1EW03 – Enabling Works Central

AWH – Design Framework

Project Plan for Assessment and Investigation of No-Data (blank) Areas

Document no.: 1EW03-FUS-EV-REP-C000-009810

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1 Executive summary

1.1.1 HS2 Topsoil Sampling-Scheme Wide Assessment Guidance Document no.: PH1-HS2-EV-PLN-000-000092 sets out a proposal for evaluating the artefact population of the ploughsoil zone. This project plan has been prepared partly in response to that document, and partly in response to the need to assess areas where baseline surveys, including magnetometry, have not revealed significant evidence to define a further stage of intrusive evaluation.

1.1.2 The Fusion HERDS Work Package Plan (1EW03-FUS-EV-PLN-C000-001847) Section 3.7 HERDS scope decision process sets out **Process 2** that is designed to ensure that areas of the site that have produced negative evidence as a result of the assessment of baseline data and surveys (including detailed magnetometer coverage) are assessed against a series of additional criteria to ascertain the scope for further investigation of unforeseen archaeological potential.

1.1.3 This project plan sets out the methods and results of a landscape model assessment to objectively assess the likely potential for unforeseen remains across the Central section of HS2 Phase 1 via a probability/suitability analysis. The landscape model uses two distinct evidence classes to determine site selection of no-data areas for further investigation. 1. Known past population activity (=probability), and landscape context (=suitability). The objective of the exercise is focussed at two specific activity periods (pre-Iron Age prehistory and post Roman Early medieval) which are less likely to be detected via the baseline dataset methods.

1.1.4 Two previous studies have been used to determine the hypothetical model for site location in relation to landscape topography. The landscape of the central route has been analysed within GIS to provide a land suitability baseline score for each field within the route section. The veracity of these assumptions has then been tested against 113 locations where significant settlement and burial remains have been discovered to date. The results are presented in Section 16.5. The effectiveness of geophysical surveys and trial trenching across the different route sectors both to define significant activity, and confirm negative evidence, has also been analysed in relation to results to date, and are set out in Section 3.1. The results of topsoil sampling to date that has been implemented alongside trial trenching has also been analysed and is presented in Section 3.2.

1.1.5 Palaeo-environmental potential within river floodplains with potential for buried Holocene landscapes and Pleistocene Palaeolithic archaeology and faunal/floral remains are being assessed in a separate route wide project plan (1EW03-FUS-EV-REP-C000-009813), where deposit modelling and geoarchaeological evaluation shall precede a decision on further works, and are not included here.

1.1.6 This project plan focusses on the potential for evidence of significant early prehistoric and early medieval material to be preserved within the disturbed topsoil/ploughsoil horizon. Significant clusters of such material may serve as a proxy to discover ephemeral and hard-to-detect activity evidence from these two periods. Recommendations for further investigation comprising a combination of ploughsoil artefact population distribution surveys (test pitting

and fieldwalking, supplemented in 3 locations by additional metal detecting survey, are proposed in this project plan.

1.1.7 Discovery of significant evidence for new sites that would contribute to HERDS objectives, may lead to the scoping of further investigation (selection of further mitigation and construction integrated recording areas), in specific locations, following completion of the surveys specified in this project plan. This will also include the specification of archaeological monitoring during construction, at locations (to be determined) to test and verify the results of the test pit and fieldwalking surveys.

2 Introduction

2.1.1 The scope set out in this project plan (No-data areas) sits within a framework of works being undertaken in EWC Central Section for HS2 Phase 1 (Figure 1).

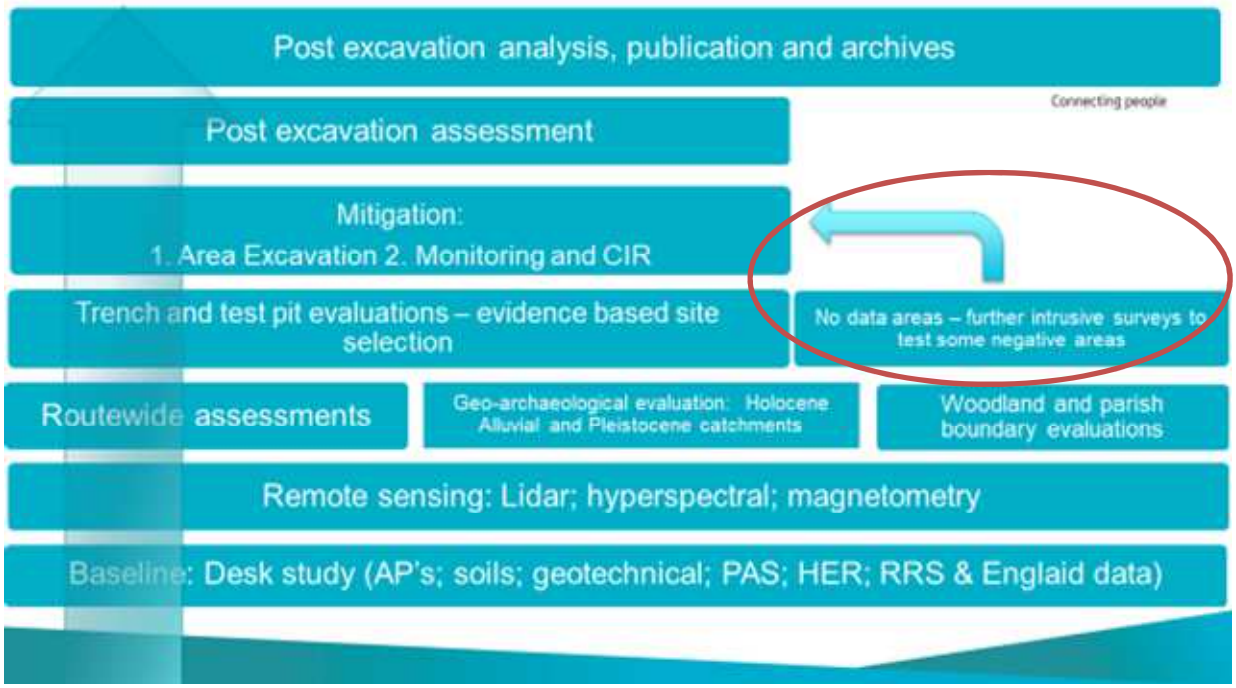


Figure 1 EWC Central Area HERDS scope diagram – no data area testing highlighted

2.1.2 Process 2 (Figure 2) was set out in the work package strategy plan (1EW03-FUS-EV-PLN-C000-001847 AWH WPP C02) and designed to ensure that no-data (or blank) areas, that may contain unexpected or unforeseen discoveries that are not apparent in the baseline, are subject to further assessment to manage the risk of unforeseen discoveries occurring at construction. The decision-making process will be documented with the assistance of a range of datasets now generated by the project. The landscape suitability model seeks to grade the potential sensitivity of all fields within the scheme by defining a land parcel suitability score.

2.1.3 The landscape model will improve and expand the decision-making process set out in the work package plan and take advantage of suitability and probability criteria, in order to provide an objective decision making audit trail to prioritise certain "no-data" land parcels for further evaluation of potential.

2.1.4 The landscape model criteria and scoring are set out in Appendix 16.4. The research background and theory for each of the criteria are described in the methods section below.

2.1.5 The selected scope for further investigation is set out at Appendix 16.5 and drawings attached to this project plan (16.8;16.9).

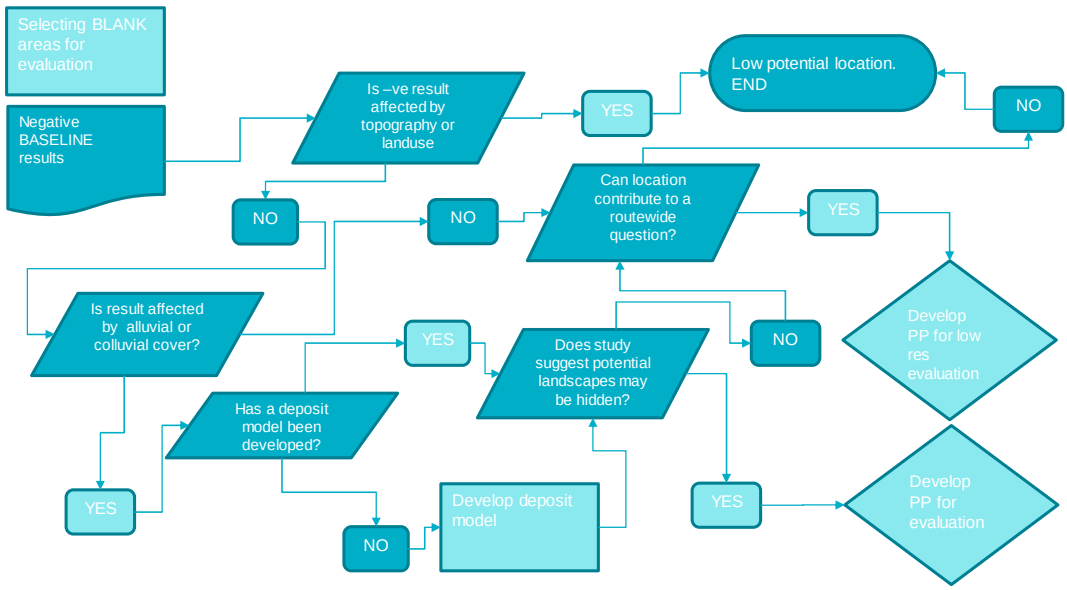


Figure 2 Assessing blank areas. Process 2 from AWH Work Package Plan 2017

3 Land model Baseline Information

3.1 Effectiveness of geophysical surveys

3.1.1 An analysis of 23 trench evaluation sites undertaken across the central section to date, has been undertaken. The trenching results were compared to the forecast anomalies as predicted by magnetomter surveys, and yes/no values for True_positive/False_positive/True_Negative/False_Negative, were recorded against each site.

