LAND OFF LOGGANS ROAD
HAYLE
CORNWALL

Results of a Desk-Based Assessment, Geophysical Survey and Heritage Impact Appraisal

South West Archaeology Ltd. report no. 170510

ARCHAEOLOGICAL SERVICES & HISTORIC BUILDING RECORDING
SOUTHWEST ARCHAEOLOGY

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Land off Loggans Road, Hayle, Cornwall

Results of a Desk-Based Assessment, Geophysical Survey & Heritage Impact Appraisal

By F. Balmond, J. Bampton & B. Morris
Report Version: Final
10th May 2017

Work undertaken by SWARCH for Ben Pearce of Pearce Fine Homes Limited

Summary

This report presents the results of a desk-based assessment, geophysical survey and heritage impact appraisal carried out by South West Archaeology Ltd. (SWARCH) for land off Loggans Road, Hayle, Cornwall, on behalf of Ben Pearce of Pearce Fine Homes Ltd. (the Client) in advance of a planning application.

The site is located on the edge of the settlement of Loggans, formerly part of the Manor of Connerton, and first recorded in 1154. There is a Domesday reference to a mill at Connerton, but Loggans Mill is first securely documented in 1684. It was rebuilt in the mid 19th century following a fire; the surviving mill building is in a poor state of repair within a recent housing development and adjacent to a Lidl superstore. The site consists of a single field that was attached to Loggans, and the leat that fed the Mill runs along the eastern boundary of the site. The northern and western boundaries are substantial stone-faced hedgebanks that once separated the enclosed parts of Loggans/Loggans Moor from the unenclosed Phillack Towans.

The walkover and geophysical surveys failed to identify significant archaeological remains within the area of the development. A series of manhole covers were noted in the field and it is likely there has already been a reasonable level of disturbance from service trenching. However, the BGS lists the superficial deposits in this area as wind-blown sand, and as only some of the service trenches register on the geophysical survey it is likely the sand dampens and obscures the results.

The archaeological potential of the site is unproven, subject to the caveats above. The leat to the east is a substantial feature linked to the 19th and 20th century development of the Loggans Mill complex and is thus of clear interest. The proposed breach in the hedgebank flanking Loggans Road should be recorded to determine the structural significance of that feature.

May 2017

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ACKNOWLEDGEMENTS

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1.0 INTRODUCTION

Location: Land off Loggans Road
Parish: Hayle
County: Cornwall
NGR: SW 57434 38700
Planning no. Pre-planning (previous application no. PA16/06296)
SWARCH ref. HLR17

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by Ben Pearce of Pearce Fine Homes Ltd (the Client) to undertake a desk-based assessment, geophysical survey and heritage impact appraisal for land south-east of Loggans Road, Hayle, Cornwall, as part of the pre-application requirements for a proposed residential development. This work was undertaken in accordance with best practice and CIfA guidelines.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located off Loggans Road, north-east of the settlement of Hayle. The site comprises one subrectangular field on a west-facing slope at an altitude of 17-20m AOD. The field is just south of an area known as Loggans Moor (
). Bordering the south-east edge of the site is the mill leat leading to the Grade II Listed Loggans Mill. The soils of this area are the well-drained fine loamy soils of the Denbigh 2 Association (SSEW 1983), which overlie the mudstones and sandstones of the Porthtowan Formation (BGS 2017).

FIGURE 1: LOCATION OF THE SITE

1.3 HISTORICAL BACKGROUND

The modern parish of Hayle lies within the historic parish of Phillack, in the deanery and east division of the Hundred of Penwith. Hayle expanded with the success of the mining industry in the area, and large scale smelting and refining of iron and copper took place here in the 19th century (Lysons 1814). The place name Hayle is derived from the Cornish *heyl*, meaning estuary.

1.4 ARCHAEOLOGICAL BACKGROUND

Very little active archaeological investigation has taken place in close proximity to the development site, although a limited archaeological assessment of the area was conducted as part of the A30 corridor study (Hayle Bypass) (CAU 1993). This report drew on data from the HER and does not record any archaeological sites in the area of the proposed development. A rapid appraisal of the Cornwall and Scilly Historic Environment Record (HER) indicates Prehistoric activity to the west of the site at the Towans, including a number of cist graves (MCO33940) and an Iron Age round east of Carwin (i.e. *caer*) Farm (MCO7794). Romano-British finds have been reported from a field at the Towans (e.g. MCO39836). Loggans Mill, a 17th century Grade II Listed building (List no. 1143659), is located just south-west of the site. Mining activity is recorded to the north at Loggans Mine (MCO12244). A network of drainage ditches has been recorded by the NMP in the area of Loggans Moor to the north of the site. The site lies c.400m to the north of the Port of Hayle World Heritage Site.

1.5 METHODOLOGY

This work was undertaken in accordance with best practice. The desk-based assessment follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (CIfA 2014a) and *Understanding Place: historic area assessments in a planning and development context* (English Heritage 2012). The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008b) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).

The heritage impact assessment follows the guidance outlined in: Conservation Principles: policies and guidance for the sustainable management of the historic environment (English Heritage 2008a), The Setting of Heritage Assets (Historic England 2015), Seeing History in the View (English Heritage 2011), Managing Change in the Historic Environment: Setting (Historic Scotland 2010), and with reference to Guidelines for Landscape and Visual Impact Assessment 3rd Edition (Landscape Institute 2013).

2.0 DESK-BASED ASSESSMENT

2.1 DOCUMENTARY HISTORY

Hayle is the major settlement within the civil parish of Hayle, formerly part of the historic parish of Phillack, which lies in the deanery and east division of the Hundred of Penwith (Lysons 1814). The place-name Hayle derives from the Cornish for estuary 'heyl', while Phillack is thought to relate to Saint Felac of Cornwall, although the parish church dedication is to Saint Felicitus.

In the early nineteenth century, rivalries over access to the sea between the two largest iron foundries, Harvey's and Copperhouse, led to the creation of two distinct areas at either end of the town; Foundry and Copperhouse (Port of Hayle WHS). A weekly market was established at

Copperhouse and the bye-post arrived daily from Marazion (Lysons 1814). The boundary of the *Port of Hayle World Heritage Site* lies c.400m from the development site. The port was a major industrial centre for the county from the mid-eighteenth century onwards, with ship building and chemical manufacture replacing mining as the major employer following the closure of the last mine in 1903 (CAU 2005).

The first reference to the place-name Loggans is in 1154 (*Leugan*), when it was mentioned in relation to the grant of the Manor of Connerton. The place-name may be derived from the Cornish *cant*, meaning 'edge/border', and this could readily relate to its position on the edge of the Hayle Towans. The first secure reference to a mill at Loggans comes from the will and inventory of William Carnarthen, dated 1684, but it is possible earlier references to a mill in the Manor of Connerton could relate to this site.

The Hosken family took over the running of the mill in 1810; they had previously run mills at Sithney in Breage and Trevethoe in Lelant. William Hosken (1805-89) was key to the success of the business. Until the 19th century it had been a grist mill (animal feed), but a set of flour-milling stones were installed in 1840. The building was gutted by a fire in 1852, and the present building dates to the 1850s. The opportunity was taken to rebuild on a larger scale and taking advantage of advances in milling technology (e.g. use of steam power by 1883; conversion to a roller mill in 1884). Following the death of William Hosken in 1889, the company merged with another Hayle firm to form Hosken, Trevithick, Polkinghorn and Co. Ltd. (HTP). The company only finally purchased the freehold of the site in 1907; the correspondence relating to the sale stated the company had to maintain control of its water supply (i.e. the mill pond and leat system to the north-east). HTP sold the flour milling and wholesale grain business to Spillers Ltd. (later, Farm Industries Ltd.) in 1936, who thereafter concentrated on animal feeds and agricultural products. They sold the complex to a property developer in 1973 (this account from CAU 1998). Parts of the complex were demolished, but the site remained derelict and undeveloped into the 2000s; the land around the mill has since been developed for housing.

The 1842 tithe apportionment indicates that the site formed part of the tenement of Loggans, ¾ owned by William Backwell Praed and ¼ owned by the Rev. William Hockin, who also leased William Pread's share. The Hockin Family, rectors of Phillack from 1763 to 1922, were important industrialists and developers in Hayle, with links to the Cornish Copper Company (est. 1758).

2.2 Cartographic Development

The site can be identified on the OS surveyor's draft map of 1809 (**Error! Reference source not found.**). Loggan's Mill is labelled but is not depicted (the map is worn in this area), and the map would indicate the site was enclosed but lay on the edge of a large area of unenclosed land (Hayle Towans to the north and Loggan's Moor to the east).

FIGURE 2: EXTRACT FROM THE 1809 OS SURVEYOR'S DRAFT MAP; THE SITE IS INDICATED (BL).

The earliest accurate cartographic source available to this study is the tithe map of 1842 (Figure 3). The shape of the field appears similar to today, and the mill leat is clearly shown running along the south-eastern side of the field. The clearest difference is the construction of the Redruth-Hayle Turnpike (later the A30) from 1825. The 1842 tithe apportionment states that the field (field no. 781) belonged to the tenement of *Loggams* which was owned by William Backwell Praed (¾) and Rev. William Hockin (¼), with William Praed's share of the site leased by the Rev. William Hockin, who was also the occupier. The field was called *Higher Mill Field*, with *Lower Mill Field* located on the other side of the mill leat; and the landuse for both fields is noted arable. The same individuals owned and leased the mill (field no. 776 *dwelling house, mill and town place*). The name of the field immediately to the north (no.789) is given as *Coney Park* (moor) which might suggest the presence of a rabbit warren.

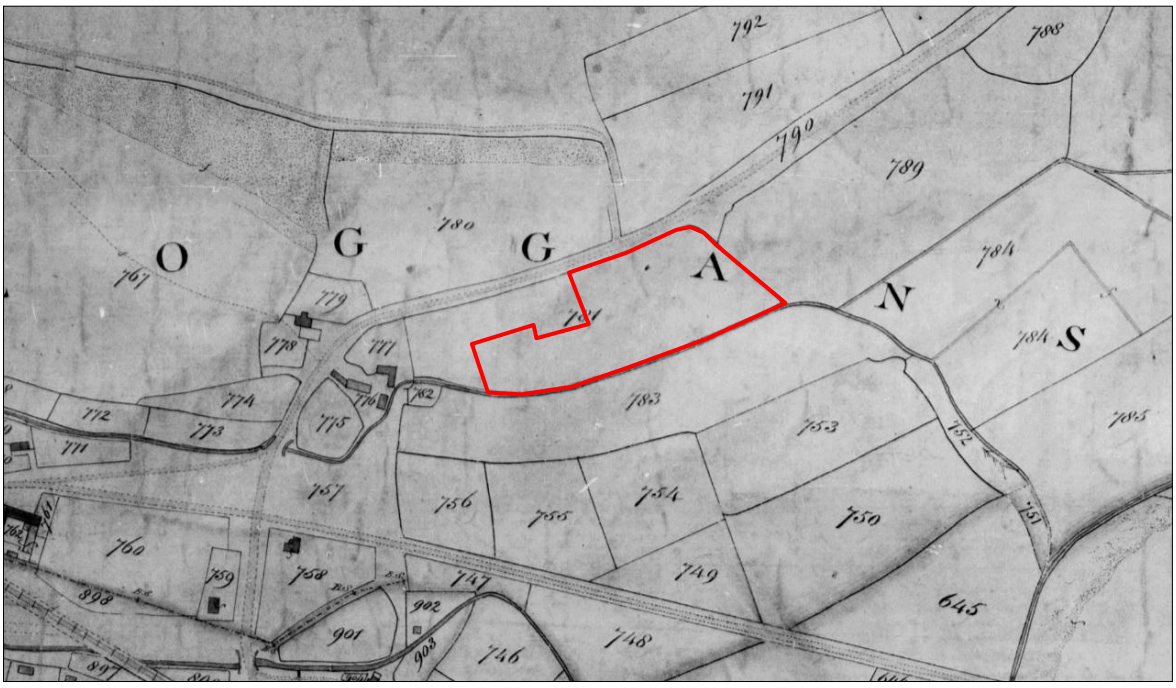


FIGURE 3: EXTRACT FROM 1842 TITHE MAP; THE SITE IS INDICATED (CRO).

