Marnhull Hybrid Application Sites A and B, Dorset

Gradiometer Survey Report

Planning Ref.: P/OUT/2023/02644
Document Ref.: 265291.03
September 2024

wessexarchaeology

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Document Information

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Document subtitle	Gradiometer Survey Report
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Site location	Schoolhouse Lane, Walton Elm, DT10 1LP and Church Hill, Marnhull, DT10 1LP
County	Dorset
National grid reference	Site A: 378085 118489 Site B: 378055 118808
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Planning authority	Dorset County Council
Planning reference	P/OUT/2023/02644
WA project name	Marnhull Hybrid Application Sites A and B, Dorset
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Project management by	Tom Richardson
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Quality Assurance

Issue	Date	Author	Approved by
1	28/03/2024	BH	[redacted] TR
2	18/09/2024	BH	[redacted] LJ

Contents

List of Figures

Summary

A gradiometer survey was conducted over land at Marnhull, Dorset (centred on NGR 378055 118808). The project was commissioned by P & D Crocker Ltd with the aim of establishing the presence, or otherwise, and nature of detectable archaeological features in support of a planning application for the development of the site as a residential development.

The site comprises arable fields located near Marnhull, covering an area of 12.72 ha. The geophysical survey was undertaken on 23 January 2024 for Site B and 27 August 2024 for Site A.

The geophysical survey has identified features of possible archaeological origin but widely supports the desk-based assessment, in determining that the landscape has been predominantly utilised for agricultural purposes which has resulted in no obvious settlement activity.

A possible archaeological trackway leading to a former quarry is noted in the west of Site A. This feature is marked as continuing beyond the survey boundary in a previous survey. A further possible boundary ditch is noted in the north-western portion of Site A.

Anomalies relating to post-medieval to modern agricultural activity have been identified, mostly across the south of Site B. This includes former field boundaries and former ponds evident on 1888 – 1913 OS mapping.

The remaining anomalies are modern or natural in origin. The modern anomalies include services, field drains, modern organic spread, and ploughing.

Acknowledgements

Wessex Archaeology would like to thank P & D Crocker Ltd for commissioning the geophysical survey. The assistance of Clare Spiller is gratefully acknowledged in this regard.

The fieldwork was undertaken by Jake Bishop, Callum Jervis, and David Butcher. Brett Howard processed and interpreted the geophysical data, wrote the report, and prepared illustrations. The geophysical work was quality controlled by Lydia Jones. The project was managed on behalf of Wessex Archaeology by Tom Richardson.

Marnhull Hybrid Application Sites A and B, Dorset

Gradiometer Survey Report

1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology was commissioned by P & D Crocker Ltd to carry out a geophysical survey over two areas of land, Site A and Site B, off Church Hill and Schoolhouse Lane, Marnhull, Sturminster Newton, Dorset (centred on NGR 378055 118808) (**Figure 1**). The survey forms part of an ongoing programme of archaeological works being undertaken in support of a planning application for the development of the site as a residential development.

1.2 Scope of document

1.2.1 This report presents a brief description of the methodology followed by the survey results and the archaeological interpretation of the geophysical data.

1.3 The site

1.3.1 The two sites are located west and south-west of the village of Marnhull and total 12.7 ha, split over three arable fields. The southern area, Site A, consists of 7.7 ha, of which 3.85 ha has been previously surveyed by Wessex Archaeology (2017) and is labelled LP_001. Site A is bounded by residential properties to the north, an open boundary and agricultural land to the west, and the B3092 to the east and south. The northern area, Site B, consists of 5 ha, is labelled LP_002 and LP_003, and is bounded by the road of Church Hill to the east, open agricultural land to the west, Burton Street to the north, and an unnamed lane to the south.

1.3.2 Site A is on a south facing slope from 86 m above Ordnance Datum (aOD) in the north to 74 m aOD in the south. Site B is on a north facing slope from 81 m aOD at the southern boundary to 74 m aOD at the northern boundary.