3.1.2 To date 493ha have been tested with trial trenches, and 400.82 ha were found to be true_negative following trenching evaluation.

3.1.3 92.81ha were found to contain significant archaeological remains indicating an occupation density of 18.8% (see Figure 3).

3.1.4 The spatial distribution of results (Figure 4) indicates a clear dividing line in the scheme sectors where false_negative readings have been identified in the trial trenching. False_negative readings were recorded at 7 sites. These all occur in the southern part of

Buckinghamshire. The overall performance of the magnetometry surveys is 70% true positive and 100% true positive for sites within sectors C2b and C3.

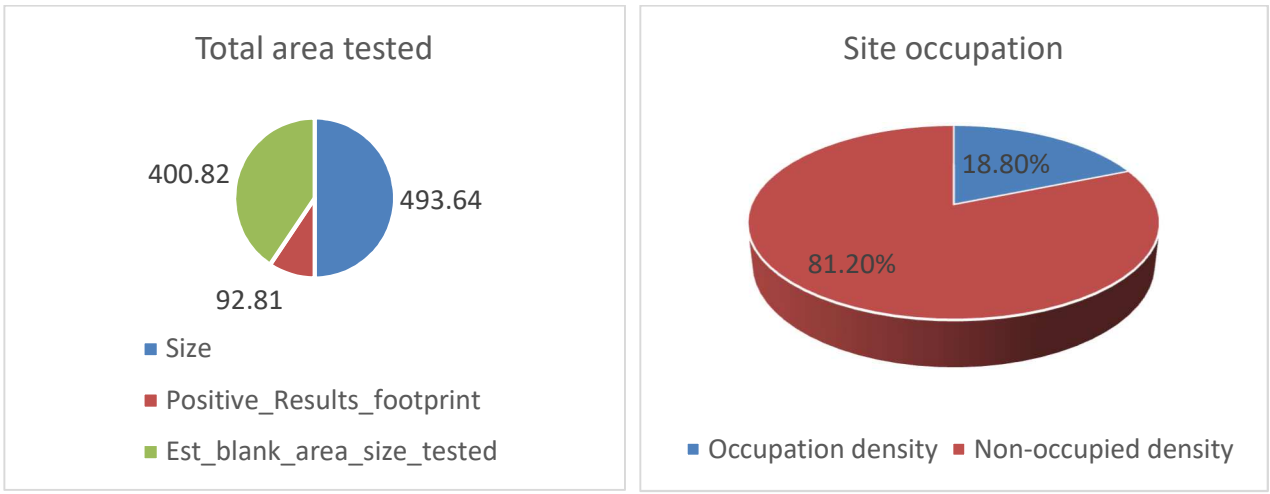


Figure 3 Assessing blank areas. Total blank areas confirmed to date with true-negative values

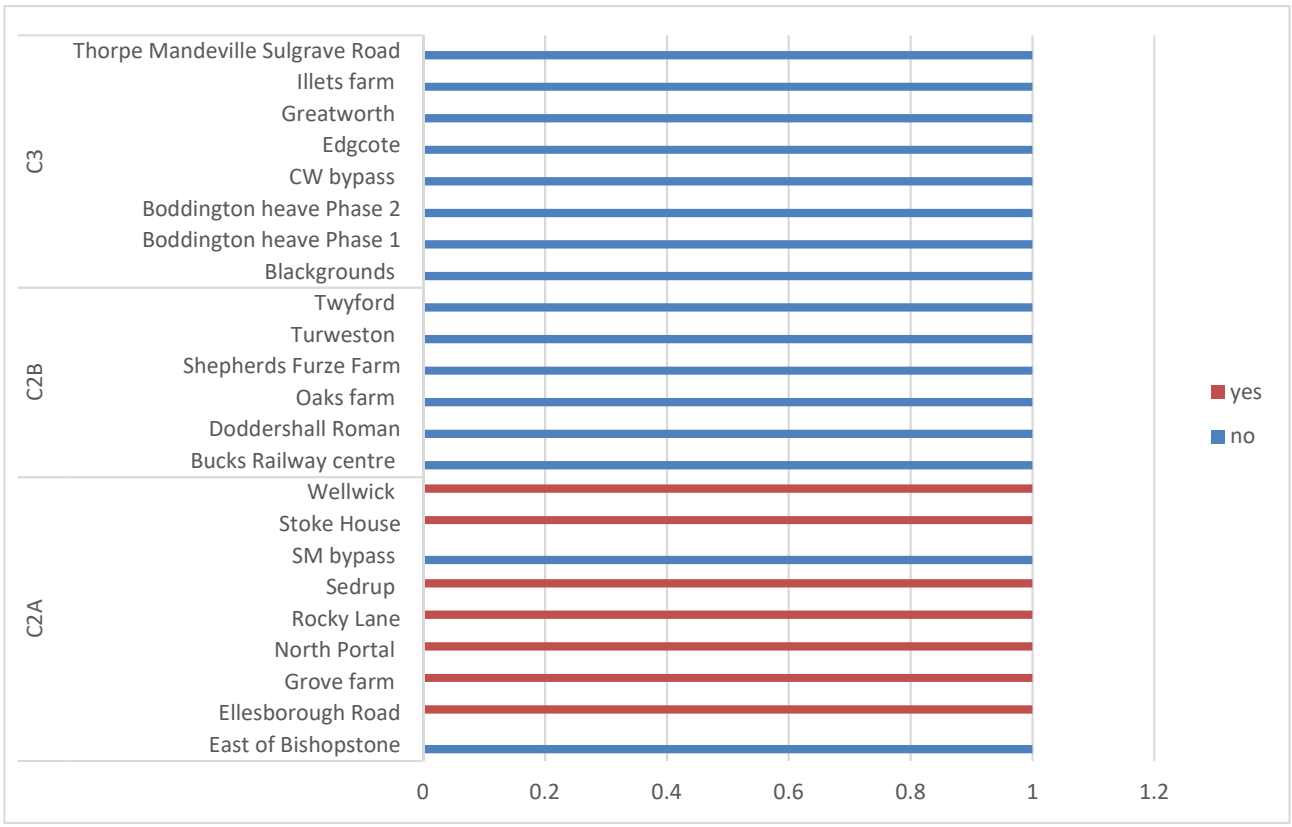


Figure 4 Assessing blank areas. Sites recording false_negatives (yes) versus those not recording false negatives (no)

3.1.5 The results were then compared to parent geological classifications for the sites which show a strong correlation with false negative results with the white and grey chalk and Portland group Gault formation achieved mixed results (Figure 5 and Figure 6).

3.1.6 The review of works to date provides a strong level of confidence on the results of magnetometry survey across much of the route. Where false negative readings have been encountered that has been previously predicted and trial trenching had been scoped to address the shortcoming across much of the C2a sector between South Heath and Aylesbury.

3.1.7

Count of False_Negative	Column Labels		
Row Labels	no	yes	Grand Total
GAULT FORMATION AND UPPER GREENSAND FORMATION (UNDIFFERENTIATED)	1	1	2
GREAT OOLITE GROUP	9		9
Grey Chalk		3	3
KELLAWAYS FORMATION AND OXFORD CLAY FORMATION (UNDIFFERENTIATED)	3		3
LIAS GROUP	1		1
PORTLAND GROUP		1	1
PURBECK LIMESTONE GROUP	1		1
WEST WALTON FORMATION AMPTHILL CLAY FORMATION AND KIMMERIDGE CLAY FORMATION (UNDIFFERENTIATED)	1		1
White Chalk		2	2
Grand Total	16	7	23

Figure 5 Correlation of parent geologies and presence of false negative readings

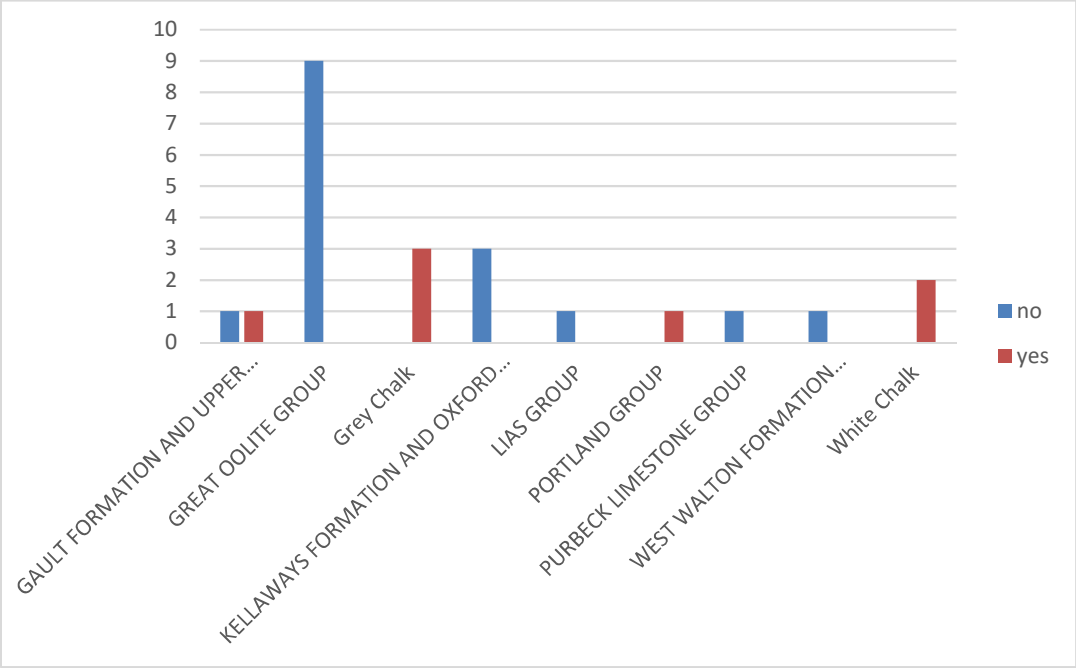


Figure 6 Correlation of parent geologies and presence of false negative and true positive readings

3.2 Ploughzone artefact density

3.2.1 Ploughzone artefact density distribution has been recorded for 23 trial trench sites to date. This has been achieved by sieving 3 no. 50cmx 50cm topsoil samples per trench. The results are not particularly encouraging and show some very large outliers. However, it is considered that the methodology has been hampered by the heavy clay soils predominant in the central section, and lack of purposive equipment to undertake effective screening of the soil samples on site. In total 2677 artefacts have been recovered from 5064 samples. Predominant artefact type as to be expected is ceramic and worked flint.