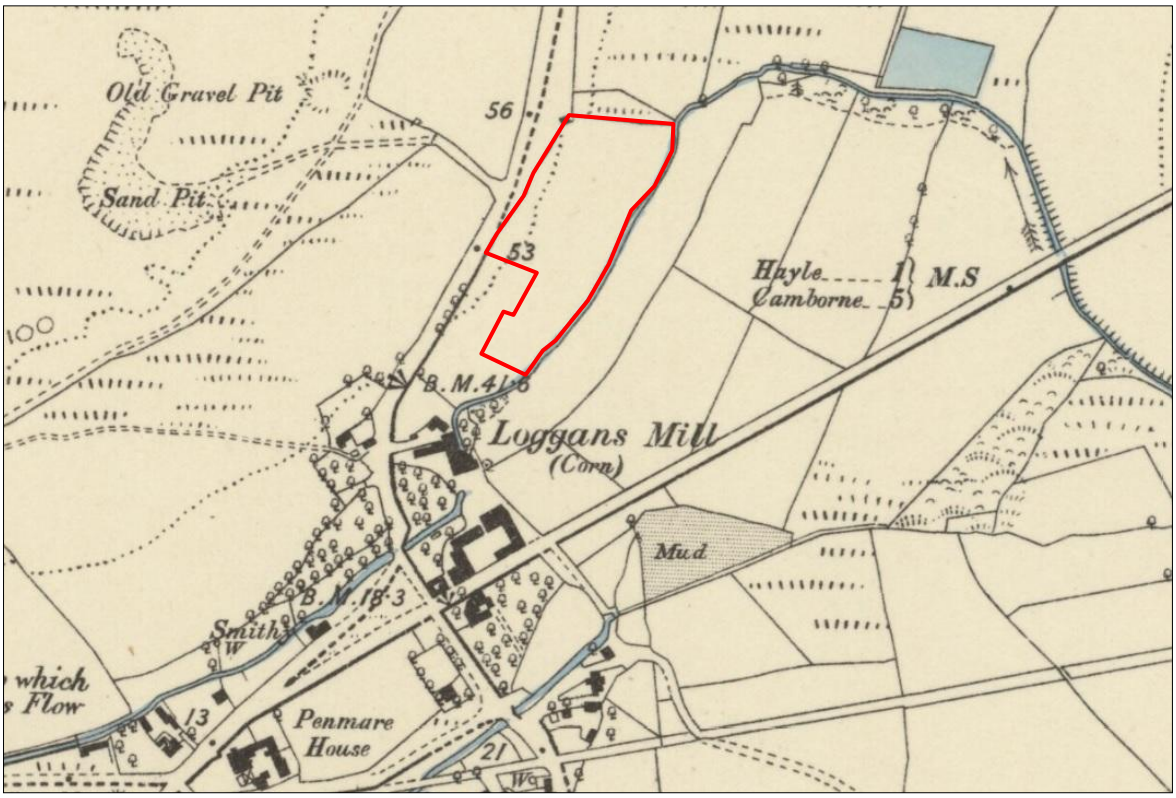


FIGURE 4: EXTRACT FROM THE 1ST EDITION 6" OS MAP OF 1887; THE SITE IS INDICATED (CRO).

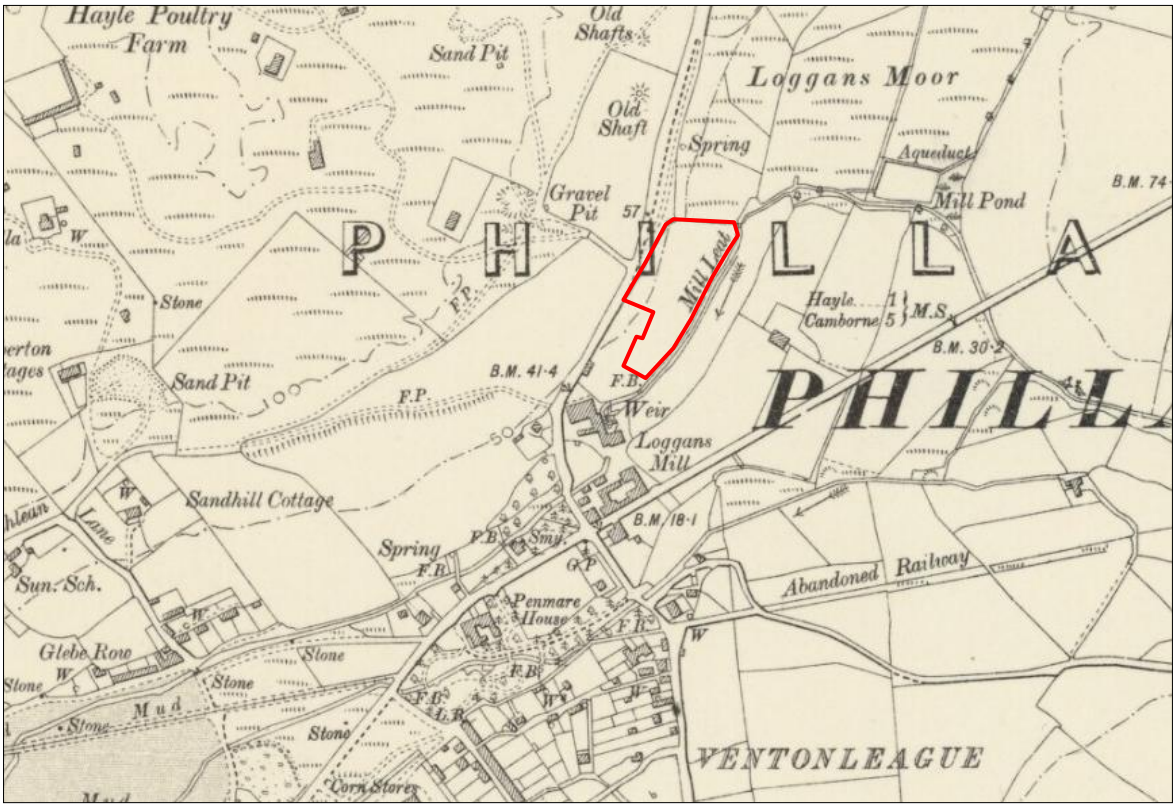


FIGURE 5: EXTRACT FROM THE 2ND EDITION 6" OS MAP OF 1908; THE SITE IS INDICATED (CRO).

The subsequent historic OS maps show the layout of the area had barely changed changed, although the size of the Loggan's Mill complex expands during this period, presumably in relation to the prosperity and growing size of Hayle. This expansion is also marked by the appearance on the 1st edition OS map of a mill pond on Loggans Moor. By 1936, a line of houses had been

constructed on the north-western side of Loggans Road, and a fence or boundary erected at the southern end of the field. By 1938 the first of the bungalows on the south-eastern side of the road had been built (Highfield), joined by two more by 1970. The field had been divided into two parts by 1970, but this internal subdivision had been lost between 1974-89.

3.0 ARCHAEOLOGICAL BACKGROUND

Very little active archaeological investigation has taken place in close proximity to the site. The area fell within the remit of archaeological assessment as part of the A30 corridor study (CAU 1993), but the development area was not identified as containing any heritage assets. The adjacent site of Loggans Mill was the subject of a rapid building assessment (CAU 1998), and an assessment was undertaken for the adjacent proposed retail park (AC 2013).

Tthe Cornwall and Scilly HER records evidence for human activity in the surrounding area from the Prehistoric to post-medieval period (see Figure 8 and Table 2). The Cornwall and Scilly Historic Landscape Characterisation (HLC) characterises the site as being part of *upland rough ground, surrounded by Industrial: Disused* (to the north west), *20th century settlement* (to the west and south), *modern enclosed land* (to the south east) and *post-medieval enclosed land* (to the north).

3.1.1 PREHISTORIC 4000BC - AD43

There is evidence for Prehistoric activity to the west of the site at the Towans, where a number of cist graves have been reported (MCO33940); there is also a possible Iron Age/Romano-British round at Carwin Farm (MCO7794). Prehistoric burials have been identified near Phillack Church (MCO1170). A possible Bronze Age barrow (MCO3316) is recorded at Phillack Towans and a flint findspot (MCO41555) is recorded to the south-west of the site. Other Prehistoric and Romano-British finds have been reported from the Towans (e.g MCO39836).

3.1.2 EARLY MEDIEVAL AD410 – AD1065

There is limited evidence for early medieval occupation of the area immediately surrounding the development site, though a cemetery next to St Felicias Church is considered to date to this period and the church sits within a posited *lann* site (MCO27830). Pottery dating to the 10th century has been reported here (MCO1171).

3.1.3 MEDIEVAL AD1066 - AD1540

Loggans Mill (MCO27848), immediately south of the development site, is first securely documented in 1684 but may be medieval in origin; a tin mill (MCO33503) was located just to the south during this period. The settlements of Carwin, Ventonleague (now part of Copperhouse) and Phillack were first recorded during the medieval period. A medieval field system has been identified at Pulsack Manor, to the north of the site (MCO34036).

3.1.4 POST-MEDIEVAL AND MODERN AD1540 - PRESENT

Population and settlement expanded during the post-medieval period, driven by the increasing industrialisation of the Cornish landscape. The shortlived Hayle Railway (MCO55490) was located to the south of the Loggans Road site. The development of Copperhouse into the area previously known as Ventonleage led to the construction of residential properties, many of which survive today and are recorded in the HER (e.g. MCO35200; MCO35203). Mine shafts for a mine named Wheal Dream are located to the north of the site (MCO12244), reflecting the wider mining heritage of this area. Pill boxes dating to WWII are located to to the north and north-east of the development site (MCO34051; MCO43153), one of which was of an unusual type (disguised as a filling station); it was demolished when Carwin Rise was widened.

