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HS2

High Speed Rail (Crewe to Manchester)

Background information and data

Historic environment

BID HE-004-0MA06

MA06: Hulseheath to Manchester Airport

Historic environment field survey report

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Department for Transport

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1 Introduction

1.1.1 This report presents the results of analysis of field survey data relating to the historic environment.

1.1.2 Baseline data have been collected for the Proposed Scheme in relation to the Hulseheath to Manchester Airport area (MA06).

1.1.3 All identified heritage assets discussed in this report are shown in the Volume 5, Historic environment Map Book, Map Series HE-01, HE-02 and HE-03[1].

1.1.4 The historic environment detailed gazetteer is set out in Appendix A of the Historic environment baseline report (see Background Information and Data: BID HE-001-0MA06). It sets out Unique gazetteer identifier (UID) codes for the heritage assets considered in the baseline date; these are used for reference across all the historic environment reports and maps in the Environmental Statement (ES)[2] and BID reports.

1.1.5 The approach to assessing the archaeological potential of the landscape is outlined in the Historic environment summary gazetteer, impact assessment table and archaeological character areas report (HE-002-0MA06[3]). This breaks the study area down into areas of archaeological character; initially into broad Archaeological Character Areas (ACA), and then more narrowly defined Archaeological Sub-zones (ASZ).

1.1.6 The approach used for assessing historic landscape character (HLC) is described in the Historic environment historic landscape character areas report (HE-003-0MA06[4]). The approach is used to determine Historic Landscape Character Areas (HLCA). HLCA are areas of coherent or distinctive historic landscape characteristics.

1.1.7 Within the historic environment reporting, various reference numbers have been used to provide a unique identifier to the heritage assets, HLCA, ACA/ASZ, geophysical survey anomalies and remote sensing features identified. These unique identifiers are referenced throughout the ES, BID reports and Map Books, and in summary are as follows:

[1] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Volume 5, Historic environment Map Book.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[2] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[3] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Hulseheath to Manchester Airport, Summary gazetteer, impact assessment table and archaeological character areas, Volume 5: Appendix HE-002-0MA06.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[4] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Hulseheath to Manchester Airport, Historic landscape character areas, Volume 5: Appendix HE-003-0MA06.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

- heritage assets have been given a Unique gazetteer identifier (UID), for example MA06_0001. These have been allocated to all heritage assets within the gazetteer of heritage assets, provided in Volume 5: Appendix HE-002-0MA06 (summary gazetteer) and BID HE-001-0MA06 (detailed gazetteer);
- historic landscape character areas have been given a unique identifier, for example MA06_HLCA02. These have been allocated to all HLCA within the Historic landscape character assessment, provided in Volume 5: Appendix HE-003-0MA06;
- archaeological character areas and archaeological sub-zones have been given a unique identifier, for example: archaeological character area MA06_AC01; and archaeological sub zone MA06_AC01.002. These have been allocated to all of the assessed archaeological character areas and archaeological sub-zones, provided in Volume 5: Appendix HE-002-0MA06;
- geophysical survey areas and features identified through the geophysical survey have been allocated a unique identifier, for example: geophysical survey area MA06_GP001, and geophysical survey feature MA06_GP001.001. These have been allocated to all of the identified geophysical survey areas and features, provided in BID HE-004-0MA06; and
- features identified through remote sensing have been allocated a unique identified, for example MA06_RS001. These have been allocated to all of the identified remote sensing features, provided in BID HE-005-0MA06.

2 Geophysical survey

2.1 Introduction

2.1.1 This report provides the results of geophysical surveys undertaken within the Hulseheath to Manchester Airport area.

2.1.2 The geophysical surveys were undertaken in accordance with the guidance and standards set out in:

- Generic written scheme of investigation for non-intrusive archaeological survey[5];
- Standards and Guidance for Archaeological Geophysical Survey[6];
- Geophysical Survey in Archaeological Filed Evaluation: Research and Professional Services Guidelines[7]; and
- Guidelines for the Use of Geophysics in Archaeology, Questions to Ask and Points to Consider[8].

2.1.3 The aims and general method for the geophysical survey are as set out in the GWSI (HE-006-00000).

2.1.4 Survey locations were identified in accordance with the method for risk assessment and survey prioritisation presented in Technical Note: Risk-based approach to prioritising archaeological surveys which is in the Environmental Impact Assessment Scope and Methodology Report (SMR)[9].

[5] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Generic written scheme of investigation for non-intrusive archaeological survey*, *Volume 5: Appendix HE-006-000000.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

[6] Chartered Institute for Archaeologists (CIfA) (2020), *Standards and Guidance for Archaeological Geophysical Survey,* Reading.

[7] David, A., Linford, N. and Linford, P. (2008), *Geophysical Survey in Archaeological Field Evaluation: Research and Professional Services Guidelines*, English Heritage, Swindon. On 1 April 2015, the part of English Heritage responsible for this guidance note changed its name to Historic England; this note remains valid but has not been updated to reflect this rebranding.

[8] Schmidt, A. R., Linford, P., Linford, N., David, A., Gaffney, C. F., Sarris, A. and Fassbinder, J. (2016), *Europae Archaeologogiae Consilium (EAC) Guidelines for the Use of Geophysics in Archaeology, Questions to Ask and Points to Consider*, Namur, Belgium.

[9] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report, Volume 5: Appendix CT-001-00001*. Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement.

2.2 Survey objectives

Aims of the survey

2.2.1 The aim of this survey is to establish the presence/absence, extent and character of detectable archaeological assets within the survey area, including both the testing of previously recorded sites and the identification of additional locations of archaeological potential not previously recorded.