3.2.2 Ceramics- 357 pottery sherds have been reported, from 188 samples. Assemblage range was 1-42 in number. 77% (145) of assemblages are of a single sherd. No early medieval sherds have been recorded. Prehistoric pottery sherds number 13 from 3 sites (Ellesborough Road, Grove Farm and Wellwick Farm). Late Iron Age and Roman sherds were recovered from 10 sites (62 sherds recovered). Medieval and post medieval sherds number 214 sherds from 14 sites (Figure 7).

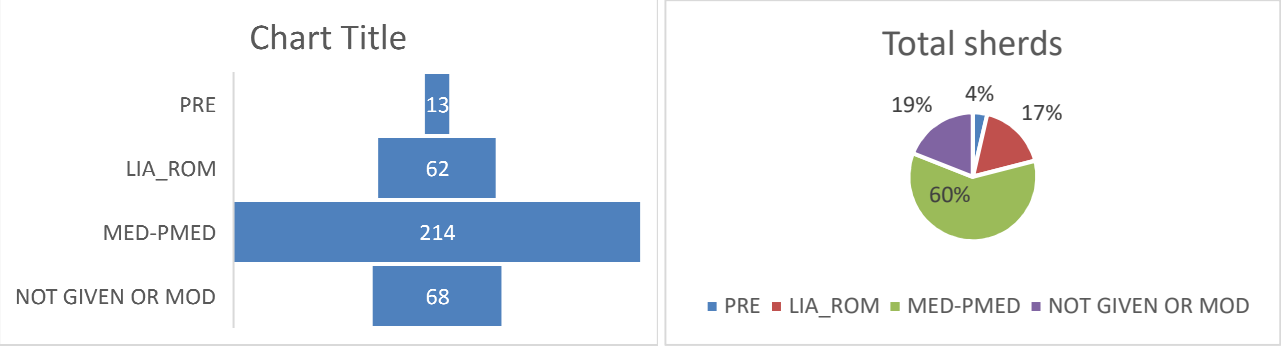


Figure 7 Artefact pottery count from topsoil samples (left). Percentage by period (right)

3.2.3 The worked flint assemblage comprised 1224 artefacts from 465 samples at 10 sites. Assemblage range was 1 min to 30 max in number. 52% of samples comprised a single artefact (242 samples). 233 samples included 2 or more artefacts (48%). Two very distinct outliers were Chiltern Tunnel (M25 slip roads), and the nearby site South of Chalfont Lane. Around 90% of the reported assemblage comes from these 2 sites (Figure 8).

Row Labels	Sum of Count	%
Chiltern Tunnel (M25 slip roads)	890	72.71%
Ashwell's Farm, Chalfont St Peter	12	
Dews Farm	46	
Ellesborough Road Hospital	2	
Little Halings Wood	10	
North Portal	6	
South of Chalfont Lane	209	17.08%
Thorpe Mandeville	5	
West Hyde	20	
West of Tilehouse Lane	24	
Grand Total	**1224**	**89.79%**

Figure 8 Artefact worked flint from topsoil samples

3.2.4 Possibly the most significant feature of the data is the highest single count of 30 artefacts from Dews Lane trench 84, a clear proxy for the subsequent discovery of a large late Mesolithic/early Neolithic assemblage.

3.2.5 Three additional worked flint assemblages have been recovered from fieldwalking events conducted by HS2 at Edgcote, Greatworth, and Culworth Grounds. Combining this data, the test pit data, and site sample size (in hectares), and removing the two outliers discussed above, provides some indication of the range of expected background artefact population.

Method	Site	Worked Flint count	Ha size	count/ha
HS2 FW	CS033 EDGECOTE BATTLEFIELD	38	8.50	4.47
HS2 FW	LAND WEST OF GREATWORTH	45	20.05	2.24
HS2 FW	WEST OF CULWORTH GROUNDS	72	26.40	2.73
~~AT23~~	~~Chiltern Tunnel (M25 slip roads)~~		~~14.17~~	
AT23	Ashwell's Farm	12	1.78	6.73
AT23	Dews Farm	46	29.62	1.55
AT23	Ellesborough Road Hospital	2	7.91	0.25
AT23	Little Halings Wood	10	2.21	4.52
AT23	North Portal	6	30.96	0.19
~~AT23~~	~~South of Chalfont Lane~~		~~13.95~~	
AT23	Thorpe Mandeville	5	17.63	0.28
AT23	West Hyde	20	43.41	0.46
AT23	West of Tilehouse Lane	24	35.21	0.68
	Total	**280**	**Average [mean] population**	**2.19**

3.2.6 The overall ploughzone artefact density is shown to date to be very low but with some significant evidence for proxy readings. Dews Farm (worked flint) and Ellesborough Road, Grove Farm and Wellwick Farm (prehistoric pottery) demonstrate a strong positive correlation with subsequent discovered sites during more intensive fieldwork. It is therefore anticipated that the results of the surveys specified in this project plan shall provide a useful dataset to assess the artefact population density and distribution across the central sector of the project.

3.3 EngLaid – population probability

3.3.1 The EngLaid data (5km buffer around the HS2 central section LLAU was kindly shared by Christopher Green (GIS and Data specialist) at the University of Oxford School of Archaeology. The data was assimilated for the route corridor to provide a snapshot of the level of archaeological activity recorded to date within each 1km square crossed by the scheme. This was used as a checkpoint, when reviewing the no data areas to pose the question "does this location already demonstrate activity from the period and could further

activity currently be invisible in the baseline". This was a qualitative rather than quantitative element of the assessment process.

3.3.2 The EngLaid ('English Landscape and Identities') project (Gosden et al 2012; Green et al 2017) analysed change and continuity in the English landscape from the Middle Bronze Age (c. 1500 BC) to the Domesday survey (c. 1086 AD). Funded by the European Research Council (ERC) at the University of Oxford, the project started in October 2011 and ran until the end of 2016. Working in close partnership with Historic England (HE), the British Museum, the Portable Antiquities Scheme (PAS), Historic Environment Records (HERs) and the Archaeological Data Service (ADS), the project combined a mass of existing artefactual and mapping data from – amongst others – HE's National Mapping Programme (NMP), the PAS, the ADS and HERs. This was the first time since the onset of developer funded archaeology in 1990 that landscape and archaeological features, together with finds, were analysed on such a comprehensive scale over such an extended time period. It provided an excellent opportunity to understand the development of the English landscape and the identities of the people who inhabited it over a long-term perspective.

3.3.3 The EngLaid data provides a summary (per km square) of the archaeological evidence built up by the multiple source data analysis across periods (Bronze Age, Iron Age, Roman, Early medieval). The total incidence of evidence were calculated per period in GIS to allow a scaled incidence score per period for the HS2 Phase 1 Central Section (Figure 9 example). The data was intersected with the HS2 field-based planning data (LLAU) to produce a period score for each location. This provides the "population" score to review against the suitability score in the land model. (The maximum score for the route corridor is 9 for pre-Iron Age prehistoric period, and 8 for post Roman Early Medieval period. Local area scores by period are summarised at Appendix 16.5)

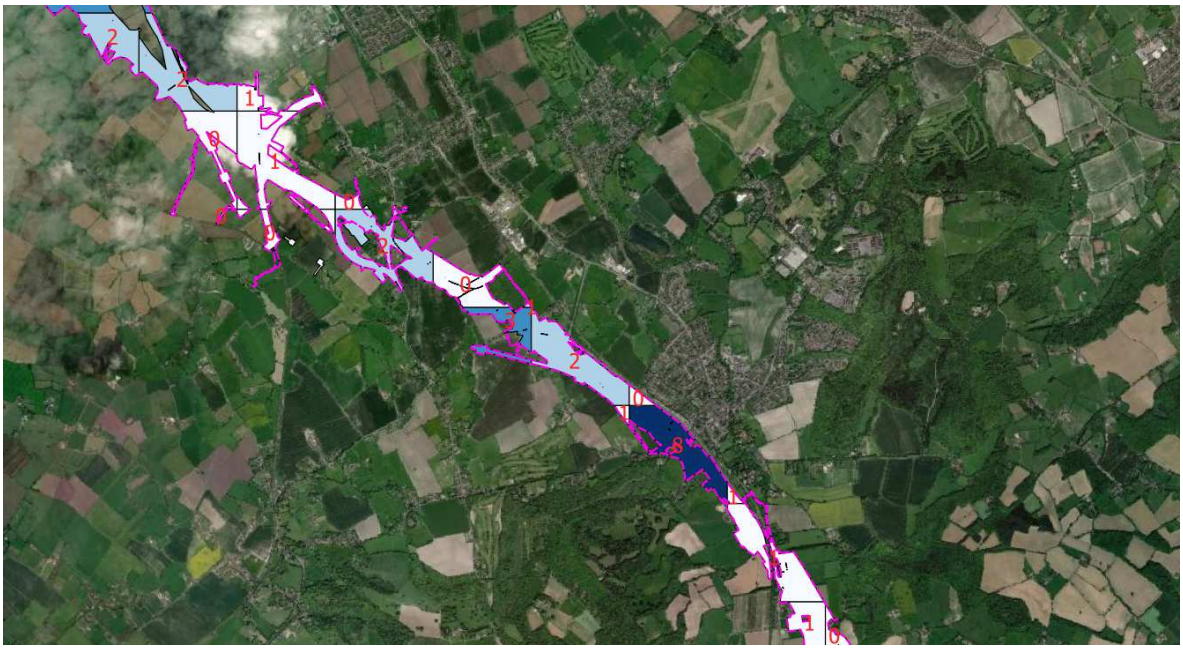


Figure 9: Example screenshot of Englaid incidence values for Bronze Age period. Incidences per 1km square are colour coded (white through to blues) and numerical score is shown in red, Example is from the C2a sector between Wendover Viaduct and Sedrup Farm