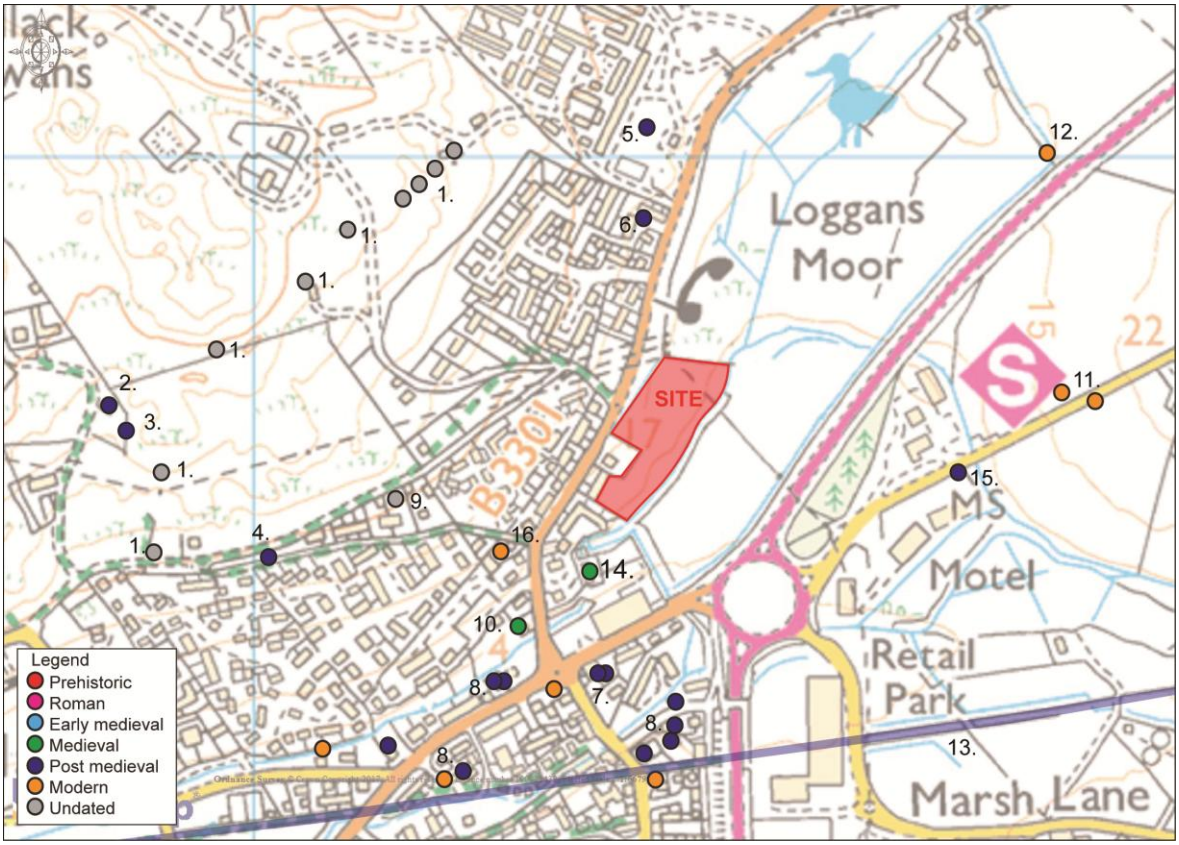


FIGURE 6: MAP OF NEARBY HERITAGE ASSETS WITHIN 600M (SOURCE: CORNWALL AND SCILLY HER).

TABLE 1: TABLE OF NEARBY HERITAGE ASSETS (SEE FIGURE 6) (SOURCE: CORNWALL AND SCILLY HER).

No.	HER No.	Name	Record	Description
1	Multiple	Undated stones	Extant Documentary	Some survive; some of the ones recorded by the OS no longer extant
2	MCO35095	Phillack Towans: Post-medieval house	Extant	House. Late C19. Rendered two-storey villa-type. Perhaps related to the extensive nearby sandpits.
3	MCO35096	Phillack: Post-medieval boundary stone	Extant	Boundary stone. Block of granite c.7' tall and c.1' in diameter, tapering to a point. The stone marks the bounds of Phillack Towans and Kernick Towans. Its height, shape and tapering form suggest an early medieval or prehistoric origin.
4	MCO35114	Post-medieval wall	Extant	Stile and wall. C19. The hedge along this footpath is partly constructed using scoria waste from the smelters and Copper house. Granite style. The path runs from Loggans Mill to Phillack Churchtown, and is probably ancient - it is marked on the 1842 Tithe Map.
5 & 6	MCO12244	Loggans: Post-medieval mine	Documentary	The site of Wheal Dream which operated in 1770. Loggans mine was active in 1851. A line of shafts 1963 OS map. The site is now largely built over. Three shafts are visible on air photographs and were plotted as part of the NMP.
7	Multiple	Post-medieval houses and associated structures	Extant	Multiple records for buildings and structures recorded on the 1842 Phillack tithe map
8	Multiple	Post -medieval houses and associated structures	Extant	Multiple records for post medieval buildings and structures
9	MCO58071	Skeleton of an Ox	Findspot	Ox skeleton of unknown date discovered during the construction of a septic tank.
10	MCO33503	Medieval mill	Demolished Structure	Tin mills destroyed in 1581, are recorded at this location
11	MCO34039 MCO43153	Pillbox: Carwin	Demolished Structure	The site of a WWII pillbox disguised as a filling station. It took the form of a slatted wooden building with a gabled roof. Now destroyed.
12	MCO34051	Loggans Moor: Pillbox	Extant	WWII pillbox built into the junction of three field boundaries and concealed by vegetation
13	MCO55490	Guildford: Post-medieval railway	Extant/ Demolished	The line of the Hayle Railway of 1837, abandoned after the West Cornwall Railway opened in 1852.

No.	HER No.	Name	Record	Description
14	MCO27848	Post-medieval corn mill	Extant	Loggans mill is first recorded in 1688 though it probably has medieval antecedents. Recorded as a grist mill in 1752. The Hosken family, local millers and farmers, owned and ran the mill from 1810. The mill was rebuilt along modern lines following a fire in 1852. It was reorganised as a roller mill in 1884. It ceased milling in 1930. The main structure of the mill, the largest in Cornwall in the late C19/early C20, is still standing but the machinery has been removed and the remainder of the site has been demolished
15	MCO48539	Loggans: 19th century milestone	Extant	A mid C19 milestone north-east of Loggans Mill on the old A30. Painted granite monolith with pyramidal head, triangular-on-plan shaft over a rectangular on-plan base. The two rectangular-sides of the shaft face the road obliquely and rise from large pyramid stops. Each of these sides has incised lettering and Arabic numerals.
16	MCO35060	Modern House	Extant	House of c.1900, probably associated with Loggans Mill (owned by Hosken Family).

3.2 LiDAR and Aerial Photography

Processesed LiDAR data (Figure 7) shows the site to be crossed by a series of slight linear features. The one aligned at 45° to the slope is presumably a land drain, but the others could be very slight shallow holloways or possible vehicle tracks.

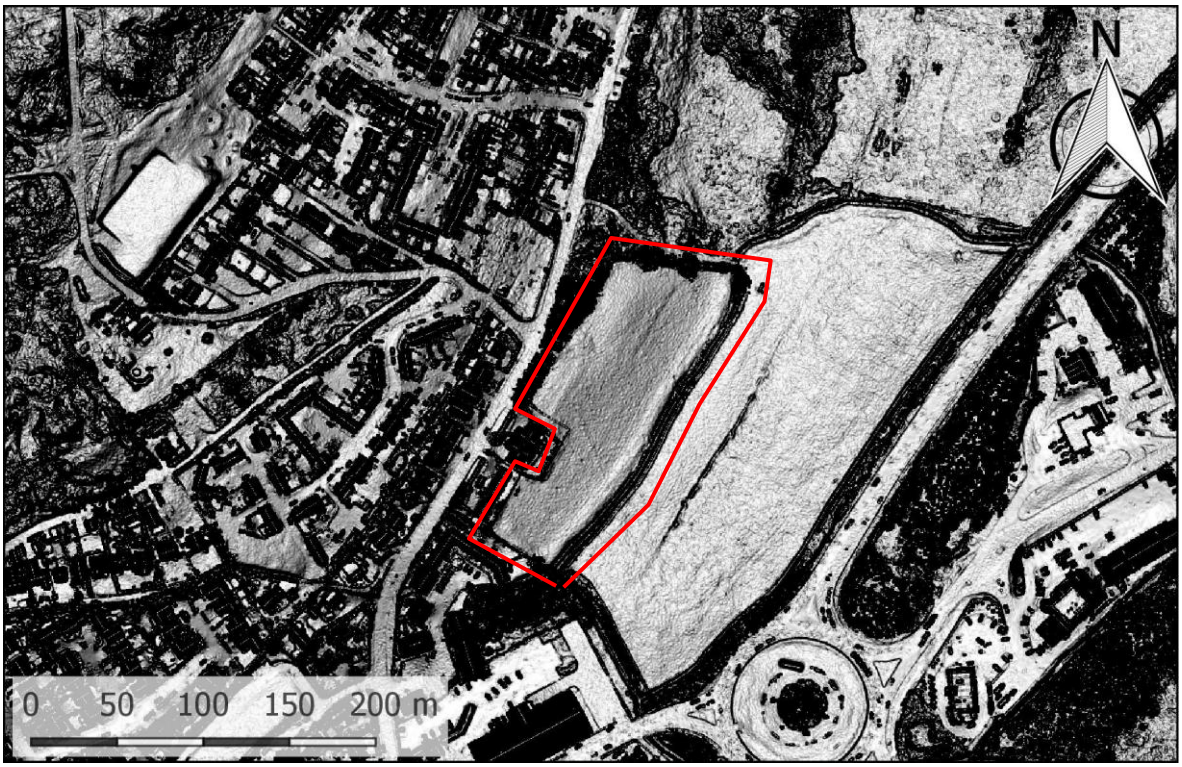


Figure 7: Image derived from 50cm DSM LiDAR data, showing the site (indicated)(processed using QGIS ver2.18.2, terrain analysis/slope, vertical exaggeration 3.0). Data: © Environment Agency copyright and database rights 2017; contains OS data © Crown copyright and database rights 2017.

3.3 Site Inspection

The site comprises a single field were bounded by Loggans Road to the west, fields to the north and east, and housing to the south and south-west. The field was under a grass crop of variable length at the time of inspection, long enough to conceal any subtle earthworks. The north-west and northern boundary is defined by a very substantial stone-faced Cornish hedgebank up to 3m

wide and 1.5m high, topped with trees and mature hedge shrubs. Its location on the edge of the Towans indicates this was a ring-fence boundary defining the edge of enclosed land and/or the infield associated with the medieval settlement at Loggans. The whole of the eastern boundary of the site is defined by the leat feeding Loggans Mill. This active leat is a substantial structure: c.1.5m wide, with the water level over c.1m below the level of the field. The walls of the leat are of mortared concrete block, and there is a retaining bank on the downslope (eastern) side. In places the blockwork has collapsed and been crudely repaired with sandbags. At the northern end of the leat, beyond the limit of the site, a new concrete bridge has been constructed to carry an access track over the leat. Telegraph poles at the north-western corner of the field, and a double-pole close to the leat in the north-eastern corner of the field, carry electricity cables across the site. Manhole covers were observed in the grass, indicating the presence of services crossing the site. A complement of baseline photogprahs can be found in Appendix 2.

FIGURE 8: VIEW OF THE SITE FROM THE NORTH-WESTERN CORNER OF THE FIELD; VIEWED FROM THE NORTH, LOOKING SOUTH. THE ROOF OF LOGGANS MILL IS VISIBLE (INDICATED) IN THE BACKGROUND.

3.4 ARCHAEOLOGICAL POTENTIAL

The archaeological potential of the site can be seen to be fairly *low* overall, negatively affected by the land drainage and service trenches that appear to cross the site. There are relatively few sites of any antiquity recorded on the HER close to the site, and most entries are fairly recent and relate to the industrial development of Hayle. However, the probable influence of wind-blown sand on the results of the geophysical survey undermine the usefulness of this prospection technique.

The key archaeological monument is the leat located on the downslope side of the field. In its current form it undoubtedly dates to the 19th century; however, as the current mill is documented from the later 17th century – and could conceivably be much earlier – structural evidence relating to earlier iterations of the leat could survive.

4.0 GEOPHYSICAL SURVEY

4.1 INTRODUCTION

An area of c.1ha was the subject of a magnetometry (gradiometer) survey. The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on the 27th of April 2017 by J. Bampton; the survey data was processed by J. Bampton.

4.2 METHODOLOGY

The gradiometer survey follows the general guidance as outlined in: *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008b) and *Standard and Guidance for Archaeological Geophysical Survey* (CIfA 2014b).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.25.0*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes: Clip +/- 3SD; DeStripe all traverses, median; DeStagger, offset in- and outbound by -1 interval (all grids).