Objectives of the survey

2.2.2 The results of the surveys have been combined with data from other archaeological assessments carried out as part of the project, such as desk-top studies, aerial photographic transcription and LiDAR[10] data, in order to analyse the archaeological potential of the survey locations.

2.3 Survey methodology

2.3.1 This section provides an overview of the used survey methods.

Data collection

2.3.2 The detailed magnetic survey was chosen as an efficient and effective method of locating archaeological anomalies. The surveys were undertaken between 07 February 2019 and 20 February 2020 and 13 and 14 August 2020 using Bartington Grad-01-1000L sensors, variously configured for use on a magnetometer cart (six sensors at 0.8m intervals/eight sensors at 0.5m intervals) or a manually carried frame (four sensors at 1m intervals).

Data processing

2.3.3 A zero median traverse function was used to remove the striping apparent in the raw data. In some cases, where beneficial, a high-pass filter was also applied to smooth the data.

2.3.4 The unprocessed and processed data sets have been presented in this report in greyscale format, the unprocessed data at a range of -8nT to 8nT and the processed at -3nT to 3nT. A comparison of the plots shows how the processing has removed the effects of drift in instrument calibration and maximised the clarity and interpretability of the detected anomalies.

[10] LiDAR (meaning 'light detection and ranging') is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor; this can be used to identify archaeological earthwork evidence.

Data presentation

2.3.5 A general site location plan showing all two of the individual survey areas is shown on Figure 1 at a scale of 1:75,000. Large-scale, fully processed (greyscale) data, unprocessed magnetometer data and accompanying interpretative plots of each individual survey area are presented at a scale of 1:2,500 in Figures 2 to 7 inclusive.

2.3.6 When interpreting the results, several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, phenology, topography etc.). Anomalies are categorised by their potential origin and divided into categories that are used in the graphical interpretation of the magnetic data:

- archaeology definitive/probable;
- archaeology possible;
- industrial/burnt flint;
- extraction;
- agricultural historic;
- agricultural modern;
- natural;
- ferrous;
- magnetic disturbance;
- uncertain; and
- modern service.

Assumptions and limitations

2.3.7 The results and subsequent interpretation of data from geophysical surveys should not be treated as an absolute representation of the underlying archaeological and non-archaeological remains. Confirmation of the presence or absence of archaeological remains can only be achieved by intrusive archaeological investigation of sub-surface deposits.

2.3.8 The quality of the survey data is good overall, with some fine detail resolved, particularly in the northern fields of MA06_GP007. However, the magnetic anomalies from soil-based features (e.g. ditches, plough furrows, superficial geology) are generally weak. There is a thin background scatter of small ferrous anomalies, and a few places, particularly towards the west of this survey area, where such anomalies are densely clustered, forming magnetic 'noise'. A few magnetic halos occur intermittently around the edge of the fields.

2.3.9 The data from the southernmost field of MA06_GP007 has a streaky appearance. This is due to tall vegetation which repeatedly knocked the magnetic sensors out of alignment, introducing small positive and negative biases to their readings each time this occurred. However, the quality of the data is acceptable, and the streaks would not have obscured any substantial archaeological anomalies had they been present.

2.3.10 The smallest of the six fields within MA06_GP007 was not surveyed as the access points were overgrown.

3 Geophysical survey results

3.1 Introduction

3.1.1 Geophysical Survey was undertaken at two locations in the Hulseheath to Manchester Airport area, comprising:

- Moss House Farm, Back Lane (MA06_GP001), see Figures 2 to 4; and
- Junction 6, Warburton Green (MA06_GP007 M56), see Figures 5 to 7.

3.1.2 The survey results are presented for each of the above areas, providing a brief background to the survey location, the results obtained and a brief discussion of those results.

3.1.3 In the following paragraphs magnetic anomalies identified in the course of the survey are discussed across each survey area within classification types based on their origin. Only anomalies that are distinctive or unusual are discussed individually. Where appropriate, such congruent groups of anomalies and individual anomalies have been identified by alphanumeric identifiers, e.g. MA06_GP001.001 refers to a feature or group of features within survey area MA06_GP001.

3.2 Moss House Farm, Back Lane - MA06_GP001

Survey location

3.2.1 The survey area consisted of three pasture fields measuring a combined 8.9ha. The survey area was bounded by Moss House Farm (MA06_0143) to the north, Peacock Lane to the south, Back Lane to the north-west and a water course to the east, centred on NGR 372139 384174. The site was situated on topographically flat land with underlying geology mapped as mudstone overlain by glacial till.

3.2.2 The survey area overlapped both the Pickmere to Agden and Hulseheath area (MA03) and the Hulseheath to Manchester Airport area (MA06). It was predominantly located within the North Cheshire Sandstone Ridge and Bucklow Hill ASZ (MA03_AC02.003). The ASZ comprises a low ridge of the Helsby sandstone formation extending from Knutsford in the south-west towards Lymm in the north-east. Bucklow Hill sits at the edge of this slight plateau raised above the Bollin Valley. The land type is defined by areas of former marginal land including place names such as Hulse Heath, Moss Farm, and Moss Lane indicating heath and boggy land that was subsequently improved and enclosed. The ASZ is within the HLCA MA03_HLCA04: Hulseheath.

3.2.3 There remains the possibility that the ridge was a focus for prehistoric settlement, in particular above 70mAOD overlooking the surrounding lower valleys and areas of mosses, lowland heath and meres. Excavation as part of the construction of the A556 has produced evidence of a Bronze Age funerary landscape at Bucklow Hill. This included a ring-ditch from a ploughed-out Bronze Age round barrow, and twelve inhumation graves and cremation

graves. The North Cheshire Ridge Roman road (MA03_0116) forms the southern boundary of the ASZ. There is the potential that this formed the focus for roadside settlement in the Roman period.