3.4 Land suitability

3.4.1 The land suitability model sought to objectively score each land parcel in terms of settlement suitability, achieved via a simple model measuring distance to water, topographic factors, and soils. The model excludes all reference to known cultural heritage activity. This was important to avoid loading the baseline model with the inherent bias in recorded evidence for archaeological activity. The main purpose of the model is to organise each land parcel into grades of low, medium, and high potential sensitivity to aid site selection and assess the risk that unforeseen remains may lie undiscovered.

3.4.2 The land suitability model was developed following the methods proposed by Waller (2008) and Donahue and Lovis (2006) to define the key landscape criteria associated with favourable settlement and activity sites. The model has been tested against 113 locations for discovered sites (significant activity identified in the baseline surveys). The results are set out in section 16.5.

3.4.3 Waller proposes that a predictive modelling approach using the concepts of past landscape use patterns and local locational factors should be tested to provide the missing link between the actual archaeological resource and Historic Landscape Characterisation. Waller's thesis collected data from a case study sample of 100 rural sites to provide a general model of local locational factors. This bottom-up approach analysed location factors and subsequent excavated evidence from completed investigations, avoiding the environmentally deterministic model, and provides a useful baseline dataset to commence building models for locations with potential for undiscovered sites in the HS2 Central Section.

3.4.4 Donahue and Lovis (2006) present a systematic application of regional sampling in the search for buried Mesolithic sites in the Yorkshire Dales National Park in northern England. They were able to relate their results to natural features in the landscape, concluding that distance to water, landform, and slope "are useful in locating areas with Mesolithic site densities". They conclude by making a strong case for predictive modelling of Mesolithic site locations, distributions and densities.

3.4.5 With reference to these published models, the project land suitability model was developed with reference to several route wide spatial datasets. The weighting of these factors was used to calculate land model scores for high, medium and low sensitivity locations. Suitability or preference criteria were analysed under three headings, distance to water, topography, and soils (Table 1 and Appendix 15.4). The land model specifically excludes known cultural heritage data in order that the baseline land model score is not biased towards existing knowledge.

Factor	Subclass	Representing	Scale
Water	River	Distance to water	<=400m
	Spring	Proximity to spring line	<=200m; <=500m
Topography	Slope	Level sites preferred	0-5, 5-10;10-15;15-20 degrees slope

Factor	Subclass	Representing	Scale
	Aspect	Sites between SE and SW preferred	0-45; 45-90; 90-135;135-180; 180-225;225-270;270-315; 315-360 degrees
	River Terrace Ecozone	Location above watercourse floodplain preferred	Within zone
	Plateau location/hill top	Sites on level ground with good visibility preferred	Within zone
Soils	Density/drainage	Free draining preferred	Freely draining; Slightly impeded drainage; Impeded drainage; Naturally wet
	PH	[Exclude - no significant variation in sample]	Was considered but eventually excluded
	Fertility	[Exclude - no significant variation in sample]	Was considered but eventually excluded

Table 1: Land model criteria

3.5 Land parcels

3.5.1 The central section is divided into nearly 4000 individual fields and roads in the project Field-based planning (FBP) GIS. This land parcel structure was used as the basic unit to run the model against.

3.6 Water

3.6.1 The watercourse network was derived from Ordnance survey mapping (HS2-HS2-GI-GDD-000-001112 BMA_ORDSU_MM_TPL_TopographicLine_Ln) and the data locally cleaned to exclude canals and other man made water bodies. Distance calculation was carried out for each FBP land parcel.

3.6.2 Springs and spring lines were digitised into the GIS from the Ordnance Survey 2nd edition 1888 raster sourced from http://wmts.maptiler.com a web based map server provided by the National Library of Scotland. Distance calculation from each spring line was carried out for each FBP land parcel.

3.7 Topography

3.7.1 The baseline terrain model data was derived from the HS2 Lidar dataset TER_BLMSA_BLOM_DTM_200mm.gdb. This is a terrain model cleaned of surface vegetation. Slope and aspect were calculated for each field based on this data and intersected and scored in GIS to provide values for each FBP land parcel.

3.7.2 A 1m slope raster and local 5m contour model was developed from the DTM and used to define the terrace edge, plateau and hill top ecozones. These locations were digitised in GIS for intersection and scoring the FBP land parcels.

3.8 Soils

3.8.1 Vector soil drainage data was derived from the National Soil Map of England and Wales (NATMAP) sourced from the LandIS Soil Portal http://www.landis.org.uk/data/natmap.cfm.

3.8.2 Soil PH and bulk density was assessed from CS_topsoil_pH_bulkDensity_ Model estimates of topsoil properties [Countryside Survey] data owned by NERC – Centre for Ecology & Hydrology. The lack of variation across the sample suggested that these measures would not assist in defining land suitability and these were subsequently excluded from the model.

4 Other factors in site selection

4.1 HS2 Risk Rating

4.1.1 The risk rating derived from (HS2,2014) has been taken into account and the character zones digitised in GIS with the relevant score. These have been recorded for each land parcel. As with the Englaid data the scores have been used in the qualitative assessment as a check point rather than being included in a quantative score for site selection (Appendix 16.5).

4.2 HS2 Character area summary

4.2.1 The character areas set out in HIS_ARP_C250_ArchaeologicalCharacterSubZones_Ply_ES have been linked to the character area description from the Environmental Statement and are recorded for each land parcel selected for further investigation. This is the ES summary baseline description for the relevant character area and is used in the qualitative assessment as a check point rather than being included in a quantative score for site selection.

4.3 Previous fieldwalking evidence

4.3.1 In preparation for the ES, the HS2 team selected several zones for field walking surveys. Much of the land was not surveyed at that time due to access constraints, although 11 sites were surveyed. Where the survey was not undertaken but proposed, this has been recorded in Appendix 16.5 and it is noted where areas coincide with the proposed investigation of no data areas.

4.4 Tun/Thorpe place names

4.4.1 In relation to HERDS objective KC30,:" Identify the location and form of Early and Middle Saxon settlement and investigate evidence for land use in the period" John Blair (2018) suggests that groups of –"tūn" place names encircle Mercian central places, and could therefore be significant indicators of early Anglo-Saxon activity. The central section intersects with up to 20 such townships. Where present such as at Radstone, site selection has sought to achieve a consistent sample for ploughsoil assessment in the event that pottery finds may indicate the "ghostly" shapes of the infields that relate to dispersed farmsteads.

4.4.2 Blair also notes that " thorp" place names are likely to occur where the economy was intensifying through the multiplication of small agrarian units during the ninth to eleventh centuries (2018,332).and that a strong correlation between throp/thorp names and

agriculturally fertile soil, suggests that [early adoption of] 'arable farming may well have been the mainstay of the thorp economy'. The coincidence of these has therefore also been noted in the site selection assessment in relation to KC31: "Identify the location of Middle to Late Saxon settlement, explore processes of settlement nucleation and understand the development of associated field types and agricultural regimes".

4.5 Main works construction

4.5.1 Should significant finds be made by the surveys in this project plan (see 1.1.7), or there is reason, justified by specific HERDS objectives, to further test negative results to support the analysis of the no data areas assessment process, the option for further investigation or archaeological monitoring and construction integrated recording (AM AT02/CIR AT07) maybe defined as an additional activity (see Project Plan 1EW03-FUS-EV-REP-C000-009812).

4.6 Response to sites not selected for further testing

4.6.1 As set out in 16.5, Table 3, the survey scope in this project plan shall leave no-data areas that have not been selected for further testing. Decision record notices shall be prepared for these areas to confirm no further works. Should additional discoveries be made by the surveys in this project plan or other HERDS investigations, that indicate an unanticipated potential to answer a HERDS objective, further scope may be specified to address a specific location. Further scope may comprise archaeological monitoring (AT02) and/or construction integrated recording (AT07) at specific locations.

5 Aims and specific objectives

5.1.1 The specific objectives for the "no data" areas investigation is focussed at the pre-Iron Age prehistory and the post Roman to early medieval periods (Table 2). The sporadic and ephemeral nature of early prehistoric remains (that are not defined by high densities of cut features) and long history of arable cultivation in the central section, means that much of the evidence for Mesolithic and Neolithic and Bronze Age archaeology has been damaged or lost. The hypothesis that significant find scatters that could still be identified within the ploughsoil has driven the adoption of field walking and gridded test pits as the preferred methods to test the research questions. As List (et al n.d) warns us, "by focusing attention on the 'big' sites, we could be missing the most significant evidence for Earlier Neolithic settlement, whose sites would typically have been small with little material trace remaining after abandonment". List et al (n.d) found that small and very small assemblages <=49 artefacts, make up between 78% and 85% of all scatters, and (single period scatters represent 43% of the total.