1.3.3 Various bands of bedrock are recorded across the two sites on a broadly north-east to south-west alignment:

- Site A comprises Mudstone of the Hazelbury Bryan Formation, Woodrow Clay Member, Oodial Limestone of the Cucklington Oolite Member, Sturminster Pisolite Member, and Sandy Mudstone of the Newton Clay Member.
- Site B comprises Mudstone of the Hazelbury Bryan Formation, Woodrow Clay Member, Oodial Limestone of the Cucklington Oolite Member, Sturminster Pisolite Member, and Sandy Mudstone of the Newton Clay Member. Superficial deposits of head clay, silt, and sand are recorded in the south of LP_003 (BGS 2024).

1.3.4 The soils underlying the sites likely consist of brown rendzinas of the Sherborne (343d) variety (SSEW SW Sheet 5, 1983). These soils have shown to produce acceptable contrasts for gradiometer survey.

2 ARCHAEOLOGICAL BACKGROUND

2.1 Introduction

2.1.1 The following historical and archaeological background has been compiled using publicly available online resources, combined with the results of Wessex Archaeology's previous investigations including an Archaeological Desk-based Assessment (ADBA) (Wessex Archaeology 2022), and in-house resources within a 1 km radius of the centre of the site.

2.2 Summary of the archaeological resource

2.2.1 Designated heritage assets within the study area comprise 1 Grade I listed building, 3 Grade II* listed buildings, and 46 Grade II listed buildings.

2.2.2 The only Grade I listed building is the medieval parish church of St Gregory (NHLE 1172545) 120 m south of LP_002. Situated at the junction of New Street, Church Hill, Crown Road, and Schoolhouse Lane, St Gregory's contains elements dating back to the 12th century, although the structure has been considerably altered and enlarged in subsequent centuries.

2.2.3 The search area contains three Grade II* listed buildings. Senior's Farmhouse and Attached Barn (NHLE 1172057) is located immediately to the west of the Church of St Gregory, 110 m south of LP_002. The farmhouse dates to *c.*1500, although it includes 18th century and later additions and alterations. The barn is of 18th century date. Secondly, the 17th century Chantry Farm (NHLE 1110410), which is located west of New Street on the outskirts of Marnhull, 900 m west of LP_001. A further listing at this location is the Stable/Dwelling Range Approximately 10 m South-west of Chantry Farm (NHLE 1172053), also of 17th century origin.

2.2.4 The remainder of the listed buildings within the search area, all of which are Grade II, are predominantly of post-medieval and 19th century date. They encompass a typical range of structures found in villages across Dorset, including numerous cottages, farmhouses, and associated agricultural buildings.

2.2.5 The Marnhull Conservation Area, first designated in 1971 encompasses the historic centre of the village but is divided into two distinct areas.

Prehistoric (970,000 BC – AD 43)

2.2.6 A hoard of 90 middle Bronze Age palstaves were found 655 m to the east of the site.

Romano-British (AD 43 – 410)

2.2.7 An archaeological evaluation in 2016 revealed evidence suggesting the presence of a ditched enclosure of Romano-British date 210 m to the north-west of the site, which could possibly relate to settlement activity.

2.2.8 There are low levels of Romano-British activity recorded within the surrounding landscape with the nearest identified settlement thought to be 9.5 km north of Marnhull. It is likely Marnhull was part of the agricultural landscape at this time.

Anglo-Saxon (AD 410 – 1066)

2.2.9 Earthworks located directly east of Site A, are thought to be the remains of the deserted medieval village (DMV) of Newnham. The settlement's earliest reference dates back to 1244, but it was not a recorded settlement until 1869.

2.2.10 There are possible evidential remains of quarrying along Salisbury Street, 730 m west from Site B, where the houses were constructed on the undulating ground left as a result of abandoned quarry areas.

2.2.11 It is likely that the majority of both sites and the surrounding landscape was utilised as arable land throughout this period, this can be seen through the earthwork remains of a drove road, Green Lane, and an animal pound directly south of Site A.

Post-medieval (AD 1500 – 1800) – Modern (AD 1900 – present day)

2.2.12 The settlement of Marnhull is thought to have been founded during the early post-medieval period, around the 15th century. The emergence of a settlement within the landscape can be seen in the significant increase in HER records during this period, specifically, those indicating the construction of housing, local businesses, and industries to support this growing population. These businesses included three malthouses, an iron foundry, a brick and tile works, a butter and cheese factory, and two candle making factories.