3.2.4 The area appears to have been settled in the early medieval period. There are several settlements recorded in the Domesday survey, during the medieval period including High Legh, Hough Hall and Bucklow Hill. Other place name evidence includes Hoo Green suggests a spur of land. Evidence of early medieval and medieval settlement is present in the form of moated sites. The remains of Millington deserted medieval settlement (MA03_0118) may be located within the ASZ. Where the ASZ is bisected by the M56 and the A556 Chester Road, remains are unlikely to survive.

3.2.5 The northern field of the survey area was located in the Agden Brook ASZ (MA06_AC01.001). The ASZ is located along the course of Agden Brook, a feeder stream for the River Bollin and the underlying geology is sands and gravel. These have the potential for palaeoenvironmental remains that can provide evidence of past environments dating to the prehistoric to medieval periods. The area around the stream includes the former post-medieval parkland of Agden Hall (MA03_0106), which contains surviving remains of the hall's former gardens (MA03_0144). The area is largely agricultural in nature with settlement mainly consisting of upstanding post-medieval farmsteads and halls. The ASZ is within the MA03_HLCA06: Agden characterised by post-medieval enclosure fields, wooded areas along Agden Brook and isolated farmsteads. Prehistoric and Roman remains have been identified within three key areas of the ASZ. They include the area immediately south of the feeder stream where a Bronze Age circular hammer stone and Roma coin hoard were recovered. A Bronze Age enclosure is depicted as cropmarks at Arthill and a findspot of a stone pebble hammer. A field system of rectilinear enclosures has been identified as cropmarks immediately west of the Chester to Manchester Roman road (MA03_0119 and MA06_0145) which bounds the eastern side of the ASZ. Where the ASZ is bisected by the M56 and the A556 Chester Road, remains are unlikely to survive.

Survey results

Extraction

3.2.6 Three areas of high magnetic disturbance were observed (see Figures 3 and 4 anomalies MA06_GP001.002 to MA06_GP001.004). Anomaly MA06_GP001.003 corresponds to remote sensing large cut feature MA06_RS080. These anomalies are interpreted as areas of extraction, and although they do not appear on any of the Ordnance Survey maps[11], the presence of extraction pits in the surrounding fields suggests (see BID HE-001-0MA06 and BID HE-005-0MA06) that quarrying was a widespread practice in the area. The strong

[11] Ordnance Survey (1882), *Cheshire County Series, Map Sheet XVIII*, 2nd edition, Scale 1:10,560.

magnetic response was caused by the magnetic properties of the material used to backfill the former pits.

Agricultural historic

3.2.7 In both the west and east of the survey area (see Figures 3 and 4, anomalies MA06_GP001.005 and MA06_GP001.006) former field boundaries, which are depicted on the 1882 Ordnance Survey map[11] were identified.

3.2.8 Parallel linear anomalies at right angles to the current field boundaries in the north-western field of the survey area have been identified as an area of extant ridge and furrow during remote sensing analysis (MA03_RS020). However, no evidence of ridge and furrow has been identified by this survey.

Agricultural modern

3.2.9 Linear anomalies either parallel or at right angles to the current field reflect the alignment of recent ploughing and the course of modern field drains.

Natural

3.2.10 Numerous low magnitude discrete anomalies were identified across the survey area. These were likely to be due to the variation in the depth and composition of the soils and superficial deposits from which the soil was partly derived.

Ferrous

3.2.11 Ferrous anomalies, characterised as individual 'spikes', were identified across the survey area. The spikes are typically caused by ferrous (magnetic) material, either on the ground surface or in the plough-soil.

Magnetic disturbance

3.2.12 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundary.

Modern service

3.2.13 In the west of the survey area (see Figures 3 and 4, MA06_GP001.001) a highly magnetic dipolar linear anomaly, aligned broadly north to south was detected. This response was interpreted as a buried service pipe following the course of the electric overhead cables.

Conclusions

3.2.14 The survey has identified a buried service pipe and anomalies which reflect the historical agricultural landscape in the form of former field boundaries, drains and ploughing trends,

as well as three discrete areas of magnetic disturbance which are the site of mineral extraction activity. No archaeological or possible archaeological anomalies were identified during the survey.

3.3 M56 Junction 6, Warburton Green - MA06_GP007

Survey location

3.3.1 The survey area consisted of six pasture fields with a combined extent of 13.8ha. It lies between Warburton Green and the M56 with its north-eastern and south-western ends bounded by Hale Road and Chapel Lane, respectively, and is centred on NGR 380008 384946. The smallest of the six fields, in the south-west was not surveyed as the access points were overgrown. The survey area had a gently undulating topography standing between 60m and 65mAOD with underlying geology mapped as mudstone with superficial deposits of till.

3.3.2 The survey area was located within the Ringway and Castle Hill ASZ (MA06_AC01.010). The ASZ covers a surviving fragment of rural landscape situated along the northern banks of the River Bollin on sands and gravel deposits. The topography rises from 30m to 65m northwards along the river valley. The ASZ is adjacent to Manchester Airport (which contained prehistoric remains) and bisected by the M56. It is within MA06_HLCA02: Ringway and includes Sunbank Wood and areas of post-medieval plantations. There is an absence of evidence for the prehistoric to Roman period despite proximity of the prehistoric settlement at Oversley Farm (MA06_0081). The potential site of a motte and bailey (Ullerswood) castle (MA06_0197) is located at Castle Hill Farm, near the historic crossing of the River Bollin at Mill Lane. Surviving evidence of medieval and post-medieval water management/mills are known at MA06_0092, MA06_0198, MA06_0199 and MA06_0201. The area includes the small hamlets of Ringway, Castle Hill Farm and Castle Mill which date from the medieval period. Where the ASZ is bisected by the M56, remains are unlikely to survive.