5.1.2 Similarly, in a landscape thoroughly subjected to arable cultivation, and specifically open field ridge and furrow, the recording of dated pottery distribution in the ploughsoil may be the only appropriate way to address questions related to early medieval dispersed settlement. That settlement may be ephemeral in terms of structural remains and have been subsequently abandoned as the open field agriculture associated with nucleated villages (that continue to exist today) replaced the former dispersed farmsteads of the 8th-10th centuries and perhaps earlier.

HERDS Specific objective	Site Name	AIMS Site Codes	Investigation type	Contribution
KC5: Identifying settlement location and developing models for settlement patterns for the Mesolithic, Neolithic and Early Bronze Age	All site groups listed at Appendix 15.5	TBC	Fieldwalking (AT20) or Test pits (AT21) shall be used to record the density and distribution of dateable material in the ploughsoil. Significant clusters of finds if identified shall instigate further adaptive sampling to delineate the artefact scatter boundary.	The identity of significant clusters of dateable finds may represent a proxy for below ground archaeology that is difficult to detect with geophysics or other remote sensing techniques. In this event further intrusive investigation may be required. (Champness 2019).
KC11: Does the high density of prehistoric settlement evidence in the Colne Valley reflect a genuine focus of activity or does it reflect a bias in the archaeological record?	All site groups listed at Appendix 15.5	TBC	Fieldwalking (AT20) or Test pits (AT21) shall be used to record the density and distribution of dateable material in the ploughsoil. Significant clusters of finds if identified shall instigate further adaptive sampling to delineate the artefact scatter boundary (Orton 2000).	The investigation of locations outside of the Colne Valley spread across different landscape zones shall allow the comparison of activity levels with those found in the Colne Valley.
KC30: Identify the location and form of Early and Middle Saxon settlement and investigate evidence for land use in the period	All site groups listed at Appendix 15.5		Metal detecting (AT19), Fieldwalking (AT20) or Test pits (AT21) shall be used to record the density and distribution of dateable material in the ploughsoil. Significant clusters of finds if identified shall instigate further adaptive sampling to delineate the artefact scatter boundary.	Pottery or other dateable artefacts between post Roman and pre-conquest periods may indicate the spatial arrangement of in- fields surrounding lost EMED dispersed farmsteads that are not indicated by geophysics or other remote sensing techniques. Discovery of such sites shall help define the origin of ridge and furrow cultivation that overlies many of these locations (Oosthuizen 2008)
KC31: Identify the location of Middle to Late Saxon settlement, explore processes of settlement nucleation and understand the development of associated field types and agricultural regimes	All site groups listed at Appendix 15.5		Metal detecting (AT19), Fieldwalking (AT20) or Test pits (AT21) shall be used to record the density and distribution of dateable material in the ploughsoil. Significant clusters of finds if identified shall instigate further adaptive sampling to delineate the artefact scatter boundary.	Artefact distributions alongside topographic and historical data shall help define the origins of open field strip farming in relation to extant nucleated settlements. Intrusive investigations planned in the same townships shall also be contributing to this question.
KC40: Identify patterns of change within Medieval rural settlement from the 11th to mid-14th century	All site groups listed at Appendix 15.5		Metal detecting (AT19), Fieldwalking (AT20) or Test pits (AT21) shall be used to record the density and distribution of dateable material in the ploughsoil.	Distribution patterns of dateable material may indicate patterns for onset of arable manuring.

Table 2 – Specific HERDS objectives

6 Scope and Methodology

6.1 Site Codes

6.1.1 An individual AIMS site code shall be applied to each site group and each activity code. Dependant on site conditions at the time of mobilisation, the fieldwork method may be converted from test pits (AT21) to fieldwalking (AT20) or vice versa.

6.2 Setting out and recording

6.2.1 All spatial setting out and recording methods shall be in accordance with Technical Standard - Specification for historic environment investigations Document no.: HS2-HS2-EV-STD-000-000035 P05.

6.2.2 The sub-contractor shall inspect the survey areas and arrange vegetation clearance if required.

6.3 Methodology for fieldwalking survey (AT20)

6.3.1 Fieldwalking (aka Surface artefact collection) is used as an evaluation technique to identify and map the potential extent of artefact evidence within the ploughsoil horizon at a specified location. For some forms of archaeological material e.g. scatters of Mesolithic flint work, it can also be a very effective sampling tool for understanding the distribution of activity in the landscape and may be the only reliable large-scale way of identifying and investigating this material. Fieldwalking is therefore not considered to just be an "evaluative" tool but can identify activity that comprises the only evidence for human activity at the location.

6.3.2 Individual finds within any survey should be numbered with reference to the Fusion Field based planning unique field ID (FID).

6.3.3 Ground preparation. Unless the field is at optimal condition already, the *sub-contractor* should arrange for the field(s) to be ploughed and disc-harrowed at least two weeks prior to the survey date and left to weather. The *sub-contractor* should inspect the field(s) two days before the survey date to ensure that optimal conditions have been achieved.

6.3.4 The *sub-contractor* shall set out survey transects aligned along the dominant field boundary axis with transects positioned at 4m intervals. Each walker to examine the ground 1m either side of them which equates to c.50% surface coverage. A line of ranging poles is to be set up at 90 degrees to the dominant field boundary axis and positioned 4m x no. of walkers apart. For example, if there were 6 walkers the ranging poles would be positioned 24m apart. As each transect is walked all 6 walkers can keep to line by walking through the relevant pair of ranging poles as they move across the field.

6.3.5 Transects shall be walked by suitably experienced personnel experienced and competent in identification of archeologically derived artefacts (versus natural processes). Artefacts should flagged at the found position by the walker.

6.3.6 A designated finds analysts will be required to follow behind the walkers undertaking a 'first pass' screening of the finds with non-finds discarded and actual finds bagged and given a unique finds number. A designated surveyor will also follow behind the walkers alongside the finds analyst and will take the points of actual finds only making sure the survey point number corresponds with the find number. The spatial reference should be provided to an accuracy of +-0.5m and related to the unique field ID. Field boundaries should also be surveyed in in case they have changed from those on the digital map base or not the whole of the field could be walked for whatever reason/s.

6.3.7 It is anticipated that each walker will cover 1ha per day.

6.3.8 All pottery and stone tool debris/burnt debris will be collected and retained for off-site lab processing and identification by the relevant specialist. CBM and other bulk finds relating to Roman/Medieval period should be noted as part of each field record, but not retained. All post medieval and modern materials should be disregarded. Important small finds from periods outside the key study periods will be retained.

6.3.9 Record sheets should be completed, ideally digitally, for each field, detailing weather and atmospheric visibility, land use, ground conditions, and optimal condition status of field surface and survey personnel employed.

6.3.10 Working shot digital photographs to publication standard, shall be taken during the course of the works and not less than 10 representative images submitted for engagement purposes.

6.3.11 Where field walking identifies a significant cluster of material indicative of an early prehistoric lithic scatter, or potential buried remains associated with either of the key periods under investigation, a further investigation of the site may be recommended. That may comprise additional test pit survey to establish the extent and character of the finds scatter. It may also comprise intrusive evaluation and/or mitigation works, to be assessed on a case by case basis.

6.3.12 Any further works shall be scoped under a change control following assessment of the survey results.

6.4 Methodology for test pit survey (AT21)

6.4.1 The subcontractor shall prepare site drawings and include in the LSWSI. 0.25m2 test pits measuring 500mm x 500mm shall be set out at 20m grid interval (assume 25 test pits/ha) on a staggered grid pattern (after Banning 2002 Fig 9 central example). Test pit numbers (integer to 3 places) shall be assigned as a suffix to the Fusion Field based planning unique field ID (FID).

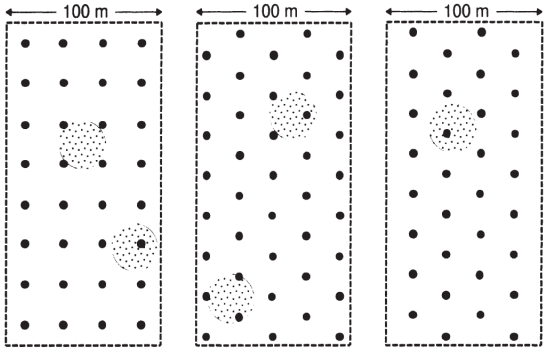


Figure 9. The probability that points on square (left), "offset" or isoceles (center), or equilateral triangular grids will intersect a circular target is a simple function of the target's size (radius) and the distance between the points (i).

Figure 10: Test pit grid pattern to be utilised (central example) – Banning 2002 Fig 9.

6.4.2 Prior to setting out the test pit array on the drawings the *sub-contractor* shall review the Contractor's confirmed utility mapping and record exclusion zones related to buried and overhead utilities. Test pits that fall within exclusion zones of buried utilities shall be locally moved to a safe place or deleted from the scope. Test pits that fall within the exclusion zones for overhead utilities shall be hand excavated only.

6.4.3 The *sub-contractor* shall assign context numbers to the topsoil and subsoil horizon(s), and either hand excavate, or machine excavate, the topsoil and ploughsoil(s) to natural geology. Each horizon unit shall be bulk sieved, through a 10mm mesh, at the test pit location, for recovery of worked/bunt stone and pottery assemblages. Should sieving be impractical due to soil consistency hand sorting of the sample shall be undertaken. The sub-contractor shall specify their proposed equipment and methodology in the LSWSI.