2.2.13 Despite this increased activity within the formerly agricultural landscape, 19th century mapping has highlighted that both sites remained as arable land throughout this period, with development centred around the areas covered by the Marnhull Conservation Area. The 1858 Tithe Map for Marnhull indicates that the majority of Site A is taken up by a larger enclosure, with a smaller enclosure covering the north-eastern corner of the site. A small section of the north-western corner also covers an adjoined enclosure. The Tithe Apportionment lists these enclosures as all arable, and owned by Rev. Henry Bower and Rev. Harry Jordan, respectively.

2.2.14 The 1858 Tithe Map indicates that Site B lies over sections of five separate fields. The south of the site encompasses sections of an orchard presumed to be associated with the Church of St Gregory. Further north the site is a mix of pasture and arable land, and all fields are owned by the Rev. Henry Bower, who documentary evidence shows to be a significant landowner within Marnhull.

2.2.15 Continuing on into the later 19th century, the 1887 Ordnance Survey (OS) mapping depicts the field layout remained the same within Site A from the Tithe Map. The OS mapping also indicates a pond within the northernmost field, which was also been divided into two, with the boundary running north to south-west within the north of the site. Within Site B, the small enclosure in the north-west corner has been removed, and a pond is also depicted within the west of the site and another in the north-east. No further changes were noted within either site in the 1901 OS Mapping.

2.2.16 The HER records show that during the Second World War, in 1940, a small British plane crash occurred within Site B. No physical evidence has been found in relation to this crash. If remains are still present within the site, they would be protected under the 1986 Protection of Military Remains Act.

2.3 Previous studies in the area

2.3.1 One recorded instance of previous intrusive archaeological investigations has been identified within Site A. An archaeological evaluation was undertaken on the west of the site in 2018. The trial trenching uncovered some archaeological features such as field boundaries, water management systems, and quarrying, thought to be either post-medieval or modern. The report concluded that the site evaluated was of low archaeological potential.

2.4 Recent investigations in the area

Geophysical survey

2.4.1 A detailed gradiometer survey was conducted by Wessex Archaeology over three sites within Marnhull, Dorset (centred on NGRs 377978 119290, 377935 118476, and 378779 119057) in November 2017. The nearest of these forms the western portion of the field in LP_001. These demonstrated the presence of a ring ditch likely relating to a Bronze Age barrow or Iron Age round house. Two rectilinear enclosure ditches were also identified in the area, as well as an area of possible pit features.

3 METHODOLOGY

3.1 Introduction

3.1.1 The geophysical survey for Site B was undertaken by Wessex Archaeology's in-house geophysics team on 23 January 2024; the geophysical survey for Site A was undertaken on 27 August 2024. Field conditions for the January survey were dry; however, the survey followed a period of heavy rainfall. An overall coverage of 8.35 ha was achieved across Site B. Site A comprised an overall coverage of 3.83 ha and field conditions were good throughout the survey.

3.1.2 The methods and standards employed throughout the geophysical survey conform to current best practice, and guidance outlined by the Chartered Institute for Archaeologists' (CIfA 2020) and Europae Archaeologiae Consilium (Schmidt *et al.* 2015).

3.2 Aims and objectives

3.2.1 The aims of the survey comprise the following:

- To determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices; and
- To inform either the scope and nature of any further archaeological work that may be required; or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource); or a management strategy.

3.2.2 In order to achieve the above aims, the objectives of the geophysical survey are:

- To conduct a geophysical survey covering as much of the specified area as possible, allowing for on-site obstructions;
- To clarify the presence/absence of anomalies of archaeological potential; and
- Where possible, to determine the general nature of any anomalies of archaeological potential.

3.3 Fieldwork methodology

3.3.1 The cart-based gradiometer system used a Carlson BRx7 GNSS instrument, which receives corrections from a network of reference stations operated by the Ordnance Survey (OS) and Leica Geosystems. Such instruments allow positions to be determined with a precision of 0.02 m in real-time and therefore exceeds Europae Archaeologiae Consilium recommendations (Schmidt et al. 2015).