3.3.3 Historic maps of the survey area, including the Hale Tithe Map[12] and the 1882 Ordnance Survey map[11], show the survey area divided into a greater number of fields than at present, and also depict the hamlet of Buckhall immediately north-east of the survey area, either side of Hale Road.

Survey results

Archaeology possible

3.3.4 Positive linear anomalies in the northernmost field might represent ditches as they do not correspond to any known field boundaries or other modern features. One lies in the

[12] Unknown (1842), *Tithe Map of Hale in the Parish of Bowdon and County Palatine of Chester,* held at; Cheshire Archives and Local Studies, Ref: EDT 181/2.

northern end of the field (see Figures 6 and 7, MA06_GP007.001; MA06_0331), and two others (see Figures 6 and 7, MA06_GP007.002; MA06_0331), in a T-shaped configuration, close to its southern boundary.

3.3.5 Anomaly MA06_GP007.001 (MA06_0331) parallels the line of Hale Road and terminates in the south against a known historic boundary. It may thus be an early, unrecorded, element of the post-medieval field system, perhaps defining the rear of a plot along the road frontage.

3.3.6 Anomaly MA06_GP007.002 (MA06_0331) is of uncertain date and character and its archaeological significance is obscure. It may be no more than a set of drainage channels.

3.3.7 Two parallel anomalies (see Figures 6 and 7, MA06_GP007.003; MA06_0331), aligned east to west, lie immediately south of feature MA06_GP007.001. Whilst they correspond to a field boundary depicted on the Hale Tithe Map[12], they suggest a double-ditched feature, possibly a trackway rather than a simple boundary indicated by the map.

Extraction

3.3.8 A zone of intense magnetic noise (see Figures 6 and 7, MA06_GP007.004) at the edge of the second field from the south coincides with a cluster of former ponds depicted on historic Ordnance Survey maps. A magnetic response of this type indicates an abundance of ferrous debris within the backfill of the ponds.

3.3.9 A small irregular positive anomaly (see Figures 6 and 7, MA06_GP007.005) near the middle of the central field probably represents a pond that the Hale Tithe Map[12] shows to have lain in this location.

Agricultural historic

3.3.10 The remains of several former field boundaries (see Figures 6 and 7, MA06_GP007.006-MA06_GP007.012), known from historic mapping, have been detected across the survey area. They are mostly represented by positive linear anomalies, indicative of ditches.

3.3.11 The field boundary anomaly MA06_GP007.007 in the northern field is associated with a row of three ferrous dipoles which may represent the buried remains of fence posts.

3.3.12 In the second field from the north, three former boundaries have been identified. Two of these are confirmed by map evidence, but the third (see Figures 6 and 7, MA06_GP007.011) is unmapped and has been interpreted solely based on its character, alignment and relationship to the known boundaries.

Agricultural modern

3.3.13 Numerous weak linear anomalies in the central and northern fields have a speckled appearance, with their magnetic polarity alternating repeatedly from positive to negative along their length. Anomalies of this type are highly characteristic of ceramic field drains.

3.3.14 The weak negative linear anomalies which occur as parallel sets in the two northern fields are likely to represent other drains; perhaps mole drains or shallow gullies.

3.3.15 A set of closely spaced parallel anomalies in the second field from the north are of uncertain origin but most probably relate to modern drains or ploughing. Other, weak, parallel anomalies in the southern field may be of similar origin.

Natural

3.3.16 Numerous low magnitude discrete anomalies are identified across the survey area. These are likely due to the variation in the depth and composition of the soils and superficial deposits from which the soil was partly derived.

3.3.17 A large, weak, U-shaped anomaly (see Figures 6 and 7, MA06_GP007.017) in the second field from the north has a rather soft and diffuse character, suggestive of a geological feature.

Ferrous

3.3.18 Ferrous anomalies are small but intense magnetic anomalies, typically of dipolar form, caused by ferrous (iron or steel) material. They are widespread and abundant throughout the survey data. Most will relate to small pieces of buried rubbish and scrap metal, of no archaeological interest.

3.3.19 Two very large ferrous anomalies mark the bases of former electricity pylons (see Modern service below).

Magnetic disturbance

3.3.20 Magnetic disturbance around the field edges was due to ferrous material within, or adjacent to the boundaries.

Modern service

3.3.21 A diffuse, low intensity magnetic dipole (see Figures 6 and 7, anomaly MA06_GP007.013) marks the site of a telegraph pole in the second field from the north. A slightly sinuous magnetically negative linear anomaly (see Figures 6 and 7, MA06_GP007.014) extending north-east from the base of this pole to the edge of the survey area, probably represents the line of a cable trench.

3.3.22 Two very large ferrous anomalies (see Figures 6 and 7, MA06_GP007.015 and MA06_GP007.016), spaced approximately 240m apart, correspond to the locations of electricity pylons depicted on 1960s Ordnance Survey mapping[13]. Whilst the superstructures of the pylons have been removed, the anomalies indicate that their footings survive below ground.

[13] Ordnance Survey (1963-68), *Map Sheets SJ78SE and SJ88SW*, 1st edition, Scale: 1:1,250.

3.3.23 A broad and loosely defined band of magnetic dipoles extends through the western ends of the central and northern fields. This corresponds to the probable line of a sewer (inferred from manholes) and is likely to represent a concentration of scrap metal in the disturbed ground of the pipe trench.