6.4.4 All pottery and stone tool/burnt debris should be collected and retained for off-site lab processing and identification by the relevant specialist. CBM and other bulk finds relating to Roman/Medieval period should be noted but not retained. All post medieval and modern materials should be disregarded. Important small finds from periods outside the key study periods will be retained.

6.4.5 Should lithic micro-debitage be observed to be present, 30 litres of sediment should be retained from the unit for off-site lab processing.

6.4.6 A test pit written record should be completed noting weather and atmospheric visibility, land use, soil ground conditions, and processing conditions (wet/dry/optimal) and the survey personnel employed. A confidence rating on the sieving process should be recorded. Any archaeological features cut into the natural subsoil should be recorded.

6.4.7 **Adaptive sampling**: Quantative spatial recording and within-survey specialist assessment must be undertaken by the *sub-contractor*, to determine the immediate requirement for adaptive sampling. Figures 11 and 12 are examples, and the supervisor should use their professional judgement to apply the available contingency.

6.4.8 Two specific artefact classes, worked/burnt flint and pottery shall instigate further adaptive sampling to investigate the extent of a possible cluster.

6.4.9 **Adjacency**: If two or more adjacent test pits produce finds suggestive of a flint/pottery scatter or cluster, additional test pits should be added to the grid at 5m or 10m interval distance on a transect between the two find spots (E.g. Figure 11).

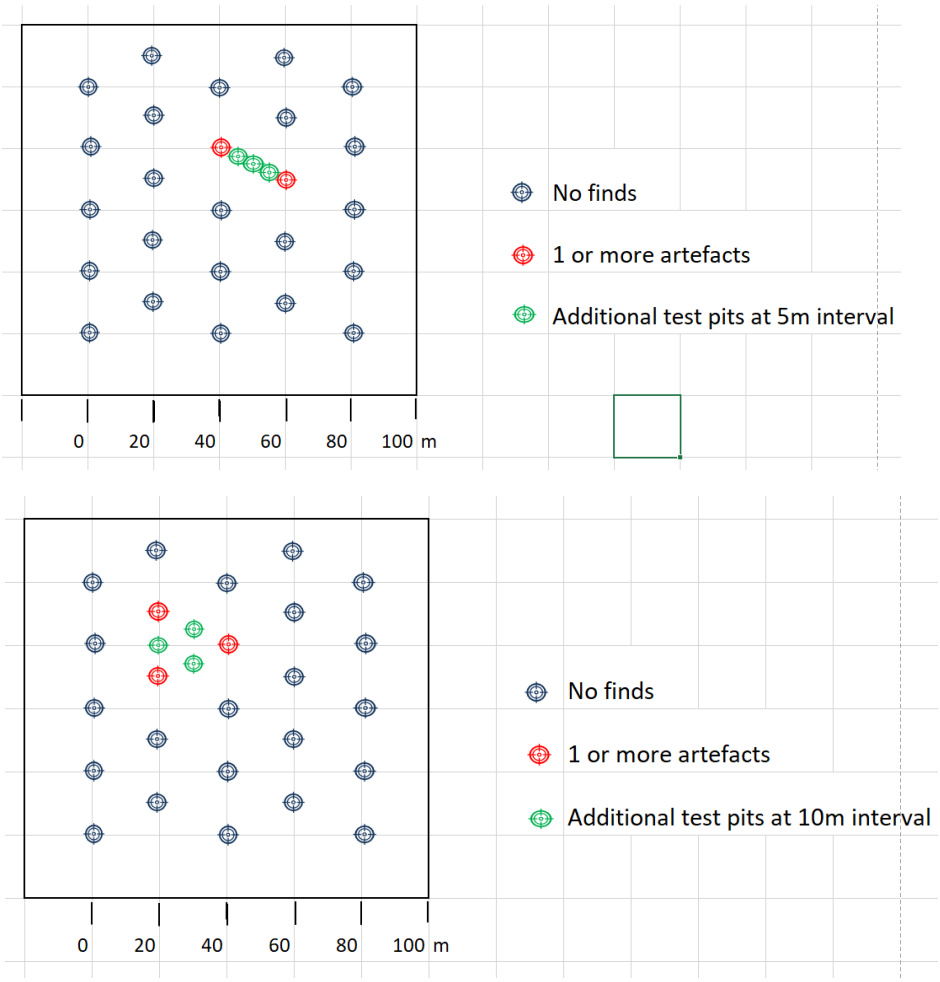


Figure 11: Example adaptive sampling additional pits at 5m (top) or 10m (bottom) intervals

6.4.10 **Hot spot:** If two or more finds suggestive of a scatter are recovered from a test pit, additional test pits should be added to the grid at 5m interval distance in the four cardinal directions (E.g. Figure 12).

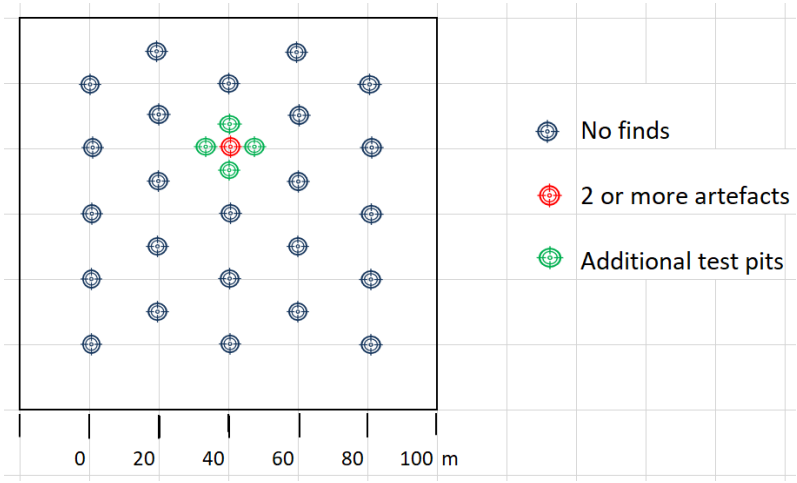


Figure 12: Example adaptive sampling – additional test pits at 5m from potential hot spot

6.4.11 A test pit contingency of 10% (by number of pits) shall be included in the scope for each site group to be implemented via verbal agreement with the HERDS manager. The *sub-contractor* shall not exceed this allowance without a formally approved change control and instruction from the *Contractor.*

6.4.12 Within alluvial/colluvial sequences the *sub-contractor* shall pay attention to establishing the vertical extent of layers of potential archaeological horizons of cultural activity.

6.4.13 Should any material be excavated that is deemed to be contaminated or potentially contaminated, it shall not be investigated further, but details of any find[s] recorded, and the test pit backfilled.

6.4.14 Test pits shall be re-instated with the arisings in reverse order they were excavated, and the surface restored to the as found condition.

6.4.15 Each test pit as dug location shall be resurveyed as dug– if the location differed from the setting out location, with each of the four corners surveyed.

6.5 Methodology for metal detecting survey (AT19)

6.5.1 Metal detecting survey is included in the scope for two sites identified at Appendix 15.6, AC300 Group 3 and AC320a Group 1. The selection of the sites is based on presence of significant previous metal finds made nearby (from PAS and HER records). The purpose of the scope is to carry out a scan of the field alongside the proposed test pit survey and scan the test pits for metal finds.

6.5.2 A series of transects should be established within the individual fields to be surveyed. These transects will generally be aligned parallel to the longest boundary of the individual field being surveyed and spaced at 20m intervals.

6.5.3 Metal detecting should progress along each transect. Each sweep of the metal detector should cover a width of c. 2m (1m each side of the transect). The search head should be kept as close to the ground surface as possible. The survey should initially target all metals.

6.5.4 No artefacts should be removed from a depth greater than the ploughsoil (c. 300mm). Artefacts should be removed from the ground using a trowel or other technique as appropriate for conservation. Only artefacts of potential Medieval or earlier date should be retained. Artefacts should be labelled with a unique ID number and their individual locations plotted using a GNSS. Artefacts of undoubted post-medieval or modern date should not be collected or bagged. Important small finds from periods outside the key study periods will be retained.

6.5.5 Artefact distribution plots for different period finds and associated commentary reports shall be produced and included in the interim and fieldwork reports.

7 Post-investigation reporting and archiving

7.1.1 Finds and bulk samples shall be returned to the *sub-contractor's* laboratory for processing within 5 working days of recovery from the ground, and processed within 10 working days. Artefact (test pit ref/type/count/spot date) and any bulk sample result summary shall be included in the interim report.

7.1.2 Reporting shall follow the general approach set out in GWSI:HERDS (HS2-HS2-EVSTR-000-000015).

7.1.3 The following deliverables shall be submitted in relation to a **site group** (see section 16.6):

7.1.4 **Interim Report** (14 calendar days following site works completion) inclusive of key event spatial, context and finds data submitted in correct HS2 GIS format digital deliverables. Distribution maps at appropriate scale identifying material and spot date shall be included.

7.1.5 **Survey Report -** A Survey Report will be produced by the Archaeological Contractor and submitted to the Contractor within two weeks of the completion of the package site works. This shall consist of a written and graphic survey report for the works. Evidence shall be provided for check measurements and results of levelling for establishment of TBMs. The Archaeological Contractor shall prepare and submit 'site area outlines and levels' in accordance with the Employer's Cultural Heritage GIS Standard (HS2-HS2-GI-STD-000-000010_ and the GWSI : HERDS and BIM requirements. Each drawing shall identify the relevant event code and sub-site division, if applicable.