3.3.2 The gradiometer survey was undertaken using four SenSys FGM650/3 magnetic gradiometers spaced at 1 m intervals and mounted on a non-magnetic cart. Data were

collected with an effective sensitivity of ±8 µT over ±1000 nT range at a rate of 100 Hz, producing intervals of 0.02 m along transects spaced 4 m apart.

3.4 Data processing

3.4.1 Data from the survey were subjected to minimal correction processes. These comprise a 'Destripe' function (±5 nT thresholds), applied to correct for any variation between the sensors, and an interpolation used to grid the data and discard overlaps where transects have been collected too close together.

3.4.2 Further details of the geophysical and survey equipment, methods and processing are described in **Appendix 1**.

4 GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

4.1 Introduction

4.1.1 Results are presented as a series of greyscale plots and archaeological interpretations at a scale of 1:1500 (**Figures 2** to **5**). The data are displayed at -2 nT (white) to +3 nT (black) for the greyscale image.

4.1.2 The interpretation of the datasets highlights the presence of potential archaeological anomalies, ferrous responses, burnt or fired objects, and magnetic trends (**Figure 3** and **5**). Full definitions of the interpretation terms used in this report are provided in **Appendix 2**.

4.1.3 Numerous ferrous anomalies are visible throughout the dataset. These are presumed to be modern in provenance and are not referred to, unless considered relevant to the archaeological interpretation.

4.1.4 It should be noted that small, weakly magnetised features may produce responses that are below the detection threshold of magnetometers. It may therefore be the case that more archaeological features may be present than have been identified through geophysical survey.

4.1.5 Gradiometer survey may not detect all services present on site. This report and accompanying illustrations should not be used as the sole source for service locations and appropriate equipment (e.g., CAT and Genny) should be used to confirm the location of buried services before any trenches are opened on site.

4.2 Gradiometer survey results and interpretation

*Site B (**Fig. 2** – **3**)*

4.2.1 A weak positive linear anomaly has been identified in the southern portion of LP_002 at **4000**. The anomaly is 72 m long east – west and 2 m wide. This anomaly corresponds with a former field boundary evident on 1888 – 1913 OS mapping six-inch to the mile (1:10,560).

4.2.2 Immediately west of **4000** are a series of strong positive amorphous anomalies at **4001** – **4003**. The anomalies cover an area of 58 m north – south by 37 m east – west. These have been interpreted as disturbance associated with the removal of former field boundaries noted on 1888 – 1913 OS mapping six-inch to the mile (1:10,560).

4.2.3 A strong dipolar amorphous anomaly has been identified in the south-eastern portion of LP_002 at **4004**. The anomaly is 14 m in diameter and corresponds to the location of a former pond noted on 1888 – 1913 OS mapping six-inch to the mile (1:10,560).

4.2.4 Two linear areas of weak magnetic variation have been noted in LP_002 at **4005** and **4006**. The anomaly at **4005** is 190 m long north-east to south-west and 10 m wide. The anomaly at **4006** is 85 m long north – south and 6 m wide. The weak and broad nature of these anomalies is typical of natural variation in the local geology, likely colluvium.

4.2.5 Two strong dipolar linear anomalies have been noted on the site at **4007** and **4008**. The anomaly at **4007** is 230 m long north – south and 4 m wide. The anomaly at **4008** is 117 m long east – west and 4 m wide. These are indicative of modern services.

4.2.6 Weak positive linear anomalies on an ENE – WSW orientation have been identified across LP_002, with an example at **4009**. These correspond to modern ploughing.

4.2.7 A weak dipolar linear anomaly is evident in LP_002 at **4010**. The anomaly is 95 m in length on a north – south orientation and has been interpreted as a land drain.

*Site A – August 2024 (**Fig. 4 – 5**)*

4.2.8 A weak positive linear anomaly has been identified at **4100**. The anomaly is 107 m long east – west, between 2 m – 9 m wide, and has two northwardly protuberances, the longest at 18 m long. The anomaly has been interpreted as possible archaeology, following on from the geophysical report produced by Wessex Archaeology (2017). The anomaly was interpreted as a possible trackway to an area of likely quarrying to the west, which later became a pond noted on 1888 – 1913 OS mapping. The northwardly protuberances may indicate further track ways or excavation.