Details: 1ha surveyed; Max. 117.89nT, Min. -102.89nT; Standard Deviation 11.16nT, mean 0.39nT, median 0.00nT.

4.3 RESULTS

Table 2 with the accompanying Figures 9 and 10 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

TABLE 2: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Weak positive, possible	Linear	Possible field ditches	Possible field ditches aligned at 90° to the slope; weak response of between 2nT and 5nT.
2	Weak positive, probable, flanked by weak negative, probable	Linear	Probable field boundary	Looks like a typical Cornish hedgebank (central bank with flanking ditches) but inverse anomalies to usual relationship (usually flanking positive responses). Central positive responses between 3nT and 8nT; flanking negative responses between -5nT and -9nT. Field boundary shown in 1970s OS maps, but further to the north.
3	Weak negative, probable	Linear	Possible services	Possible field ditch or service trench. Negative response between -5nT and -10nT.

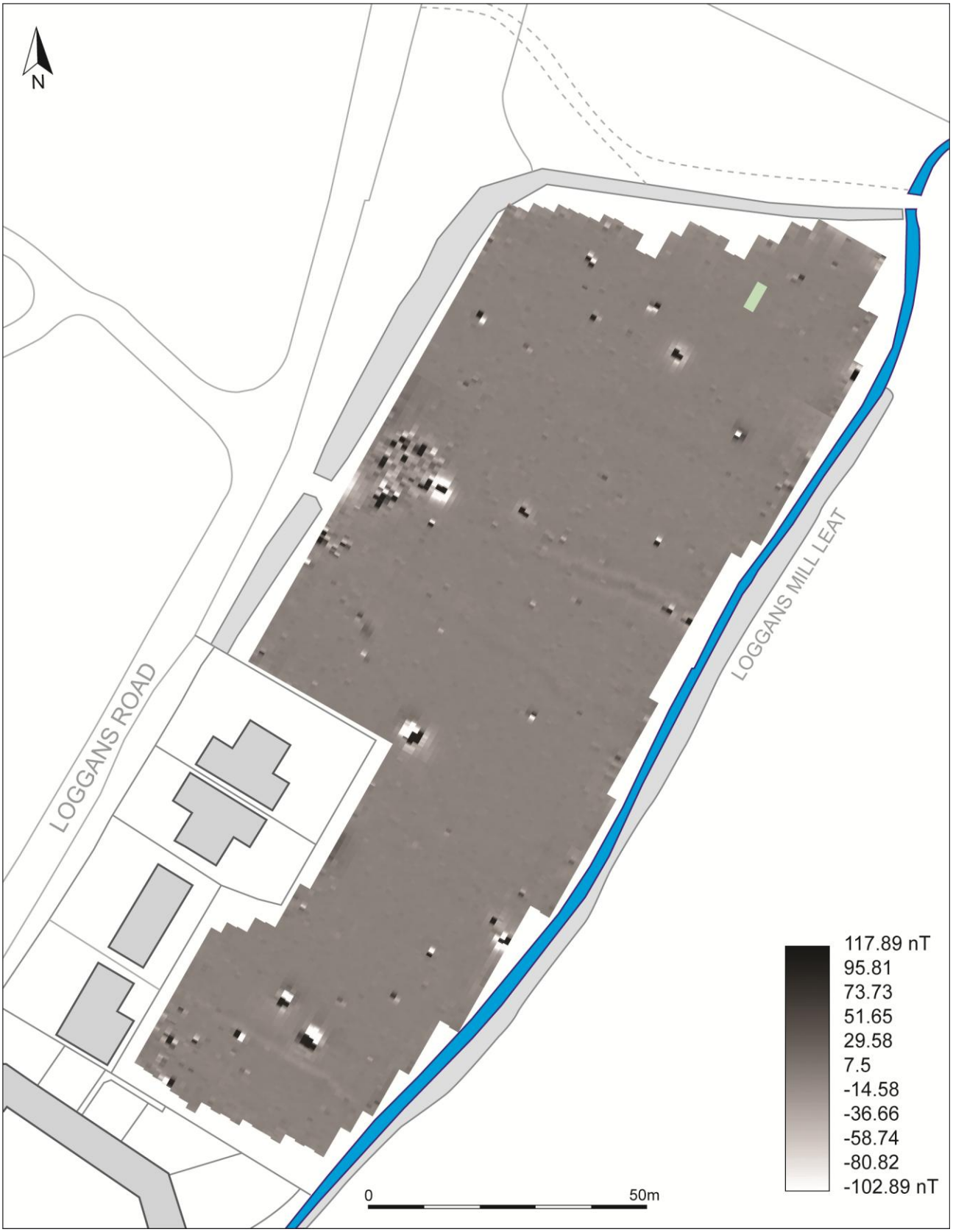


FIGURE 9: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROC ESSING.

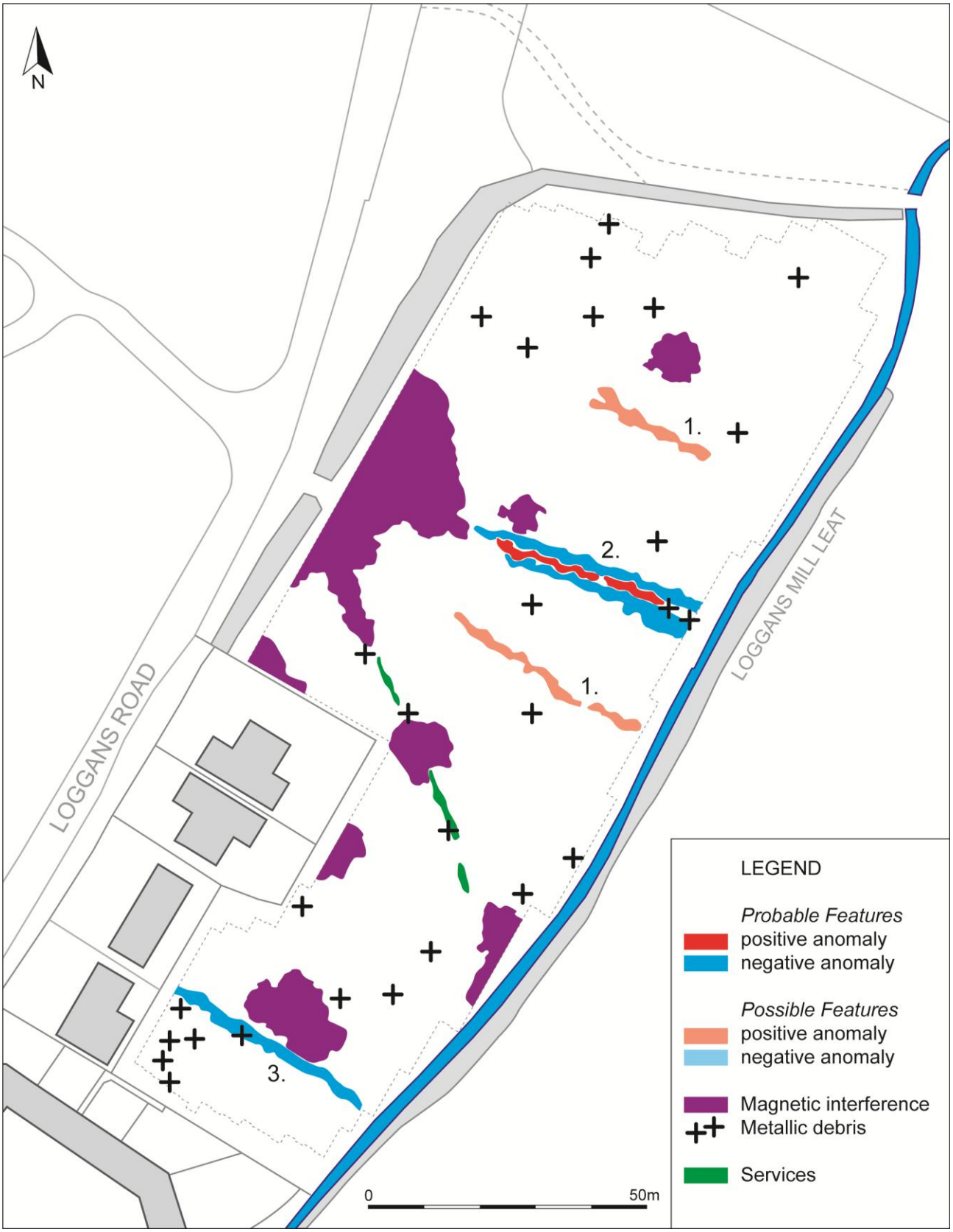


FIGURE 2: INTERPRETATION OF GRADIOMETER SURVEY DATA.

4.4 DISCUSSION

The survey identified three groups of anomalies, but the results of the survey are skewed by the very high/low readings generated by metallic debris/interference, and the otherwise very quiet background measurement. A number of manhole covers were observed during the survey, and thus there must be buried services of relatively recent date crossing this field; however, these service trenches are barely visible in the data. The BGS data for the site (BGS 2017) indicates the field is located on superficial deposits of wind-blown sand associated with the Hayle Towans, and this could be responsible for the lack of response.

Anomaly Group 1 consists of two weak (2nT to 5nT) positive linear reponses at 90° to the slope. It is possible these represent field ditches, but if so, they do not appear on the available historic mapping.

Anomaly Group 2 consists of a weak (3nT to 8nT) positive linear response at 90° to the slope, flanked by weak (-5nT to -9nT) negative linear responses. Were the relationship between positive and negative responses reversed, the result would be interpreted as a typical Cornish hedgebank with flanking ditches. In this instance the interpretation must remain very tentative.

Anomaly Group 3 consists of a weak (-5nT to -10nT) negative linear response at 90° to the slope, perhaps a service trench associated with the houses to the west.

5.0 HERITAGE IMPACT APPRAISAL

5.1 HERITAGE IMPACT APPRAISAL - OVERVIEW

The purpose of heritage impact appraisal is twofold: Firstly, to understand – insofar as is reasonable practicable and in proportion to the importance of the asset – the significance of a historic building, complex, area or archaeological monument (the 'heritage asset'). Secondly, to assess the likely effect of a proposed development on the heritage asset (direct impact) and its setting (indirect impact). This methodology employed in this appraisal is based on the staged approach advocated in *The Setting of Heritage Assets* (GPA3 Historic England 2015), used in conjunction with the ICOMOS (2011) and DoT (DMRB vol.11; WEBTAG) guidance. Sections 5.2-5.6 discuss policy, concepts and approach; section 5.7 covers the methodology, and section 5.8 individual assessments.

5.2 NATIONAL POLICY

General policy and guidance for the conservation of the historic environment are now contained within the *National Planning Policy Framework* (Department for Communities and Local Government 2012). The relevant guidance is reproduced below:

Paragraph 128
In determining applications, local planning authorities should require the applicant to describe the significance of any heritage assets affected, including the contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should be consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which a development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

Paragraph 129
Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

A further key document is the Planning (Listed Buildings and Conservation Areas) Act 1990, in particular section 66(1), which provides *statutory protection* to the setting of Listed buildings:

In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.

5.3 CULTURAL VALUE – DESIGNATED HERITAGE ASSETS

The majority of the most important ('nationally important') heritage assets are protected through *designation*, with varying levels of statutory protection. These assets fall into one of six categories,

although designations often overlap, so a Listed early medieval cross may also be Scheduled, lie within the curtilage of Listed church, inside a Conservation Area, and on the edge of a Registered Park and Garden that falls within a world Heritage Site.

