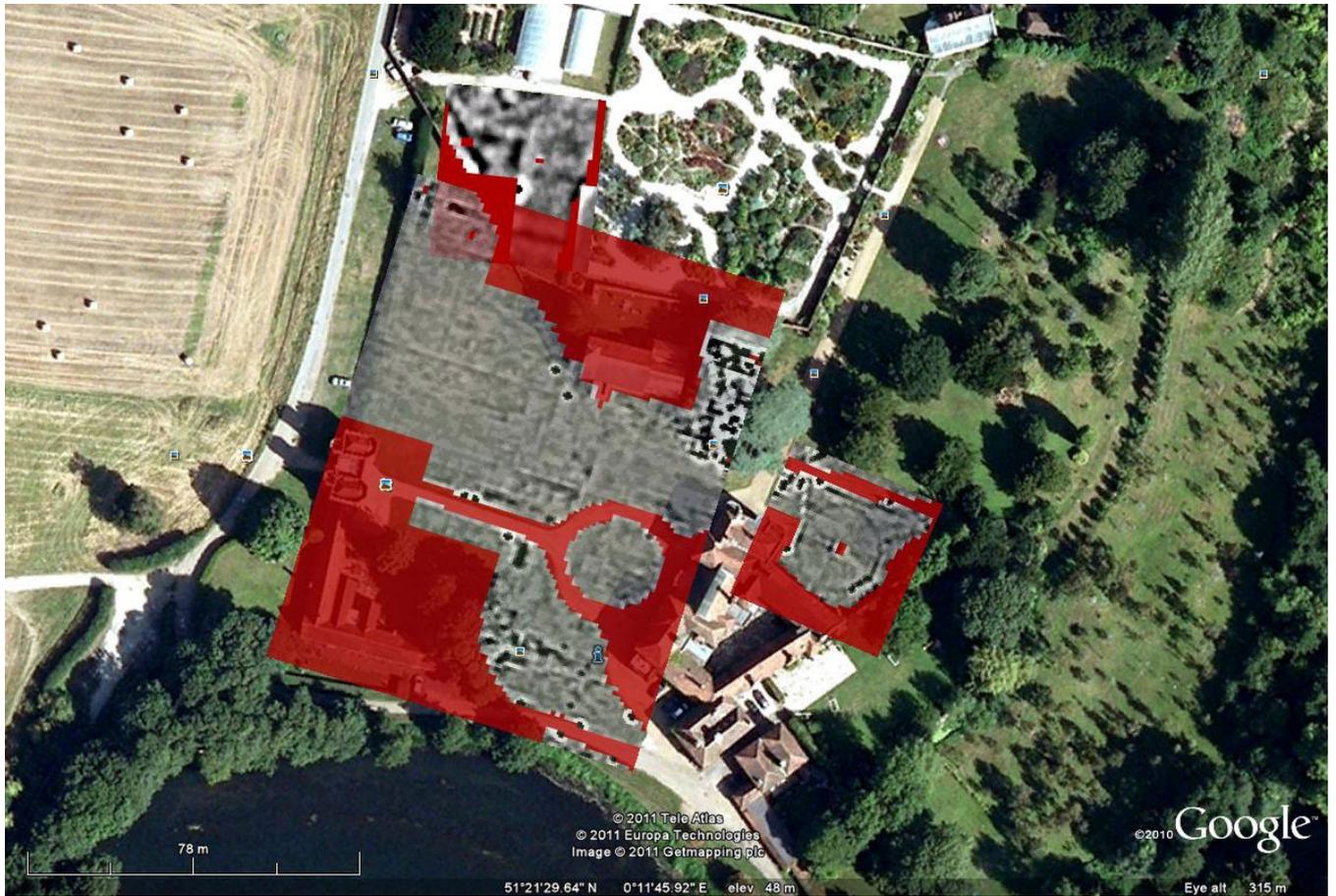


Figure 7. Overlay of geophysical survey results onto Google Earth

Discussion

The results from the survey have highlighted a number of features both within the three areas surveyed.

World Garden Area

There are a number of distinct linear features that should be investigated to determine their precise function. From looking at drawings of the area during both the 17C and 18C there was a row of almshouses along the hedge line which turned approximately East in this area, however the question of perspective and artistic 'licence' can be called into question in the drawings so far seen. There is also indication that this area contained part of the formal gardens during this period, and this could represent the parterre layout. However the width indicated on the geophysical data could cancel this argument out. One of the linear feature seems to continue into the main lawn at Lullingstone Castle. Again this could possibly be the wall line of the Almshouses, features from the formal gardens or a boundary wall line. One of the drawings studied shows a building just outside of the current boundary wall near to the road, however, as previously discussed and taking artistic licence into consideration, could this building actually be in this area?

There are three distinct round features in this area that are definitely worth investigating. The largest of these is the furthest North and is approximately 5.5m in diameter. The resistivity suggests a pit of some description with a potential high resistivity feature in the centre – could this be a water feature if we are looking at possible garden features? Is it a midden / rubbish pit? The other two round features are smaller but continue in a linear direction to the South and pass under the existing boundary wall.

Main Lawn Area

The results from the geophysical data show a number of features located across the main lawn area. Obvious feature include the strong linear features just below the roundabout which could be the second gatehouse that the family are interested in. These tie in with the drawings examined, however artistic license has distorted the perspective and the gatehouses are shown as not being in line, which you would expect. Just to the North East of the roundabout it is just possible to pick up linear features in the data that may indicate the position of the moat.

At the East end of the church there is a large amount of activity showing. This may be largely contributed to the extensive root systems of the two cedar trees located here. However, when surveying along the south wall of the church the resistivity probes were hitting a hard surface just under the turf, this surface felt like 'slabs' and may be attributed to either a pathway or possible grave stones. There are two features just slightly South West of the Church entrance that we recommend are investigated as they are strong and distinct. Any future investigation of these features near the church would require a section 25 licence under the 1857 Burial Act as they could potentially be graves.

The lawn area to the South of the main drive possible shows a number of features and is worth investigating, however those features nearest to the lake may relate to Almshouses.

North Wing lawn area

There is a distinctive round feature in this area, the dummy square in the centre relates to conifer in the middle of the lawn. This feature may reflect old garden pathways as there is a diagonal feature leading off from the circle to the North East which heads towards an existing flight of steps. This feature is next to the original entrance to the main house which was used during the medieval and Tudor period.

There are two further high resistivity linear features seen in this area, one running East to West just to the right of the modern garden path, and one running North East – South West (bottom left of figure 4). The results also show low resistivity linear features in the bottom right side of figure 4 and these are likely to be ditches / builders trenches.

Recommendations

It is recommended that a full geophysical survey is carried out across the remaining Lullingstone castle estate to build upon the picture developing from the initial survey. As well as further resistivity survey work we recommend carrying out a magnetometer survey to look for further features that may have been missed by the resistivity survey.

Looking at the HER data for the immediate area surrounding Lullingstone castle it is obvious that any features found on this site will add to the continuing knowledge of occupation in the area from prehistory to the post medieval times.