Conclusions

3.3.24 The survey has identified a few features of possible minor archaeological interest and others, including field boundaries and ponds, which relate to the historic 19th century agricultural landscape.

3.4 Geophysical survey conclusions

3.4.1 The above geophysical surveys have provided an overview of the archaeological character of the Hulseheath to Manchester Airport area (MA06). The ground conditions and overall data quality was good throughout.

3.4.2 The survey at M56 junction 6, Warburton Green (MA06_GP007) has identified a few features of possible minor archaeological interest alongside field boundaries and ponds, which relate to the historic 19th century agricultural landscape. The group of archaeological linear features (MA06_0331[14]) do not correspond to any known field boundaries:

- one linear parallels the line of Hale Road and terminates in the south against a known historic boundary. It may thus be an early, unrecorded, element of the post-medieval field system, perhaps defining the rear of a plot along the road frontage;
- one is of uncertain date and may represent a set of drainage channels; and
- two parallel anomalies aligned east-west, lie immediately south of feature. Whilst they correspond to a field boundary depicted on the Hale Tithe Map[12], they suggest a double-ditched feature - possibly a trackway - rather than a simple boundary indicated by the map.

3.4.3 The survey at Moss House Farm (MA06_GP001) identified three former extraction areas alongside buried service pipes and anomalies which reflect the historical agricultural landscape in the form of former field boundaries (depicted on Ordnance Survey maps), drains and ploughing trends.

3.4.4 There remains the possibility that earlier prehistoric evidence is masked by the local geology. The survey at Moss House Farm did not identify any features relating to the Bronze Age funerary landscape known to the south-west at Bucklow Hill. The negative evidence may suggest this funerary landscape did not extend as far as Moss House Farm. The survey at the M56 junction 6 reflects the historical agricultural landscape comprising field boundaries including a possible early township boundary of Hale. Other linears are indicative of post-

[14] Feature references: MA06_GP007.001, MA06_GP007.002 and MA06_GP07.003.

medieval enclosure (MA06_HLCA01) and large 20th century fields influenced by development of Manchester Airport and the M56.

4 Gazetteer of identified features in MA06

4.1.1 Table 1 provides a summary of the features identified during the field surveys described above.

Table 1: Gazetteer of identified features in MA06

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA06_GP001.001		Modern service		Modern	A modern buried service pipe.	Figures 3 and 4	371955 384072 371969 384261
MA06_GP001.002		Extraction	Pit	Post-medieval	A high magnetic disturbance caused by backfill with magnetic properties. A former quarry pit.	Figures 3 and 4	372068 384188
MA06_GP001.003		Extraction	Pit	Post-medieval	A high magnetic disturbance caused by backfill with magnetic properties. A former quarry pit.	Figures 3 and 4	372329 384216
MA06_GP001.004		Extraction	Pit	Post-medieval	A high magnetic disturbance caused by backfill with magnetic properties. A former quarry pit.	Figures 3 and 4	372444 384270
MA06_GP001.005		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 3 and 4	372092 384108
MA06_GP001.006		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 3 and 4	372330 384277 372316 384180
MA06_GP007.001	MA06_0331	Archaeology possible	Township boundary	Post-medieval	A linear paralleling the line of Hale Road, defining the rear of a plot along the road frontage not shown on historic maps and therefore a potential early township boundary.	Figures 6 and 7	380167 385237

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA06_GP007.002	MA06_0331	Archaeology possible	Ditch	Post-medieval	A possible set of drainage channels.	Figures 6 and 7	380122 385112 380136 385104
MA06_GP007.003	MA06_0331	Archaeology possible	Double ditched feature	Post-medieval	Two parallel linear anomalies aligned east to west suggestive of a double ditched feature such as a trackway.	Figures 6 and 7	380118 385210 380113 385204
MA06_GP007.004		Extraction	Pond	Post-medieval	A cluster of former ponds depicted on historic Ordnance Survey maps. The magnetic response indicates an abundance of debris within the backfill.	Figures 6 and 7	379857 384826
MA06_GP007.005		Extraction	Pond	Post-medieval	A small pond shown on the Hale Tithe Map. The magnetic response indicates an abundance of debris within the backfill.	Figures 6 and 7	379991 384879
MA06_GP007.006		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	380181 385212 380196 385214
MA06_GP007.007		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	380169 385136 380158 385180
MA06_GP007.008		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	380047 385113
MA06_GP007.009		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	380014 384966 380035 385033
MA06_GP007.010		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	380115 384982 380067 385004

Reference	Asset UID	Anomaly category	Feature type	Period	Comment	Figure	NGR
MA06_GP007.011		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	380076 384946
MA06_GP007.012		Agricultural historic	Field boundary	Post-medieval	A post-medieval field boundary depicted on the 1882 Ordnance Survey map.	Figures 6 and 7	379951 384884
MA06_GP007.013		Ferrous		Modern	Site of a telegraph pole.	Figures 6 and 7	380077 384989
MA06_GP007.014		Modern service		Modern	A cable trench extending from the base of a telegraph pole.	Figures 6 and 7	380126 385017
MA06_GP007.015		Ferrous		Modern	A large anomaly 240m apart from MA06_GP007.016 which corresponds to a former electricity pylon depicted on historic Ordnance Survey maps.	Figures 6 and 7	380078 384972
MA06_GP007.016		Ferrous		Modern	A large anomaly 240m apart from MA06_GP007.015 which corresponds to a former electricity pylon depicted on historic Ordnance Survey maps.	Figures 6 and 7	379897 384806
MA06_GP007.017		Natural		Undated	A weak U-shaped anomaly suggestive of a geological feature. However, its semi-regular shape is unusual and therefore the interpretation remains inconclusive.	Figures 6 and 7	380153 385037