5.3.1 LISTED BUILDINGS

A Listed building is an occupied dwelling or standing structure which is of special architectural or historical interest. These structures are found on the *Statutory List of Buildings of Special Architectural or Historic Interest.* The status of Listed buildings is applied to 300,000-400,000 buildings across the United Kingdom. Recognition of the need to protect historic buildings began after the Second World War, where significant numbers of buildings had been damaged in the county towns and capitals of the United Kingdom. Buildings that were considered to be of 'architectural merit' were included. The Inspectorate of Ancient Monuments supervised the collation of the list, drawn up by members of two societies: The Royal Institute of British Architects and the Society for the Protection of Ancient Buildings. Initially the lists were only used to assess which buildings should receive government grants to be repaired and conserved if damaged by bombing. The *Town and Country Planning Act 1947* formalised the process within England and Wales, Scotland and Ireland following different procedures. Under the 1979 *Ancient Monuments and Archaeological Areas Act* a structure cannot be considered a Scheduled Monument if it is occupied as a dwelling, making a clear distinction in the treatment of the two forms of heritage asset. Any alterations or works intended to a Listed Building must first acquire Listed Building Consent, as well as planning permission. Further phases of 'listing' were rolled out in the 1960s, 1980s and 2000s; English Heritage advise on the listing process and administer the procedure, in England, as with the Scheduled Monuments.

Some exemption is given to buildings used for worship where institutions or religious organisations (such as the Church of England) have their own permissions and regulatory procedures. Some structures, such as bridges, monuments, military structures and some ancient structures may also be Scheduled as well as Listed. War memorials, milestones and other structures are included in the list, and more modern structures are increasingly being included for their architectural or social value.

Buildings are split into various levels of significance: Grade I (2.5% of the total) representing buildings of exceptional (international) interest; Grade II* (5.5% of the total) representing buildings of particular (national) importance; Grade II (92%) buildings are of merit and are by far the most widespread. Inevitably, accuracy of the Listing for individual structures varies, particularly for Grade II structures; for instance, it is not always clear why some 19th century farmhouses are Listed while others are not, and differences may only reflect local government boundaries, policies and individuals.

Other buildings that fall within the curtilage of a Listed building are afforded some protection as they form part of the essential setting of the designated structure, e.g. a farmyard of barns, complexes of historic industrial buildings, service buildings to stately homes etc. These can be described as having *group value*.

5.3.2 VALUE AND IMPORTANCE

While every heritage asset, designated or otherwise, has some intrinsic merit, the act of designation creates a hierarchy of importance that is reflected by the weight afforded to their preservation and enhancement within the planning system. The system is far from perfect, impaired by an imperfect understanding of individual heritage assets, but the value system that has evolved does provide a useful guide to the *relative* importance of heritage assets. Provision is also made for heritage assets where value is not recognised through designation (e.g. undesignated 'monuments of Schedulable quality and importance' should be regarded as being of *high* value); equally, there are designated monuments and structures of *low* relative merit.

TABLE 3: THE HIERARCHY OF VALUE/IMPORTANCE (BASED ON THE DMRB VOL.11 TABLES 5.1, 6.1 & 7.1).

Hierarchy of Value/Importance	
Very High	Structures inscribed as of universal importance as World Heritage Sites; Other buildings of recognised international importance; World Heritage Sites (including nominated sites) with archaeological remains; Archaeological assets of acknowledged international importance; Archaeological assets that can contribute significantly to international research objectives; World Heritage Sites inscribed for their historic landscape qualities; Historic landscapes of international value, whether designated or not; Extremely well preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).
High	Scheduled Monuments with standing remains; Grade I and Grade II* (Scotland: Category A) Listed Buildings; Other Listed buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the Listing grade; Conservation Areas containing very important buildings; Undesignated structures of clear national importance; Undesignated assets of Schedulable quality and importance; Assets that can contribute significantly to national research objectives. Designated historic landscapes of outstanding interest; Undesignated landscapes of outstanding interest; Undesignated landscapes of high quality and importance, demonstrable national value; Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II (Scotland: Category B) Listed Buildings; Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations; Conservation Areas containing buildings that contribute significantly to its historic character; Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated or undesignated archaeological assets that contribute to regional research objectives; Designated special historic landscapes; Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value; Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).
Low	Locally Listed buildings (Scotland Category C(S) Listed Buildings); Historic (unlisted) buildings of modest quality in their fabric or historical association; Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated and undesignated archaeological assets of local importance; Archaeological assets compromised by poor preservation and/or poor survival of contextual associations; Archaeological assets of limited value, but with potential to contribute to local research objectives; Robust undesignated historic landscapes; Historic landscapes with importance to local interest groups; Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.
Negligible	Buildings of no architectural or historical note; buildings of an intrusive character; Assets with very little or no surviving archaeological interest; Landscapes with little or no significant historical interest.
Unknown	Buildings with some hidden (i.e. inaccessible) potential for historic significance; The importance of the archaeological resource has not been ascertained.

5.4 CONCEPTS – CONSERVATION PRINCIPLES

In making an assessment, this document adopts the conservation values (*evidential*, *historical*, *aesthetic* and *communal*) laid out in *Conservation Principles* (English Heritage 2008), and the concepts of *authenticity* and *integrity* as laid out in the guidance on assessing World Heritage Sites (ICOMOS 2011). This is in order to determine the relative importance of *setting* to the significance of a given heritage asset.

5.4.1 EVIDENTIAL VALUE

Evidential value (or research potential) is derived from the potential of a structure or site to provide physical evidence about past human activity, and may not be readily recognised or even visible. This is the primary form of data for periods without adequate written documentation. This is the least equivocal value: evidential value is absolute; all other ascribed values (see below) are subjective. However,

5.4.2 HISTORICAL VALUE

Historical value (narrative) is derived from the ways in which past people, events and aspects of life can be connected via a place to the present; it can be *illustrative* or *associative*.

Illustrative value is the visible expression of evidential value; it has the power to aid interpretation of the past through making connections with, and providing insights into, past communities and their activities through a shared experience of place. Illustrative value tends to be greater if a place features the first or only surviving example of a particular innovation of design or technology.

Associative value arises from a connection to a notable person, family, event or historical movement. It can intensify understanding by linking the historical past to the physical present, always assuming the place bears any resemblance to its appearance at the time. Associational value can also be derived from known or suspected links with other monuments (e.g. barrow cemeteries, church towers) or cultural affiliations (e.g. Methodism).

Buildings and landscapes can also be associated with literature, art, music or film, and this association can inform and guide responses to those places.

Historical value depends on sound identification and the direct experience of physical remains or landscapes. Authenticity can be strengthened by change, being a living building or landscape, and historical values are harmed only where adaptation obliterates or conceals them. The appropriate use of a place – e.g. a working mill, or a church for worship – illustrates the relationship between design and function and may make a major contribution to historical value. Conversely, cessation of that activity – e.g. conversion of farm buildings to holiday homes – may essentially destroy it.

5.4.3 AESTHETIC VALUE

Aesthetic value (emotion) is derived from the way in which people draw sensory and intellectual stimulation from a place or landscape. Value can be the result of *conscious design*, or the *fortuitous outcome* of landscape evolution; many places combine both aspects, often enhanced by the passage of time.

Design value relates primarily to the aesthetic qualities generated by the conscious design of a building, structure or landscape; it incorporates composition, materials, philosophy and the role of patronage. It may have associational value, if undertaken by a known architect or landscape gardener, and its importance is enhanced if it is seen as innovative, influential or a good surviving example. Landscape parks, country houses and model farms all have design value. The landscape is not static, and a designed feature can develop and mature, resulting in the 'patina of age'.

Some aesthetic value developed *fortuitously* over time as the result of a succession of responses within a particular cultural framework e.g. the seemingly organic form of an urban or rural landscape or the relationship of vernacular buildings and their materials to the landscape. Aesthetic values are where a proposed development usually have their most pronounced impact: the indirect effects of most developments are predominantly visual or aural, and can extent many kilometres from the site itself. In many instances the impact of a development is incongruous, but that is itself an aesthetic response, conditioned by prevailing cultural attitudes to what the historic landscape should look like.

5.4.4 COMMUNAL VALUE

Communal value (togetherness) is derived from the meaning a place holds for people, and may be closely bound up with historical/associative and aesthetic values; it can be *commemorative, symbolic*, *social* or *spiritual*.

Commemorative and symbolic value reflects the meanings of a place to those who draw part of their identity from it, or who have emotional links to it e.g. war memorials. Some buildings or places (e.g. the Palace of Westminster) can symbolise wider values. Other places (e.g. Porton Down Chemical Testing Facility) have negative or uncomfortable associations that nonetheless have meaning and significance to some and should not be forgotten. *Social value* need not have any relationship to surviving fabric, as it is the continuity of function that is important. *Spiritual value* is attached to places and can arise from the beliefs of a particular religion or past or contemporary perceptions of the spirit of place. Spiritual value can be ascribed to places sanctified by hundreds of years of veneration or worship, or wild places with few signs of modern life. Value is dependent on the perceived survival of historic fabric or character, and can be very sensitive to change. The key aspect of communal value is that it brings specific groups of people together in a meaningful way.

5.4.5 AUTHENTICITY

Authenticity, as defined by UNESCO (2015, no.80), is the ability of a property to convey the attributes of the outstanding universal value of the property. 'The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful'. Outside of a World Heritage Site, authenticity may usefully be employed to convey the sense a place or structure is a truthful representation of the thing it purports to portray. Converted farmbuildings, for instance, survive in good condition, but are drained of the authenticity of a working farm environment.

5.4.6 INTEGRITY

Integrity, as defined by UNESCO (2015, no.88), is the measure of wholeness or intactness of the cultural heritage ad its attributes. Outside of a World Heritage Site, integrity can be taken to represent the survival and condition of a structure, monument or landscape. The intrinsic value of those examples that survive in good condition is undoubtedly greater than those where survival is partial, and condition poor.

5.4.7 SUMMARY

As indicated, individual developments have a minimal or tangential effect on most of the heritage values outlined above, largely because almost all effects are indirect. The principal values in contention are aesthetic/designed and, to a lesser degree aesthetic/fortuitous. There are also clear implications for other value elements (particularly historical and associational, communal and spiritual), where views or sensory experience is important. As ever, however, the key element here is not the intrinsic value of the heritage asset, nor the impact on setting, but the relative contribution of setting to the value of the asset.

5.5 SETTING – THE SETTING OF HERITAGE ASSETS

The principle guidance on this topic is contained within two publications: *The Setting of Heritage Assets* (Historic England 2015) and *Seeing History in the View* (English Heritage 2011). While interlinked and complementary, it is useful to consider heritage assets in terms of their *setting* i.e. their immediate landscape context and the environment within which they are seen and experienced, and their *views* i.e. designed or fortuitous vistas experienced by the visitor when at the heritage asset itself, or those that include the heritage asset. This corresponds to the experience of its wider landscape setting.

Where the impact of a proposed development is largely indirect, *setting* is the primary consideration of any HIA. It is a somewhat nebulous and subjective assessment of what does,

should, could or did constitute the lived experience of a monument or structure. The following extracts are from the Historic England publication *The Setting of Heritage Assets* (2015, 2 & 4):

The NPPF makes it clear that the setting of a heritage asset is the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve.

Setting is not a heritage asset, nor a heritage designation. Its importance lies in what it contributes to the significance of the heritage asset. This depends on a wide range of physical elements within, as well as perceptual and associational attributes, pertaining to the heritage asset's surroundings.

While setting can be mapped in the context of an individual application or proposal, it does not have a fixed boundary and cannot be definitively and permanently described for all time as a spatially bounded area or as lying within a set distance of a heritage asset because what comprises a heritage asset's setting may change as the asset and its surroundings evolve or as the asset becomes better understood or due to the varying impacts of different proposals.