7.1.6 The following deliverables shall be submitted in relation to a geographic **package area**:

7.1.7 **A Fieldwork report** (42 calendar days from following site works completion)

7.1.8 The Employer's standard templates for reports and maps will be used for all data and reports produced.

7.1.9 The Archaeological Contractor shall submit a Fieldwork Report s in the above timeframe to the Contractor following the completion of the survey works. They will be consistent with the requirements detailed in the Specification for Historic Environment Investigations (HS2-HS2-EV-STD-000-000035). The Fieldwork Report will be produced with the following structure:

- Executive Summary;
- Introduction;
- Summary of Project's Background;
- Assumptions and limitations;
- Description and illustration of the Site(s) location;
- Summary of Previous Works relevant to the archaeology of the Site(s) (e.g. documentary evidence, previous surveys, previous evaluation and excavations etc.);
- Geology and topography of the Site(s);
- The Specific HERDS Objectives and Specific Aims of the work;
- Scope and Methodology (including dates the fieldwork was undertaken);
- Results and observations, to include:
  - Finds distribution groups by type and spot date phase
  - Tabulated summary data for each field either field walked, or test pitted using the supplied excel table format (this will allow for comparisons of route-wide data and with data from other fieldwalking studies
  - Specialist finds reports by field;
  - Interpretation of results against original expectations, Aims and Specific Objectives;
  - Review of archaeological recording strategy (where appropriate).
- Discussion, to relate back to the Specific HERDS Objectives and Site-Specific Aims
- References to all primary and secondary sources consulted;
- Appendices: to include illustrations, contextual summary by area, phase plans of the site, full specialist finds reports, environmental reports, site matrices (where appropriate), and full definitions of the interpretation terms used in the report; and
- OASIS / HER Form.

7.1.10 Each Fieldwork Report will contain figures accompanied by supporting text. All figures within the reports shall be on the same paper size, where appropriate. All categories of anomaly/feature identified will be labelled with the appropriate assigned number code on the figures, which will be referred to in the text document.

7.1.11 The following figures will be included, as a minimum in the Fieldwork Reports:

- General plan,
- Site location

- Survey results to include spatial distribution plots for individual phased finds groups
- Selected photographs, representative of the works method, equipment used and location of the works.

7.1.12 A **Summary Report** will be submitted by the Archaeological Contractor with the fieldwork report. The Summary Report shall not exceed 500 words and will be fit for publication.

7.1.13 The final report deliverables will comply with the standard approach set out in the Employer's s GIS Standards as set out in HS2-HS2-GI-STD-000-000002 and other associated referenced documents.

8 Information management

8.1.1 Digital deliverables shall be submitted within 42 days of completion of the fieldwork event for the package.

8.1.2 All digital deliverables shall comply with the Employer's Cultural Heritage GIS Specification (HS2-HS2-GI-SPE-000-000004 rev P05).

9 Quality Assurance Processes

9.1.1 All archaeological works shall be delivered in accordance with the Contractor's AWH Quality Plan (1EW03-FUS-QY-PLN-C000-001658). The fieldwork reports shall be prepared and conducted by suitably qualified, experienced and competent professionals.

9.1.2 *The sub-contractor* shall demonstrate compliance with the Contractor's assurance requirements in the LSWSI.

10 Evidence of Engagement

10.1.1 The methodology has been presented at HERDS round table meeting in Snow Hill 3 Sep 2019 and via email 2 Oct 2019, and 12 December 2019 at a meeting at the Fusion project office. Response comments have been received from HS2 team and Historic England and have been incorporated into the project plan.

10.1.2 The 20m grid size for test pits has been discussed with Historic England.

10.1.3 The objective put forward by Historic England to achieve a consistent coverage of the Central section route has been achieved through the site selection.

10.1.4 Revision 1 of this project plan has been subject to a detailed review and comments have been received by all key project stakeholders (BCC; N'Hants CC, Warwick CC).

11 Community engagement proposals

11.1.1 The *sub-contractor* shall consider involving the community in the field work and processing of finds and put forward proposal in the LSWSI.

11.1.2 A selected site or sites, that are not on the programme critical path could be set aside for community engagement. Volunteers or school groups (supervised by qualified professionals) could be invited to take part in fieldwalking and in assisting with hand dug test pits and sieving. Volunteers could be engaged at the processing facility to learn and take part in identifying and cataloguing finds from different periods.

11.1.3 It is proposed that supplementary metal detecting surveys at three sites be undertaken in collaboration with the Institute of Detectorists, as a community engagement event. The *sub-contractor* shall contact the Institute to arrange and coordinate the surveys.

11.1.4 This would contribute to HERDS objectives CE2: Identifying and sharing our stories and CE3: Meeting the challenge of inspiring the next generation.

12 Proposed LSWSI strategy

12.1.1 The *sub-contractor* shall prepare a LSWSI for each package of works awarded. The LSWSI shall conform to the structure set out in document 1EW03-FUS-EV-SPE-C000-000001.

12.1.2 *Sub-contractors* shall be instructed packages as a call off to the existing framework orders. The deliverables for a works package shall be submitted separately and individual site codes shall be applied to each site group.

13 References

13.1.1 Banning E B, 2002. Archaeological Survey. University of Toronto. Springer.

13.1.2 Blair, John, 2018. Building Anglo-Saxon England. Princeton, NJ : Princeton University Press.

13.1.3 Champness, Carl 2019 Managing Lithic Scatters and Sites: archaeological guidance for planning authorities and planners (Case study 2). Historic England, London.

13.1.4 Cooper, A. and Green, C. 2017. Big Questions for Large, Complex Datasets: approaching time and space using composite object assemblages. Internet Archaeology 45.

13.1.5 Donahue Randolph E. and William A. Lovis, in Rensink_E._and_H._Peeters_eds._2006. Regional sampling and site evaluation strategies for predicting Mesolithic settlement in the Yorkshire Dales, England.

13.1.6 National Service for Archaeological Heritage, Amersfoort 2006. https://www.academia.edu/9956670/Rensink_E._and_H._Peeters_eds._2006._Preserving_the_Early_Past._Investigation_selection_and_preservation_of_Palaeolithic_and_Mesolithic_sites_and_landscapes._Amersfoort_Nederlandse_Archeologische_Rapporten_31_

13.1.7 Howell, Cameron Smith, "A Comparison Of Shovel Testing And Surface Collection As Archaeological Site Discovery Methods: A Case Study Using Mississippian Farmsteads" (2016). Electronic Theses and Dissertations. 337. https://egrove.olemiss.edu/etd/337

13.1.8 HS2 2014, Heritage Risk Model Phase 1 Review 2014 - Volume I Document no.: C253-ATK-EV-REP-000-000002

13.1.9 Gosden C, A. Cooper, M. Creswell, C. Green, L. ten Harkel, Z. Kamash, L. Morley, J. Pybus & X. Xiong. 2012. The English Landscapes and Identities project. Antiquity Project Gallery 86(332): http://www.antiquity.ac.uk/projgall/gosden332/

13.1.10 Green, C., Gosden, C., Cooper, A., Franconi, T., Ten Harkel, L., Kamash, Z. & Lowerre, A. 2017. Understanding the spatial patterning of English archaeology: modelling mass data from England, 1500BC to AD1086. Archaeological Journal 174(1), 244-280

13.1.11 Green, C. 2019. Cartography and Quantum Theory: in defence of distribution mapping. In: M. Gillings, P. Hacigüzeller, G. Lock (eds.) Re-mapping Archaeology: Critical Perspectives, Alternative Mappings. Abingdon: Routledge, 281-299.

13.1.12 Lisk S, J Schofield and J Humble (n.d). LITHIC SCATTERS after PPGl6 - LOCAL AND NATIONAL PERSPECTIVES. Centre for Oxfordshire Studies, English Heritage. London

13.1.13 Oosthuizen, Susan 2008. Field-names in reconstructing late Anglo-Saxon agricultural land-use in the Bourn Valley, West Cambridgeshire, in Recent Approaches to the Archaeology of Land Allotment Adrian M. Chadwick ed. BAR International Series 1875. 2008

13.1.14 Orton, Clive, 2000, Sampling in Archaeology. Cambridge University Press

13.1.15 Waller R 2008. Archaeological Evaluation, Land Use and Development An Application of Decision Theory to Current Practices Within the Local Government Development Control Processes in England - A thesis submitted Bournemouth. http://eprints.bournemouth.ac.uk/10417/ (subsequently published 2011 BAR British Series 541.)

14 Figures

14.1.1 Site location drawings illustrating the site groups are appended to this document (1EW03-FUS-GI-MAP-C000-000032). The sub-contractor shall be provided with GIS shapefiles at the time of instruction. The sub-contractor shall set out the survey grids in accordance with any site constraints and submit the completed survey designs with the LSWSI for approval by the Contractor prior to commencing the works. The sub-contractor shall prepare all figures in accordance with the relevant HS2 Ltd BIM, GIS (HS2-HS2-GI-STD-000-000002), CAD standards (HS2-HS2-IM-PRO-000-000001) and HS2 GIS Map Templates (HS2-HS2-GI-TEM-000-000016.

14.1.2 Map book 1EW03-FUS-GI-MAP-C000-000033 shows the site groups for further investigation in relation to all other intrusive surveys currently scoped in the Central Section of HS2 Phase 1.

15 Glossary of terms

15.1 Domain Name: HERDSActivityType_Dom

Description: HERDS Activity type. These codes are defined by the HS2 GIS scheme and AIMS system.