5 List of acronyms

5.1.1 The following acronyms in Table 2 have been used in this report.

Table 2: List of acronyms

Acronym	Meaning
ACA	Archaeological Character Areas
mAOD	metres above Ordnance Datum
ASZ	Archaeological Sub-zones
BID	Background Information and Data
CIfA	Chartered Institute of Archaeologists
EAC	Europae Archaeologogiae Consilium
GWSI	Generic Written Scheme of Investigation
HER	historic environment record
HLC/ HLCA	historic landscape character/ Historic landscape character areas
LiDAR	Light Detection and Ranging
NGR	National Grid Reference
UID	Unique gazetteer identifier

6 References

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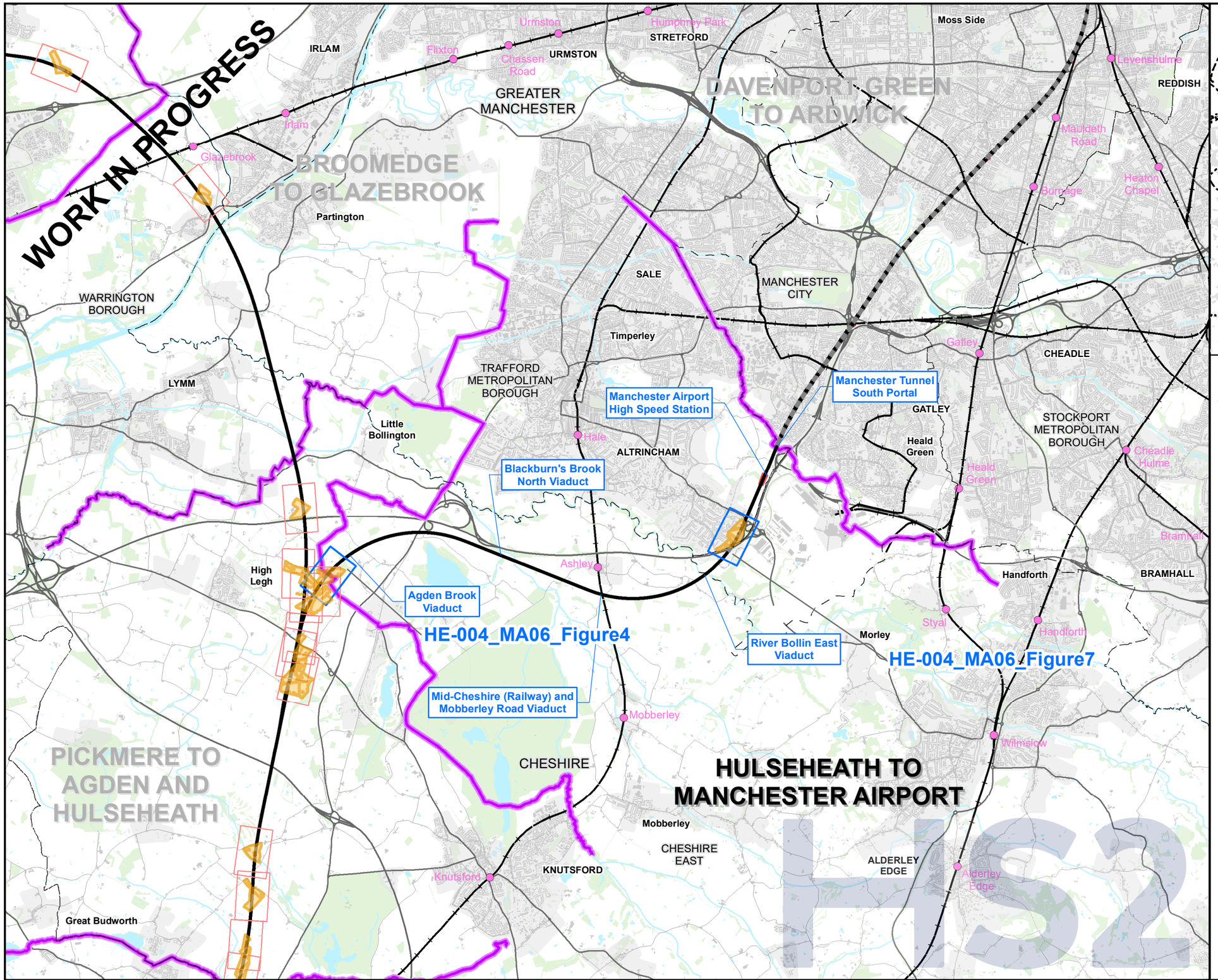


Map Series Information:

These maps show the results of the geophysical surveys in relation to the land required for the construction of the Proposed Scheme.

Note: Not all data layers in the legend are represented on every map.

Main Map Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Community area boundary
- Existing railway station
- County boundary
- District/Borough boundary
- Map sheets included in this community area
- Map sheets not included in this community area
- Survey areas