The HIA below sets out to determine the magnitude of the effect and the sensitivity of the heritage asset to that effect. The fundamental issue is that proximity and visual and/or aural relationships may affect the experience of a heritage asset, but if setting is tangential to the significance of that monument or structure, then the impact assessment will reflect this. This is explored in more detail below.

5.5.1 Landscape Context

The determination of *landscape context* is an important part of the assessment process. This is the physical space within which any given heritage asset is perceived and experienced. The experience of this physical space is related to the scale of the landform, and modified by cultural and biological factors like field boundaries, settlements, trees and woodland. Together, these determine the character and extent of the setting.

Landscape context is based on topography, and can vary in scale from the very small – e.g. a narrow valley where views and vistas are restricted – to the very large – e.g. wide valleys or extensive upland moors with 360° views. Where very large landforms are concerned, a distinction can be drawn between the immediate context of an asset (this can be limited to a few hundred metres or less, where cultural and biological factors impede visibility and/or experience), and the wider context (i.e. the wider landscape within which the asset sits).

When new developments are introduced into a landscape, proximity alone is not a guide to magnitude of effect. Dependant on the nature and sensitivity of the heritage asset, the magnitude of effect is potentially much greater where the proposed development is to be located within the landscape context of a given heritage asset. Likewise, where the proposed development would be located outside the landscape context of a given heritage asset, the magnitude of effect would usually be lower. Each case is judged on its individual merits, and in some instances the significance of an asset is actually greater outside of its immediate landscape context, for example, where church towers function as landmarks in the wider landscape.

5.5.2 Views

Historic and significant views are the associated and complementary element to setting, but can be considered separately as developments may appear in a designed view without necessarily falling within the setting of a heritage asset *per se*. As such, significant views fall within the aesthetic value of a heritage asset, and may be *designed* (i.e. deliberately conceived and arranged, such as within parkland or an urban environment) or *fortuitous* (i.e. the graduated development of a landscape 'naturally' brings forth something considered aesthetically pleasing,

or at least impressive, as with particular rural landscapes or seascapes), or a combination of both (i.e. the *patina of age*, see below). The following extract is from the English Heritage publication *Seeing History in the View* (2011, 3):

Views play an important part in shaping our appreciation and understanding of England's historic environment, whether in towns or cities or in the countryside. Some of those views were deliberately designed to be seen as a unity. Much more commonly, a significant view is a historical composite, the cumulative result of a long process of development.

The Setting of Heritage Assets (2015, 3) lists a number of instances where views contribute to the particular significance of a heritage asset:

- Views where relationships between the asset and other historic assets or places or natural features are particularly relevant;
- Views with historical associations, including viewing points and the topography of battlefields;
- Views where the composition within the view was a fundamental aspect of the design or function of the heritage asset;
- Views between heritage assets and natural or topographic features, or phenomena such as solar and lunar events;
- Views between heritage assets which were intended to be seen from one another for aesthetic, functional, ceremonial or religious reasons, such as military or defensive sites, telegraphs or beacons, Prehistoric funerary and ceremonial sites.

On a landscape scale, views, taken in the broadest sense, are possible from anywhere to anything, and each may be accorded an aesthetic value according to subjective taste. Given that terrain, the biological and built environment, and public access restrict our theoretical ability to see anything from anywhere, in this assessment the term *principal view* is employed to denote both the deliberate views created within designed landscapes, and those fortuitous views that may be considered of aesthetic value and worth preserving. It should be noted, however, that there are distance thresholds beyond which perception and recognition fail, and this is directly related to the scale, height, massing and nature of the heritage asset in question. For instance, beyond 2km the Grade II cottage comprises a single indistinct component within the wider historic landscape, whereas at 5km or even 10km a large stately home or castle may still be recognisable. By extension, where assets cannot be seen or recognised i.e. entirely concealed within woodland, or too distant to be distinguished, then visual harm to setting is moot. To reflect this emphasis on recognition, the term *landmark asset* is employed to denote those sites where the structure (e.g. church tower), remains (e.g. earthwork ramparts) or – in some instances – the physical character of the immediate landscape (e.g. a distinctive landform like a tall domed hill) make them visible on a landscape scale. In some cases, these landmark assets may exert landscape *primacy*, where they are the tallest or most obvious man-made structure within line-of-sight. However, this is not always the case, typically where there are numerous similar monuments (multiple engine houses in mining areas, for instance) or where modern developments have overtaken the heritage asset in height and/or massing.

Yet visibility alone is not a clear guide to visual impact. People perceive size, shape and distance using many cues, so context is critically important. For instance, research on electricity pylons (Hull & Bishop 1988) has indicated scenic impact is influenced by landscape complexity: the visual impact of pylons is less pronounced within complex scenes, especially at longer distances, presumably because they are less of a focal point and the attention of the observer is diverted. There are many qualifiers that serve to increase or decrease the visual impact of a proposed development (see Table 2), some of which are seasonal or weather-related.

Thus the principal consideration of assessment of indirect effects cannot be visual impact *per se*. It is an assessment of the likely magnitude of effect, the importance of setting to the significance of the heritage asset, and the sensitivity of that setting to the visual or aural intrusion of the proposed development. The schema used to guide assessments is shown in Table 5 (below).

5.6 Type and Scale of Impact

The effect of a proposed development on a heritage asset can be direct (i.e. the designated structure itself is being modified or demolished, the archaeological monument will be built over), or indirect (e.g. a housing estate built in the fields next to a Listed farmhouse, and wind turbine erected near a hillfort etc.); in the latter instance the principal effect is on the setting of the heritage asset. A distinction can be made between construction and operational phase effects. Individual developments can affect multiple heritage assets (aggregate impact), and contribute to overall change within the historic environment (cumulative impact).

Construction phase: construction works have direct, physical effects on the buried archaeology of a site, and a pronounced but indirect effect on neighbouring properties. Direct effects may extend beyond the nominal footprint of a site e.g. where related works or site compounds are located off-site. Indirect effects are both visual and aural, and may also affect air quality, water flow and traffic in the local area.

Operational phase: the operational phase of a development is either temporary (e.g. wind turbine or mobile phone mast) or effectively permanent (housing development or road scheme). The effects at this stage are largely indirect, and can be partly mitigated over time through provision of screening. Large development would have an effect on historic landscape character, as they transform areas from one character type (e.g. agricultural farmland) into another (e.g. suburban).

Cumulative Impact: a single development will have a physical and a visual impact, but a second and a third site in the same area will have a synergistic and cumulative impact above and beyond that of a single site. The cumulative impact of a proposed development is particularly difficult to estimate, given the assessment must take into consideration operational, consented and proposals in planning.

Aggregate Impact: a single development will usually affect multiple individual heritage assets. In this assessment, the term aggregate impact is used to distinguish this from cumulative impact. In essence, this is the impact on the designated parts of the historic environment as a whole.

5.6.1 Scale of Impact

The effect of development and associated infrastructure on the historic environment can include positive as well as negative outcomes. However, all development changes the character of a local environment, and alters the character of a building, or the setting within which it is experienced. change is invariably viewed as negative, particularly within respect to larger developments; thus while there can be beneficial outcomes (e.g. positive/moderate), there is a presumption here that, as large and inescapably modern intrusive visual actors in the historic landscape, the impact of a development will almost always be **neutral** (i.e. no impact) or **negative** i.e. it will have a **detrimental impact** on the setting of ancient monuments and protected historic buildings.

This assessment incorporates the systematic approach outlined in the ICOMOS and DoT guidance (see Tables 2-3), used to complement and support the more narrative but subjective approach advocated by Historic England (see Table 4). This provides a useful balance between rigid logic and nebulous subjectivity (e.g. the significance of effect on a Grade II Listed building can never be greater than moderate/large; an impact of negative/substantial is almost never achieved). This is in adherence with GPA3 (2015, 7).

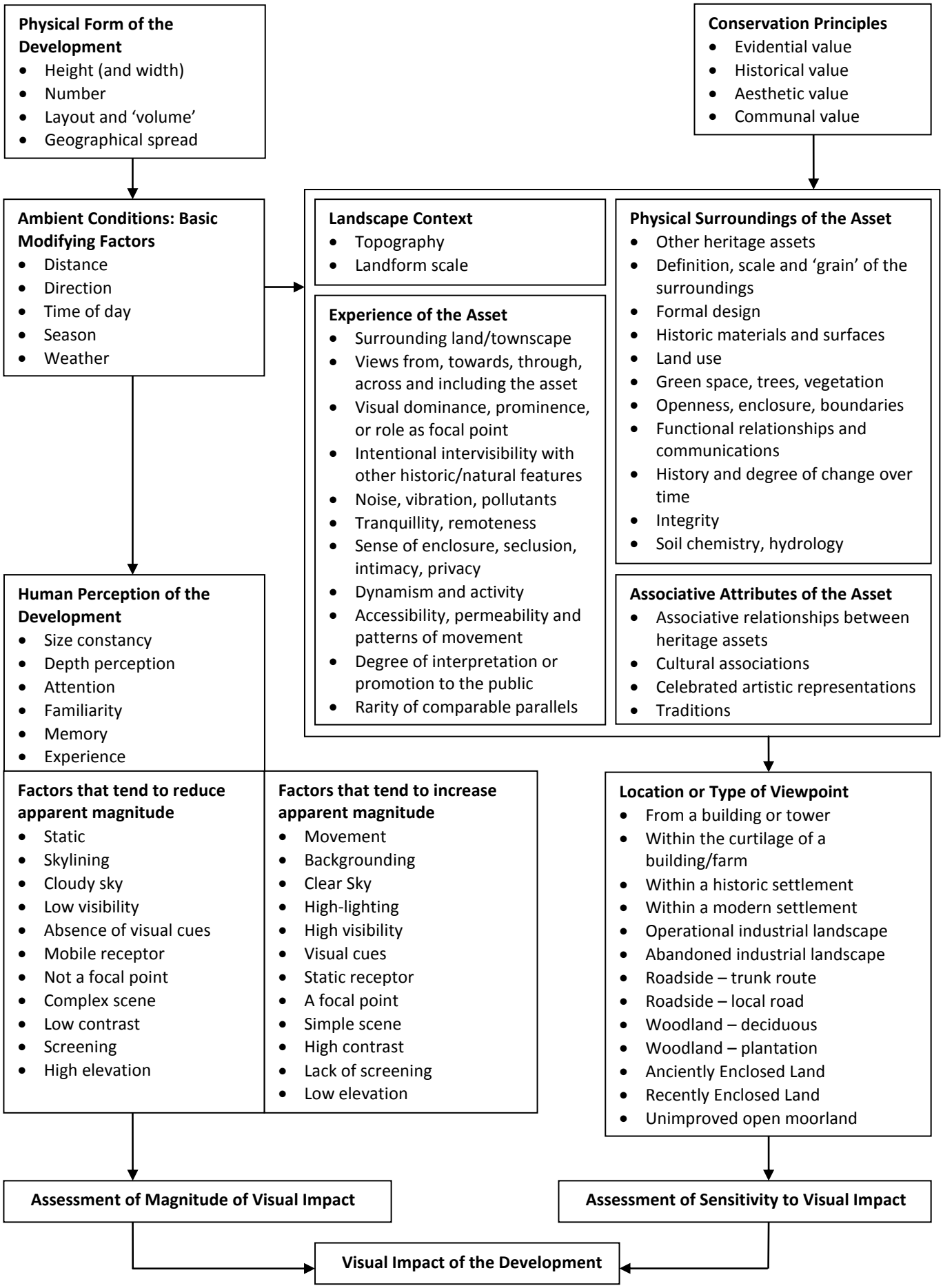


TABLE 4: THE CONCEPTUAL MODEL FOR VISUAL IMPACT ASSESSMENT PROPOSED BY THE UNIVERSITY OF NEWCASTLE (2002, 63), MODIFIED TO INCLUDE ELEMENTS OF *ASSESSMENT STEP 2* FROM THE SETTING OF HERITAGE ASSETS (HISTORIC ENGLAND 2015, 9).