4.2.9 A positive right-angled linear anomaly is noted in the north-western portion of the surveyed area, at **4101**. The anomaly is 18 m long east – west, with a right-angled turn to the north at its western extent before continuing 16 m and is 1 m – 2 m wide. The anomaly has been interpreted as an archaeological ditch feature, possibly relating to former agricultural boundaries. However, it may equally be attributable to modern agricultural practices or drainage.

4.2.10 Two amorphous areas of increased magnetic response are noted in the western portion of the site at **4102** and **4103**. The anomaly at **4102** is 50 m in diameter, while the anomaly at **4103** is 19 m in diameter. These anomalies are likely attributed to spreads of organic matter from modern agricultural practices.

4.2.11 A broad positive and negative linear anomaly bisects the site at **4104**. The anomaly is 203 m long north-west to south-east and is 22 m wide. This has been interpreted as geological activity, likely the result of a former watercourse.

4.2.12 Two areas of weak positive linear anomalies are noted in the southern and northern portions of the site, at **4105** and **4106**. These are the result of modern agricultural ploughing.

4.2.13 A strong dipolar linear anomaly is present in the eastern portion of the site, at **4107**. The anomaly is 120 m long north – south and 4 m wide. This has been interpreted as a modern service. Two weakly negative linear anomalies extend west at **4108** and **4109**. The southern of these (**4108**) is a continuation of an anomaly seen in the previous survey interpreted as a service. The northern is likely to be another service or drain.

5 DISCUSSION

5.1.1 The geophysical survey has identified features of possible archaeological origin but widely supports the desk-based assessment, in determining that the landscape has been predominantly utilised for agricultural purposes which has resulted in no obvious settlement activity.

5.1.2 A possible archaeological trackway leading to a former quarry is noted in the west of Site A. This feature is marked as continuing beyond the most recent survey boundary in a previous geophysical survey. A further possible boundary ditch is noted in the north-western portion of Site A.

5.1.3 Anomalies relating to post-medieval to modern agricultural activity have been identified, mostly across the south of Site B. This includes former field boundaries and former ponds evident on 1888 – 1913 OS mapping.

5.1.4 The remaining anomalies are modern or natural in origin. The modern anomalies include services, field drains, modern organic spread, and ploughing.

REFERENCES

Schmidt, A, Linford, P, Linford, N, David, A, Gaffney, C, Sarris, A and Fassbinder, J. 2015 Guidelines for the use of geophysics in archaeology: questions to ask and points to consider. EAC Guidelines 2, Belgium: European Archaeological Council.

Chartered Institute for Archaeologists [CIfA] 2020 Standards and guidance for archaeological geophysical survey. Reading, CIfA

Cartographic and documentary sources

Ordnance Survey 1983 Soil Survey of England and Wales Sheet 5, Soils of Southern and South-western England. Southampton.

Wessex Archaeology 2017, Marnhull Residential Development Sites, Dorset. Detailed Gradiometer Survey Report. Report no. 118911.01

Wessex Archaeology 2022, Marnhull Sites A and B, Dorset. Archaeological Desk-Based Assessment. Document reference no. 265291.02

Online resources

British Geological Survey Geology of Britain Viewer (accessed March 2024) http://mapapps.bgs.ac.uk/geologyofbritain/home.html

Dorset Explorer (accessed March 2024) https://gi.dorsetcouncil.gov.uk/explorer/

Google Earth website http://earth.google.com (accessed March 2024)

Historic England (HE) website https://historicengland.org.uk/listing/the-list/map-search (accessed March 2024

Historic England Aerial Photography Maps https://historicengland.maps.arcgis.com/ (accessed September 2024)

Heritage Gateway website https://www.heritagegateway.org.uk/gateway (March 2024)

National Library of Scotland (NLS) https://maps.nls.uk/geo/explore/ (September 2024)

APPENDICES

Appendix 1 Survey equipment and data processing

Survey methods and equipment

The magnetic data for this project were acquired using a non-magnetic cart fitted with four SenSys FGM650/3 magnetic gradiometers.