Map Number: HE-004_MA06_Figure1

Map Name: Geophysical Survey Index map

Community Area MA06: Hulseheath to Manchester Airport

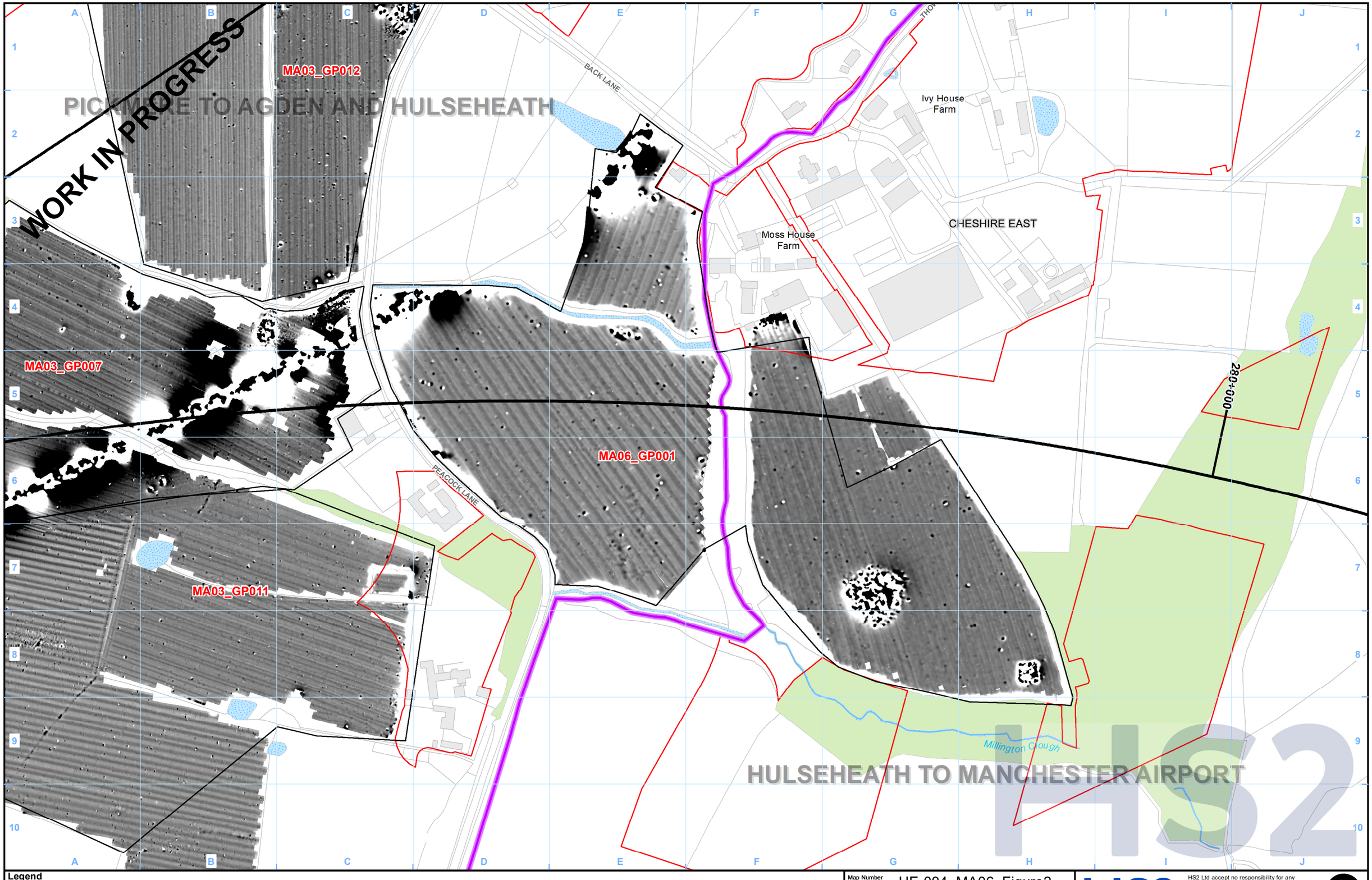
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:75,000

0 750 1,500 2,250 3,000 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002514-P01