TABLE 5: MAGNITUDE OF IMPACT (BASED ON DMRB VOL.11 TABLES 5.3, 6.3 AND 7.3).

Factors in the Assessment of Magnitude of Impact – Buildings and Archaeology	
Major	Change to key historic building elements, such that the resource is totally altered; Change to most or all key archaeological materials, so that the resource is totally altered; Comprehensive changes to the setting.
Moderate	Change to many key historic building elements, the resource is significantly modified; Changes to many key archaeological materials, so that the resource is clearly modified; Changes to the setting of an historic building or asset, such that it is significantly modified.
Minor	Change to key historic building elements, such that the asset is slightly different; Changes to key archaeological materials, such that the asset is slightly altered; Change to setting of an historic building, such that it is noticeably changed.
Negligible	Slight changes to elements of a heritage asset or setting that hardly affects it.
No Change	No change to fabric or setting.
Factors in the Assessment of Magnitude of Impact – Historic Landscapes	
Major	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.
Moderate	Changes to many key historic landscape elements or components, visual change to many key aspects of the historic landscape, noticeable differences in noise quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.
Minor	Changes to few key historic landscape elements, or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in minor changes to historic landscape character.
Negligible	Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.
No Change	No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors.

TABLE 6: SIGNIFICANCE OF EFFECTS MATRIX (BASED ON DRMB VOL.11 TABLES 5.4, 6.4 AND 7.4; ICOMOS 2011, 9-10).

Value of Assets	Magnitude of Impact (positive or negative)				
	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate/Large	Large/Very Large	Very Large
High	Neutral	Slight	Moderate/Slight	Moderate/Large	Large/Very Large
Medium	Neutral	Neutral/Slight	Slight	Moderate	Moderate/Large
Low	Neutral	Neutral/Slight	Neutral/Slight	Slight	Slight/Moderate
Negligible	Neutral	Neutral	Neutral/Slight	Neutral/Slight	Slight

TABLE 7: SCALE OF IMPACT.

Scale of Impact	
Neutral	No impact on the heritage asset.
Negligible	Where the developments may be visible or audible, but would not affect the heritage asset or its setting, due to the nature of the asset, distance, topography, or local blocking.
Negative/minor	Where the development would have an effect on the heritage asset or its setting, but that effect is restricted due to the nature of the asset, distance, or screening from other buildings or vegetation.
Negative/moderate	Where the development would have a pronounced impact on the heritage asset or its setting, due to the sensitivity of the asset and/or proximity. The effect may be ameliorated by screening or mitigation.
Negative/substantial	Where the development would have a severe and unavoidable effect on the heritage asset or its setting, due to the particular sensitivity of the asset and/or close physical proximity. Screening or mitigation could not ameliorate the effect of the development in these instances.

5.7 METHODOLOGY

The methodology adopted in this document is based on that outlined in *The Setting of Heritage Assets* (GPA3 Historic England 2015), with reference to ICOMOS (2011) and DoT (DMRB, WEBTAG) guidance. The assessment of effect at this stage of a development is an essentially subjective one, but one based on the experience and professional judgement of the author.

5.8 IDENTIFY THE HERITAGE ASSETS

In this instance, only a single heritage asset is considered: the Grade II Listed Loggans Mill located south-west of the site. There are other assets in the area (e.g. Church of St Felicitas at SW565384; other Listed buildings in Hayle and Phillack); but it is adjudged that the principal impact will fall on a single asset – Loggans Mill – and this assessment will focus on this building.

5.8.1 INDUSTRIAL BUILDINGS AND INFRASTRUCTURE

A range of industrial and extractive structures, often exhibiting elements of formal planning, rarely with a view to aesthetics

A whole range of structures relating to a whole range of industries falls under this broad category, and include ruined, standing and functioning buildings. This might include: bridges, canals, capstans, clay-drying facilities, engine houses, fish cellars, gunpowder mills, railways, warehouses and so forth. However, in most instances industrial buildings were not built with aesthetics in mind, despite the elements of formal planning that would often be present. The sensitivity of these structures to the visual intrusion of a wind turbine depends on type, age and location.

It is usually the abandoned and ruined structures, now overgrown and 'wild', that are most sensitive to intrusive new visual elements; in particular, wind turbines would compete for attention with the taller ruined structures (engine houses with chimneys, pit heads). The impact on these buildings could be significant. Where they occur in clusters – as they often do – the impact of an isolated wind turbine is lessened, but the group value of the heritage asset is enhanced.

What is important and why

This is a very heterogeneous group, though all buildings and associated structures retain some evidential value, which ranges with the degree of preservation. Some structures are iconic (e.g. Luxulyan viaduct) and quite often others are, due to the rapid intensification of industry in the 18th and 19th centuries, innovative in both design and application (historical/illustrative). Some may survive as working examples – in which case the associational value is maintained – but many are ruinous or converted (historical/associational). All were designed, and many conform to a particular template (e.g. engine houses) although incremental development through use-life and subsequent decrepitude may conceal this. Fortuitous development may then lead to ruinous or deserted structures or building complexes taking on the air of a romantic ruin (e.g. Kennall Vale gunpowder works), imagery quite at odds with the bustle and industry of their former function. Some of the more spectacular or well-preserved structures may become symbolic (e.g. South Crofty Mine), but communal value tends to be low, especially where public access is not possible.

Asset Name: Loggans Mill	
Parish: Phillack (Hayle)	*Value*: Medium
Designation: Grade II Listed	*Distance to Development*: c.50m
Description: Listing: Circa early C19, extended in 1852 for Mr W. Hosken and again in 1884. Granite rubble with granite dressings to the older parts, rock-faced granite to the later C19 part. Corrugated asbestos roofs with gable ends, coped gable end to right. Scantle slate roof over rear wing. Plan: large rectangular plan plus square tower towards left and single storey wing at right angles to rear right. Waterwheel was originally at rear left. The building was entirely refurbished in 1884 as a very advance steam-driven roller mill with electric light. All machinery now gone [Jan 1988]. Exterior: four storeys and five storeys. At left is taller (on higher ground) late C19 block with large rounded arched doorway on ground floor, otherwise blind. In front of the right hand corner of this block is a four-storey roofless tower of similar date. Tower has wide segmentally-arched doorway on the ground floor and windows to each floor above. Older part, right, is a regular 1:4:3 window range. Large window openings in the left-bay, otherwise smaller window openings. Two openings have been made into loading doorways, many of the openings have been blocked but there are some circa late C19 four-pane sashes and some small-	

paned casements surviving. Datestoen on right-hand gable end. Interior: not inspected. This mill is part of a large C19 industrial complex much of which has been partly demolished in the 1980s.
Supplemental Comments: Interior not inspected during the Listing process, but was inspected and reported on by CAU in 1998. Some machinery and fittings survived at that time, but the basement was not accessible.
Evidential Value: The surviving elements of the mill have been subject to recording (CAU 1998) but further recording would undoubtedly be of value. Given the long history of the site, below-ground evidence for earlier mills may survive, despite the fact much of the site has been redeveloped.
Historical Value: The mill was one of the largest and most advanced in its day, with a long historical pedigree. It is associated with the locally-notable Hosken Family and the Hockin family (rectors of Phillack).
Aesthetic Value: The surviving structure is a large and solid-looking industrial building. Nonetheless, the vernacular materials and design aesthetic survives.
Communal Value: The building has no communal value.
Authenticity: From the exterior the Mill is authentic in the sense it has not be subject to renovation or restoration, and thus reflects the state it was left in following the loss of its working use.
Integrity: Only the central building and tower survive, in a somewhat dilapidated state. Internal fixtures and fittings have been removed/destroyed.
Topographical Location and Landscape Context: The Mill is located towards the base of a shallow valley leading down to the Hayle estuary, on a south-east facing slope.
Principal Views: Limited. Overlooking the adjacent supermarket, with views to the top storey of the tower possible over the neighbouring structures.
Landscape Presence: Limited. The top of the tower projects above the roofs of adjacent properties and serves as a local landmark.
Immediate Setting: The mill is flanked on two sides by modern three-storey apartment blocks and terraced housing (Melyn Close), and by the car park attached to a Lidl supermarket. To the immediate east is an overgrown plot covered with trees reaching maturity.
Wider Setting: The Mill is tucked under the landward edge of the Hayle Towans overlooking the head of the Hayle estuary at Copperhouse.
Enhancing Elements: The authentic character of the building (i.e. not 'restored') and the maturing trees to the east.
Detracting Elements: The condition of the building; the housing estate on which it stands; the supermarket and car park to the south-east.
Direct Effects: Limited. The Mill lies outside the footprint of the proposed development, but the leat feeding it runs along the eastern side of the site.
Indirect Effects: There would be an effect on the setting of the Mill during the construction and occupation phases. Noise and dust from construction works would negatively effect the immediate setting of the Mill. The development would affect the visual setting of the Mill, embedding it within the urban environment of Hayle/Copperhouse.
Contribution of Setting to the Significance of the Asset: Setting contributes little to the significance of the building. Its value lies in its vernacular architect, long history and associations with Hayle families.
Magnitude of Impact: The proposed development would see the residential development of the field north-east of the Mill and would not be directly congruent. However, it would appear in views from across the valley to the south, substituting a residential foreground for a rural one. These would constitute *minor* changes to the setting of the Mill.
Impact Assessment: *Medium* value asset + *minor* change = *Slight* impact
Overall Impact Assessment: **Negligible to Negative/Minor**

6.0 CONCLUSION

The site is located on the edge of the settlement of Loggans, formerly parcel of the Manor of Connerton, and first recorded in 1154. There is a Domesday reference to a mill at Connerton, but Loggans Mill is first securely documented in 1684. It was rebuilt in the mid 19th century following a fire; the surviving mill building is in a poor state of repair within a recent housing development and adjacent to a Lidl superstore. The site consists of a single field that was attached to Loggans, and the leat that fed the Mill runs along the eastern boundary of the site. The northern and western boundaries are substantial stone-faced hedgebanks that once separated the enclosed parts of Loggans/Loggans Moor from the unenclosed Phillack Towans.

The walkover and geophysical surveys failed to identify significant archaeological remains within the area of the development. A series of manhole covers were noted in the field and it is likely there has already been a reasonable level of disturbance from service trenching. However, the BGS lists the superficial deposits in this area as wind-blow sand, and as only some of the service trenches register on the geophysical survey it is likely the sand dampens and obscures the results.

The archaeological potential of the site is unproven, subject to the caveats above. The leat to the east is a substantial feature linked to the 19th and 20th century development of the Loggans Mill complex. The proposed breach in the hedgebank flanking Loggans Road should be recorded to determine the structural significance of that feature.

7.0 BIBLIOGRAPHY & REFERENCES

Published Sources:

Chartered Institute of Field Archaeologists 2014a: *Standard and Guidance for Historic Environment Desk-based Assessment*.

Chartered Institute for Archaeologists 2014b: *Standard and Guidance for Archaeological Geophysical Survey*.

English Heritage 2008a: *Conservation Principles: policies and guidance for the sustainable management of the historic environment*.

English Heritage 2008b: *Geophysical Survey in Archaeological Field Evaluation.*

English Heritage 2011: *Seeing History in the View*.