The instrument has four sensor assemblies fixed horizontally 1 m apart allowing four traverses to be recorded simultaneously. Each sensor contains two fluxgate magnetometers arranged vertically with a 0.6 m separation and measures the difference between the vertical components of the total magnetic field within each sensor array. This arrangement of magnetometers suppresses any diurnal or low frequency effects.

The gradiometers have an effective resolution of ±8 µT over ±1000 nT range. All of the data will be then relayed to a CS35 tablet, running the MONMX program, which is used to record the survey data from the array of FMG650/3 probes at a rate of 100 Hz. The program also receives measurements from a GPS system, which is fixed to the cart at a measured distance from the sensors, providing real time locational data for each data point.

The cart-based system relies upon accurate GPS location data which is collected using a Carlson BRX-7 RTK system. This receives corrections from a network of reference stations operated by the Ordnance Survey, allowing positions to be determined with a precision of 0.02 m in real-time and therefore exceed the level of accuracy recommended by European Archaeologiae Consilium (Schmidt *et al.* 2015).

Post-processing

The magnetic data collected during the detail survey are downloaded from the Sensys system for processing and analysis using both commercial and in-house software. This software allows for both the data and the images to be processed in order to enhance the results for analysis; however, it should be noted that minimal data processing is conducted so as not to distort the anomalies.

The cart-based system generally requires a lesser amount of post-processing than the handheld instrument. This is largely because mounting the gradiometers on the cart reduces the occurrence of operator error, caused by inconsistent walking speeds and deviation in traverse position due to varying ground cover and topography.

Typical data and image processing steps may include:

- Destripe – Applying a zero-mean traverse in order to remove differences caused by directional effects inherent in the magnetometer;
- Destagger – Shifting each traverse longitudinally by a number of readings. This corrects for operator errors and is used to enhance linear features;
- Despike – Filtering isolated data points that exceed the mean by a specified amount to reduce the appearance of dominant anomalous readings (generally only used for earth resistance data)

Typical displays of the data used during processing and analysis:

- Greyscale – Presents the data in plan view using a greyscale to indicate the relative strength of the signal at each measurement point. These plots can be produced in colour to highlight certain features but generally greyscale plots are used during analysis of the data.

Appendix 2 Geophysical interpretation

The interpretation methodology used by Wessex Archaeology separates the anomalies into four main categories: archaeological, modern, agricultural, and uncertain origin/geological.

The archaeological category is used for features when the form, nature and pattern of the anomaly are indicative of archaeological material. Further sources of information such as aerial photographs may also have been incorporated in providing the final interpretation. This category is further sub-divided into three groups, implying a decreasing level of confidence:

- Archaeology – used when there is a clear geophysical response and anthropogenic pattern.
- Possible archaeology – used for features which give a response, but which form no discernible pattern or trend.

The modern category is used for anomalies that are presumed to be relatively modern in date:

- Ferrous – used for responses caused by ferrous material. These anomalies are likely to be of modern origin.
- Modern service – used for responses considered relating to cables and pipes; most are composed of ferrous/ceramic material although services made from non-magnetic material can sometimes be observed.

The agricultural category is used for the following:

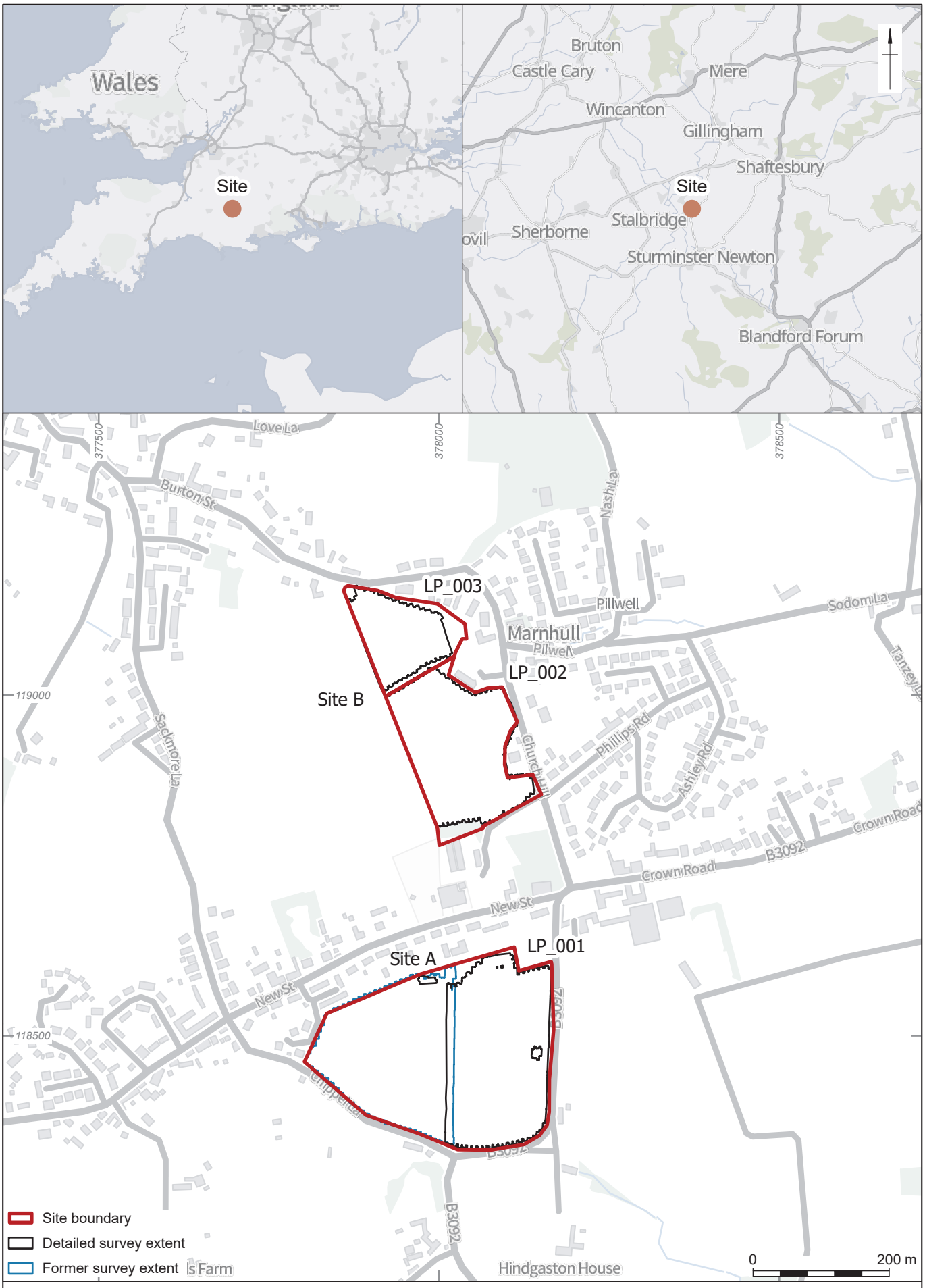
- Former field boundaries – used for ditch sections that correspond to the position of boundaries marked on earlier mapping.
- Ridge and furrow – used for broad and diffuse linear anomalies that are considered to indicate areas of former ridge and furrow.
- Ploughing – used for well-defined narrow linear responses, usually aligned parallel to existing field boundaries.
- Drainage – used to define the course of ceramic field drains that are visible in the data as a series of repeating bipolar (black and white) responses.

The uncertain origin/geological category is used for features when the form, nature and pattern of the anomaly are not sufficient to warrant a classification as an archaeological feature. This category is further sub-divided into:

- Increased magnetic response – used for areas dominated by indistinct anomalies which may have some archaeological potential.
- Trend – used for low amplitude or indistinct linear anomalies.
- Superficial geology – used for diffuse edged spreads considered to relate to shallow geological deposits. They can be distinguished as areas of positive, negative, or broad bipolar (positive and negative) anomalies.