Date: 22/06/21



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number: HE-004_MA06_Figure2

Map Name: Site MA06_GP001 Unprocessed Greyscale

Community Area MA06: Hulseheath to Manchester Airport

HS2

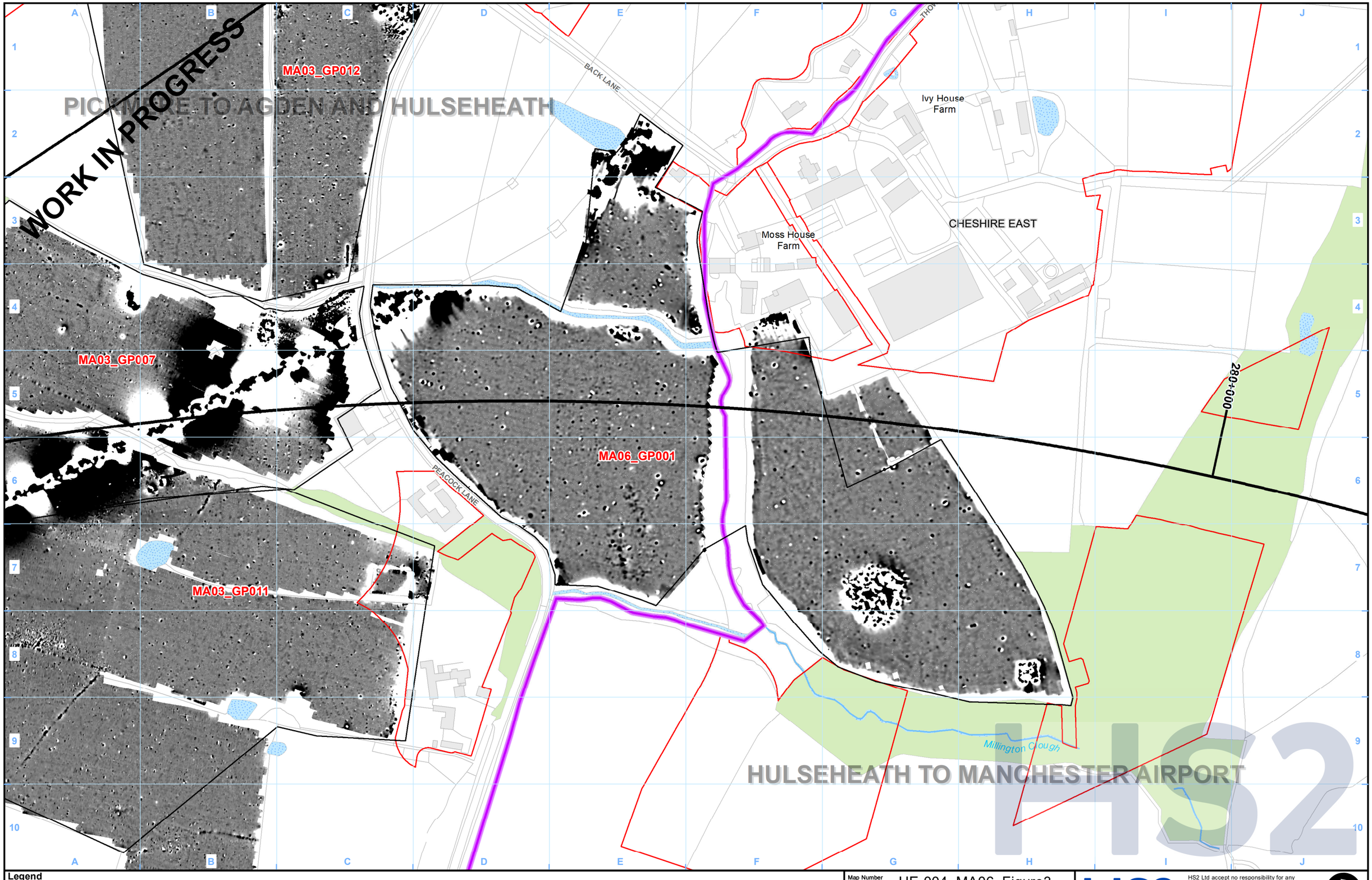
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002515-P01

Date: 22/06/21



Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number	HE-004_MA06_Figure3
Map Name	Site MA06_GP001 Greyscale
	Community Area MA06: Hulseheath to Manchester Airport

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002516-P01

Date: 22/06/21

WORK IN PROGRESS

PICKMERE TO AGDEN AND HULSEHEATH

MA03_GP012

BACK LANE

Ivy House Farm

CHESHIRE EAST

Moss House Farm

MA03_GP012.009

MA03_GP007.004

MA03_GP007.005

MA03_GP007.003

MA03_GP007

MA03_GP007.001

MA03_GP007.002

MA06_GP001.002

MA06_GP001.001

MA06_GP001

PEACOCK LANE

MA06_GP001.005

MA06_GP001.006

MA06_GP001.003

MA06_GP001.004

280+000

MA03_GP011

MA03_GP011.008

MA03_GP011.011

MA03_GP011.012

MA03_GP011.001

Millington Clough

HULSEHEATH TO MANCHESTER AIRPORT

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number HE-004_MA06_Figure4

Map Name

Site MA06_GP001 Interpretation

Community Area MA06: Hulseheath to Manchester Airport

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002517-P01

Date: 22/06/21

WORK IN PROGRESS

Warburton Green

TRAFFORD DISTRICT

MA06_GP007

288+000

M56

SUNBANK LANE

MANCHESTER DISTRICT

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Unprocessed Greyscale (nT)

Value

High : 8

Low : -8

Map Number	HE-004_MA06_Figure5
Map Name	Site MA06_GP007 Unprocessed Greyscale
	Community Area MA06: Hulseheath to Manchester Airport

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002518-P01

Date: 22/06/21

WORK IN PROGRESS

Warburton Green

TRAFFORD DISTRICT

MANCHESTER DISTRICT

288+000

MA06_GP007

M56

SUNBANK LANE

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body
- Survey area

Processed Greyscale (nT)

Value

High : 3

Low : -3

Map Number	HE-004_MA06_Figure6
Map Name	Site MA06_GP007 Greyscale
	Community Area MA06: Hulseheath to Manchester Airport

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002519-P01

Date: 22/06/21

WORK IN PROGRESS

TRAFFORD DISTRICT

Warburton Green

MA06_GP007.004

MA06_GP007.008

MA06_GP007.003

MA06_GP007.012

MA06_GP007

MA06_GP007.016

MA06_GP007.009

MA06_GP007.001

MA06_GP007.011

MA06_GP007.007

MA06_GP007.005

MA06_GP007.002

MA06_GP007.006

288+000

MA06_GP007.017

MA06_GP007.014

MA06_GP007.010

MA06_GP007.015

MA06_GP007.013

M56

SUNBANK LANE

MANCHESTER DISTRICT

Legend

- Route in tunnel
- Route on surface
- Depot, station, headhouse or portal building
- Land potentially required during construction
- Community area boundary
- County boundary
- District/Borough boundary
- Watercourse
- Water body

Geophysical survey results

- Archaeology definitive/probable
- Archaeology possible
- Industrial/burnt-fired
- Extraction
- Agriculture historic
- Natural
- Ferrous
- Magnetic disturbance
- Uncertain
- Modern service
- Archaeology definitive/probable
- Archaeology possible
- Agricultural historic
- Agricultural modern
- Natural
- Uncertain
- Modern service
- Survey area

Map Number: HE-004_MA06_Figure7

Map Name: Site MA06_GP007 Interpretation

Community Area MA06: Hulseheath to Manchester Airport

HS2

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,500

0 25 50 75 100 Metres

Doc Number: 2DE01-MWJ-EV-MAP-M000-002520-P01

Date: 22/06/21