English Heritage 2012: *Understanding Place: historic area assessments in a planning and development context*.

Historic England 2015: *The setting of Heritage Assets: Good Practice Advice Note 3*.

Historic Scotland 2010: *Managing Change in the Historic Environment: Setting*.

Hull, R.B. & Bishop, I.D. 1988: 'Scenic Impacts of Electricity Transmission Towers: the influence of landscape types and observer distance', *Journal of Environmental Management* 27, 99-108.

ICOMOS 2011: *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*. International Council on Monuments and Sites.

Lysons, D. & Lysons, S. 1814: *Magna Britannia, volume 3: Cornwall*. London,

Landscape Institute 2013: *Guidelines for Landscape and Visual Impact Assessment, 3rd edition*. London.

Schmidt, A. 2002: *Geophysical Data in Archaeology: A Guide to Good Practice.* ADS series of Guides to Good Practice. Oxbow Books, Oxford.

Soil Survey of England and Wales 1983: *Legend for the 1:250,000 Soil Map of England and Wales (a brief explanation of the constituent soil associations)*.

UNESCO 2015: *Operational Guidelines for the Implementation of the World Heritage Convention*.

University of Newcastle 2002: *Visual Assessment of Wind Farms: Best Practice*.

Watts, V. 2004: *The Cambridge Dictionary to English Place Names*. Cambridge University Press.

Wilson, J.M. 1870-72: *Imperial Gazetteer of England and Wales*.

Websites:

British Geological Survey 2017: *Geology of Britain Viewer*.
http://maps.bgs.ac.uk/geologyviewer_google/googleviewer.html

Cornwall Council Interactive Map 2017: *HER and HLC*
https://map.cornwall.gov.uk

Design Manual for Roads and Bridges (DMRB) 2017: Volume 11, Cultural Heritage
http://www.standardsforhighways.co.uk/DMRB/vol11/index.htm

Environment Agency 2017: *LiDAR, Digital Surface Model data*
http://environment.data.gov.uk/ds/survey#

Exeter University 2017: The Cornish in Latin America
http://projects.exeter.ac.uk/cornishlatin/Johnjose.htm

The Spectator Archive 1987: *Gathering of the Cardews*
http://archive.spectator.co.uk/article/19th-september-1987/19/gathering-of-the-cardews

WEBTAG 2017: Transport Analysis Guidance, Cultural Heritage
https://www.gov.uk/guidance/transport-analysis-guidance-webtag

Unpublished Sources:

CAU 2005: http://www.historic-cornwall.org.uk/cisi/hayle/hayle_historic_assessment_report.pdf

CAU 1998: http://map.cornwall.gov.uk/reports_event_record/1998/1998R021.pdf

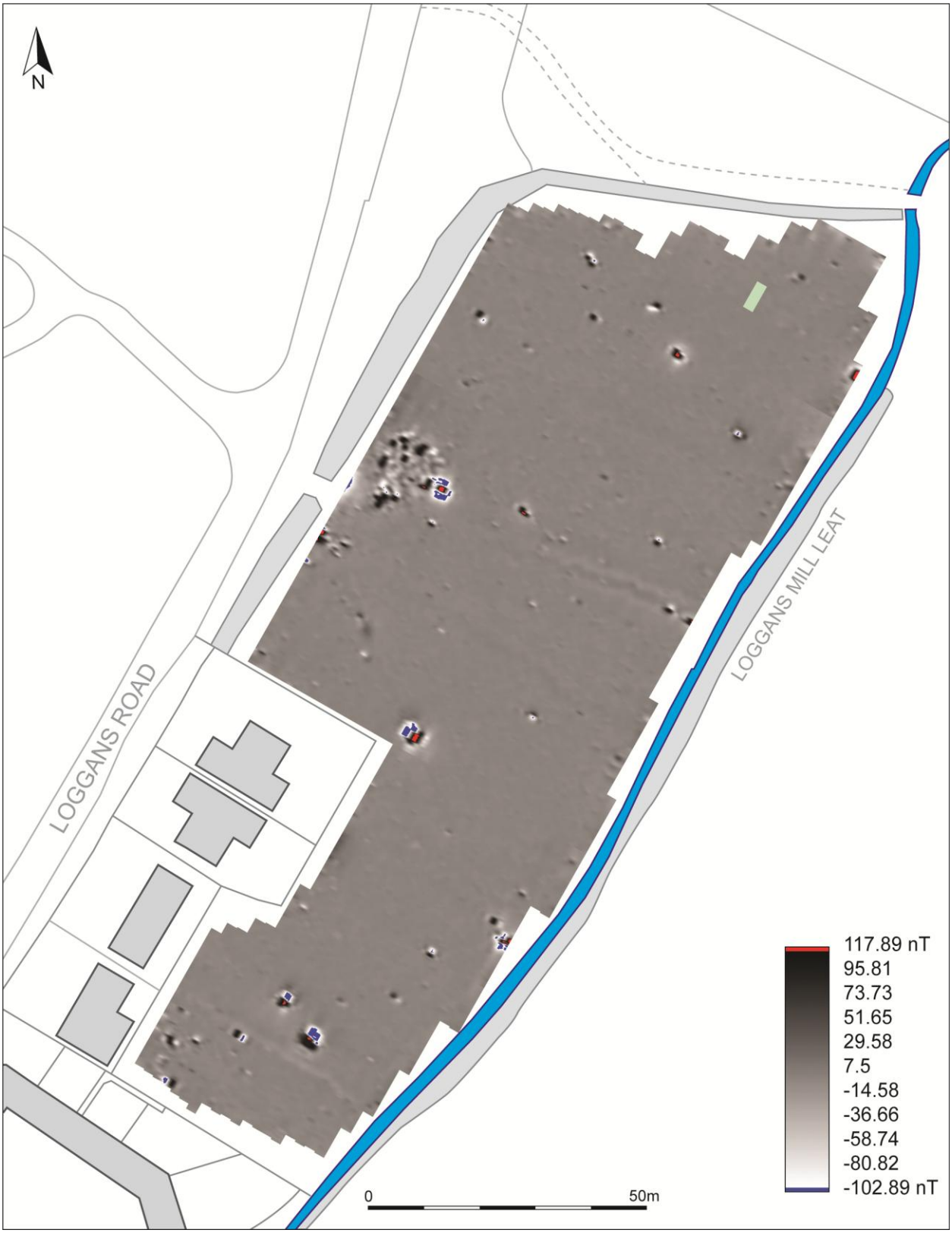
CAU 1993: http://map.cornwall.gov.uk/reports_event_record/1993/1993R024.pdf

Cornwall Record Office

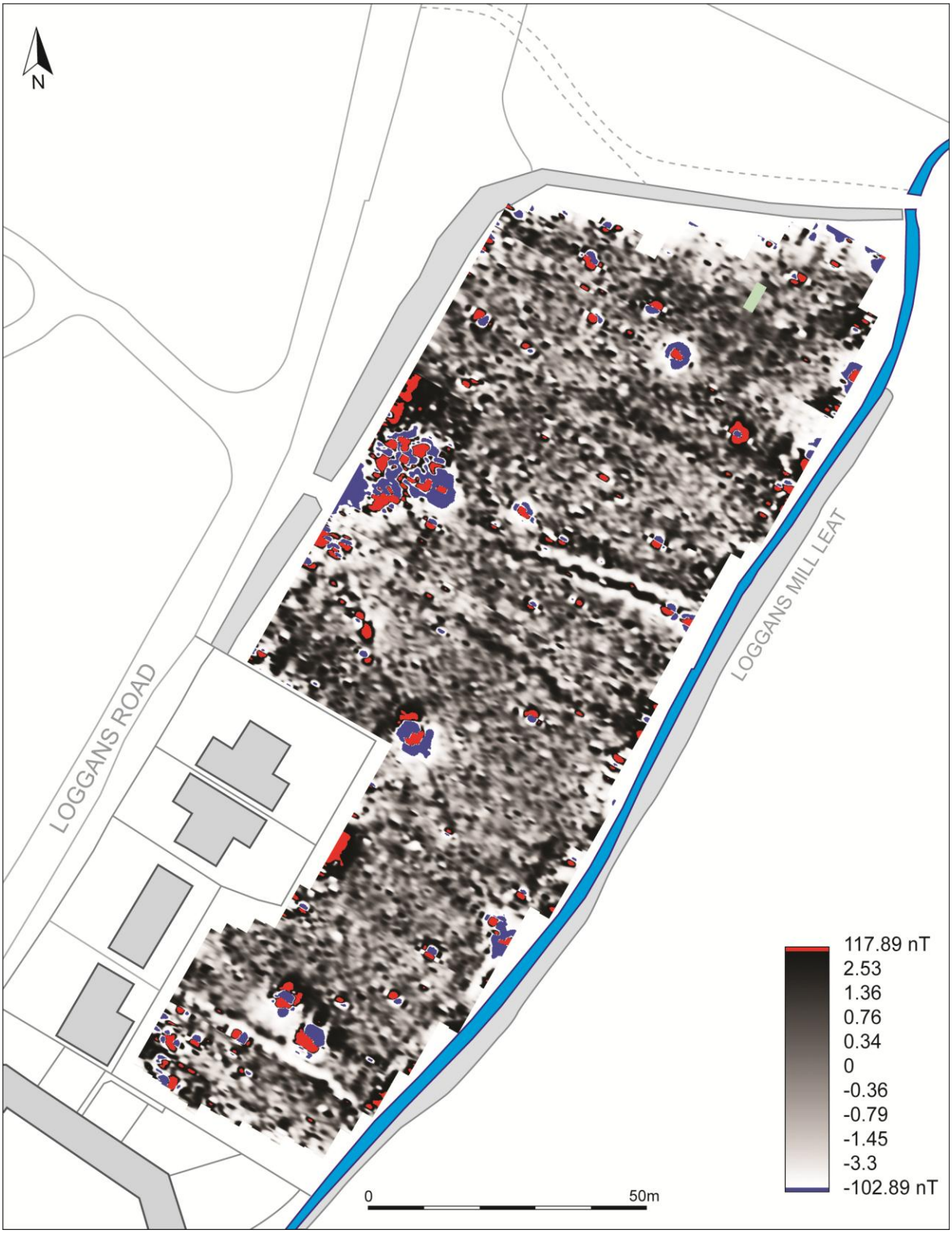
Phillack tithe map and apportionment c.1842

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY

GEOPHYSICAL SURVEY GRID LOCATION AND LAYOUT.



RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; GRADIATED SHADING.



RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WIEGHT EQUALISED; GRADIATED SHADING.

RED-BLUE-GREEN SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WIEGHT EQUALISED; GRADIATED SHADING.

APPENDIX 2: BASELINE PHOTOGRAPHS

View across the site from the gateway in the north-western hedgebank; viewed from the north, looking south.

The western hedgebank and gateway; viewed from the north-north-east, looking south-south-west.

The western corner of the site and adjacent bungalow; viewed from the north, looking south.

As above, with the roof of Loggans Mill rising above the roofs of the adjacent houses.

The southern corner of the field; viewed from the north, looking south.

The northern half of the field, from the western gateway; viewed from the south-west, looking north-east.

The north-west corner of the field, showing the telegraph poles; viewed from the south, looking north.

The new concrete bridge over the leat, just north of the site; viewed from the south, looking north.

The northern and western hedgebanks, from the north-east corner of the field; viewed from the east, looking west.

The leat, from the north-east corner of the field; viewed from the north-north-east, looking south-south-west.

Digitally-enhanced image of the leat running along the eastern boundary of the site; viewed from the north-north-east, looking south-south-west.

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