Appendix 3 OASIS form

OASIS ID (UID)	wessexar1-528030
Project Name	Marnhull Hybrid Application Site A and Site B
Sitename	Marnhull Hybrid Application Site A and Site B
Sitecode	265291
Project Identifier(s)	265291
Activity type	Geophysical Survey, MAGNETOMETRY SURVEY
Planning Id	
Reason For Investigation	Planning: Pre application
Organisation Responsible for work	Wessex Archaeology
Project Dates	27-Aug-2024 - 27-Aug-2024
Location	Marnhull Hybrid Application Site A and Site B NGR : ST 78055 18808 LL : 50.96826753548197, -2.31389335156063 12 Fig : 378055,118808
Administrative Areas	Country : England County/Local Authority : Dorset Local Authority District : Dorset Parish : Marnhull
Project Methodology	The cart-based gradiometer system used a Carlson BRx7 GNSS instrument, which receives corrections from a network of reference stations operated by the Ordnance Survey (OS) and Leica Geosystems. Such instruments allow positions to be determined with a precision of 0.02 m in real-time and therefore exceeds Europae Archaeologiae Consilium recommendations (Schmidt et al. 2015). The gradiometer survey was undertaken using four SenSys FGM650/3 magnetic gradiometers spaced at 1 m intervals and mounted on a non-magnetic cart. Data were collected with an effective sensitivity of ±8 µT over ±1000 nT range at a rate of 100 Hz, producing intervals of 0.02 m along transects spaced 4 m apart.
Project Results	A possible archaeological trackway leading to a former quarry is noted in the west of Site A. This feature is marked as continuing beyond the survey boundary in a previous survey. A further possible boundary ditch is noted in the north-western portion of Site A. Anomalies relating to post-medieval to modern agricultural activity have been identified, mostly across the south of Site B. This includes former field boundaries and former ponds evident on 1888 – 1913 OS mapping. The remaining anomalies are modern or natural in origin. The modern anomalies include three modern services, field drains, modern organic spread, and ploughing.
Keywords	
Funder	Private or public corporation P & D Crocker Ltd
HER	
Person Responsible for work	Tom Richardson
HER Identifiers	
Archives	



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Date: 17/09/2024	Created by: BH	Revision: 0	Scale: 1:7,500 at A4

Figure 1: Site location and survey extent

X:\Projects\265291\GIS_ArcPro\265291_Marnhull\265291_Project\265291_Project.aprx

Site boundary
Detailed survey extent
Former survey extent

-2 nT 3 nT

0 50 m

Coordinate system: OSGB 1936 British National Grid
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Scale: 1:1500	Revision: 0	

Figure 2: Site B gradiometer survey results: greyscale

X:\Projects\265291\GIS_ArcPro\265291_Marnhull\265291_Project\265291_Project.aprx

377850 378000 378150

119100 118950 118800

Burton St

Burton St

Marnhull

Pilwell

Church Hill

Phillips Rd

Church Hill

LP_003

LP_002

4004

4008

4009

4010

Site B

4007

4005

4006

4000

4001

4002

4003

Site boundary
Detailed survey extent
Former field boundary
Historic landscape feature
Agricultural feature
Drain
Trend
Modern service
Ferrous
Former survey extent

0 50 m

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Figure 3: Site B gradiometer survey results: interpretation

X:\Projects\265291\GIS_ArcPro\265291_Marnhull\265291_Project\265291_Project.aprx

Site boundary
Detailed survey extent
Former survey extent

Site A
LP_001

New St
Butts Cl
Chippelltn
B3092
Schoolhouse Lane
377850
378000
378150
118650
118500
118350

-2 nT
3 nT
0
50 m

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Figure 4: Gradiometer survey results: Greyscale Plot LP_001

X:\Projects\265291\GIS_ArcPro\265291_Marnhull\265291_Project\265291_Project.aprx

Site A

LP_001

4100
4101
4102
4103
4104
4105
4106
4107
4108
4109

New St
Butts Cl
Chippelita
Schoolhouse Lane
B3092

377850
378000
378150
118650
118500
118350

Site boundary
Detailed survey extent
Possible archaeology
Increased response
Geomorphology
Modern service
Ferrous
Agricultural feature
Drain
Former survey extent

-2 nT
3 nT

0
50 m

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Figure 5: Gradiometer survey results: Interpretation LP_001

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