Code	Description
AT01	Archaeological excavation of human burials
AT02	Archaeological monitoring
AT03	Archaeological recording
AT04	Archaeological science
AT05	Borehole survey
AT06	Building recording
AT07	Construction integrated recording
AT08	Deposit modelling
AT09	Detailed assessment and non-intrusive survey of burial ground
AT10	Detailed Desk Based Assessment (DDBA)
AT11	Earth resistance (resistivity) survey
AT12	Electrical resistivity tomography
AT13	Geo-archaeological investigation
AT14	Ground Penetrating Radar survey
AT15	Historic landscape characterisation
AT16	LiDAR survey
AT17	Magnetometry survey
AT18	Measured survey
AT19	Metal detecting survey
AT20	Systematic fieldwalking survey
AT21	Test pit
AT22	Topographic survey
AT23	Trial trench
AT24	Departure

15.2 Other acronyms used

ADS – Archaeology Data Service

AIMS- HS2 Asset management system

BIM- Building Information model

CBM- Ceramic building material

CCB- Consolidated Construction Boundary

CIR – Construction Integrated Recording

CWF- Clay-with-flints (superficial geology classification)

DTM- Digital terrain model

EMED – Early medieval period

ES – HS2 Environmental Statement

FBP – Field based planning (a GIS layer produced to identify each land parcel)

FID – Field ID – a unique identifier in GIS for each land parcel

FW – Field walking (a type of archaeology survey)

GIS- Geographic Information System (a spatial data software management system)

GNSS- Global Navigation Satellite System

HER- Historic Environment Record (a database maintained by the county councils)

LLAU- Limit of land to be acquired or used (as set out in HS2 Act)

LSWSI- Location specific written scheme of investigation (the subcontractors method statement to address the scope set out in a project plan)

MD- Metal detector survey (a type of archaeology survey)

OASIS- Online archive of archaeological investigations (Historic England)

Package area – A group with sites defined within a geopgraphic package area

PAS – Portable antiquity scheme (database)

PMI- Project managers instruction

PRE- Prehistoric period

Site group – a group of fields

TBM-temporary bench mark (used in levelling data points)

16 Appendices

16.1 Appendix 1: Site Information

16.1.1 Site information shall be completed by the *sub-contractor.*

16.1.2 Survey area GIS shapefiles shall be provided to the *sub-contractor.*

16.1.3 Utility mapping, PAS128 survey status, and environmental constraints are available within the works information GIS data.

16.1.4 The *sub-contractor* shall complete PAS128 surveys as required.

16.1.5 Undertakings and assurances are as per the Framework Agreement works information.

16.1.6 The *sub-contractor* shall undertake site inspections to inform the Risk Assessment and Method Statement (RAMS).

16.1.7 It is anticipated that the works shall be undertaken with minimal site set up and be run from an adjacent site welfare area compound with mobile welfare as required.

16.1.8 Mobile welfare and all required equipment shall be provided by the *sub-contractor.*

16.1.9 Test pits shall be excavated and backfilled immediately and not left open out of the shift and minimal temporary fencing will be required.

16.1.10 The *sub-contractor* shall carefully consider the plant and sieving equipment he needs to undertake the works and utilise methods to maximise the efficiency of the operation.

16.1.11 Heavy clay soils may require use of pressurised water or other methods to sufficiently screen the soils. The *sub-contractor* shall submit their proposals as part of their RAMS and innovation is encouraged and to be shared with the wider supply chain.

16.2 Appendix 2: The change control proforma

16.2.1 A proforma for setting out changes to the scope of the investigation shall be used to record changes to the scope instructed by the *Contractor*

Historic Environment Fieldwork Change Control Acceptance Sheet	
Site Code:	
Site Name:	
Historic Environment Investigation Type:	
Contractor:	
Project Plan Doc. No.:	
LSWSI Doc. No.:	
Summary of Results	
Fieldwork Director:	Date:
Description of Proposed Change:	

Drawing / Sketch:

Change type: (Delete as applicable)	Implementation of Contingency	Variation of Methodology	Rapid Investigation	Extension of Investigation Area

Proposed HERDS Objectives:

Compiled by: (*Archaeological Contractor*)	Name	Date	Signature
Checked by: (*Contractor*)	Name	Date	Signature
Consultation with: (Stakeholder Archaeologist)	Name	Date	Signature
Approved by: (HS2 Historic Environment)	Name	Date	Signature

16.3 Appendix 3: Field work sign off sheet

16.3.1 A fieldwork completion sign-off sheet shall be submitted by the *sub-contractor* for each completed field.

Historic Environment Fieldwork Sign-off Sheet			
Work Package Reference	Package/site group/field ID		
Historic Environment Investigation Type			
Contractor			
Fieldwork Conducted by (Site Director)		Dates	
Summary of Results			
Document References			
1.			
2.			
3.			
4.			

Compiled by	Name	Date	Signature
Checked by	Name	Date	Signature
Approved by	Name	Date	Signature

16.4 Appendix 4: Decision Record Notice (DRN) pro-forma

16.4.1 A Decision Record Notice must be submitted for each package area group using the pro-forma below.

Site Details			
Sector and Work Package:			
Site Code:			
GIS_UID			
EWC Site Name			
DES / Main Asset:			
NGR (site centre):			
Site size (ha)			
Survey Type:			
Summary the scheme impacts:			
Baseline Evidence	Yes	No	Details
Did the HS2 Phase 1 ES identify known heritage assets within the site?	☐	☐	
Did the PSC geophysical survey identify probable or possible archaeology?	☐	☐	
Is there any remote sensing data (NMP/LiDAR/hyperspectral/APs) which identify possible heritage assets?	☐	☐	
Is the site located within an Archaeological Notification Area?	☐	☐	

HERDS objectives identified in the Project Plan?			
Survey/Fieldwork Results	Yes	No	Details
Has the fieldwork confirmed the presence/absence of known heritage assets?	☐	☐	
Has the geophysical survey shown any positive anomalies which are considered probable archaeology?	☐	☐	
Has the geophysical survey shown any positive anomalies which are considered to be possible archaeology?	☐	☐	
Has intrusive fieldwork identified previously unknown heritage assets?	☐	☐	
Do the geology maps indicate there is alluvium or colluvium over the study area?	☐	☐	
Does the GI or trial trenching confirm the presence of alluvium or colluvium?	☐	☐	
Are there any other landscape features within the study area?	☐	☐	
Summary overview of fieldwork results:			
Fieldwork Report Document No.			
HERDS Assessment	Yes	No	Details

Did the fieldwork/survey contribute to, or, fulfil the HERDS objectives set out in the Project Plan?	☐	☐	
Is there potential for further knowledge creation contributing to existing HERDS objectives?	☐	☐	
Is there potential for knowledge creation requiring a new HERDS objective?	☐	☐	
Has stakeholder engagement of the decision been completed?	☐	☐	
Recommendation:	Yes	No	Details
Is further historic environment investigation recommended?	☐	☐	
Type of fieldwork/technique Recommended:			
Recommended HERDS objectives:			
Possible new HERDS objective:			

Assessed by: (Contractor)	Name:	Date	Signature
Approved by (HS2 Historic Environment)	Name	Date	Signature

16.5 Appendix 5: Land model methodology

16.5.1 All land within Central Section suitable for remote sensing survey has been completed. Lidar analysis, aerial photograph interpretation and review of hyperspectral survey data were the primary airborne methods. Subsequently all land suitable for magnetometry survey was undertaken. Sites demonstrating evidence for likely archaeology from the above methods were selected for intrusive evaluation. This has comprised trial trenching, test pit surveys within woodland and geo-archaeological surveys within floodplain environments (Table 3).

16.5.2 The remaining so called "no-data" or "blank" areas comprise land parcels of a total coverage of 1311 ha. This excludes roads and land with no archaeological potential or low impact such as grassland habitat and planting. Application of the assessment land model to select areas that would help answer specific HERDS questions has resulted in a further 402 ha of land being scoped for further investigation as set out in this document.

Item		Area (ha)	% of area	Measure
Total land within CCB		3886.94		
Geophysical surveys (AWH+HS2+DC3+UW1)		2946.33	75.80%	Of all land suitable for survey
Intrusive surveys planned (AWH+DC3+UW1)		1504.51	51.06%	Of Geophysical survey areas
No data areas total	(excl. areas of no further potential, e.g habitat/minor landscaping)	1311.86	44.53%	Of Geophysical survey area
No data areas selected for further investigation		402.00	31.10%	Of No data areas

Table 3 – Central section statistics

16.5.3 The sensitivity scores for all of the central section land is set out in Table 4.

	Land Suitability score			
Sensitivity grade	Min	Max	Count fields	% of total
Low	23	154	1170	29.33%
Medium	154	219	1696	42.52%
High	219	355	1123	28.15%

Table 4 – Central section all land suitability scores

16.5.4 The sensitivity score of all "no-data" land within the Consolidated construction boundary (CCB) is set out in Table 5.

	Land Suitability score			
Sensitivity grade	Min	Max	Count fields	% of total
Low	42	169	632	27.92%
Medium	169	241	1228	54.24%
High	241	355	404	17.84%

Table 5 – Land sensitivity score all no data areas within CCB

16.5.5 Sites selected for further investigation have sensitivity scores as set out in Table 6. The sites were selected to provide a consistent coverage of the route across the different character areas. Therefore, the land suitability model score is not being used to select areas. Rather the suitability score and other factors are recorded to allow a future assessment of the model against discovered sites.

	Land Suitability score			
Sensitivity grade	Min	Max	Count fields	% of total
Low	121	158	15	17.24%
Medium	158	232	52	59.77%
High	232	325	20	22.99%

Table 6 – Land sensitivity scores for fields selected for further investigation

16.5.6 The criteria used for suitability modelling included measures derived from Waller (2008). The study looked at 100 complete projects from across southern England (2008 Fig 23). Wallers findings for locational factor results: key criteria/incident/period were extracted and are presented in Table 7. The probability average across 4 periods (BA; IA; RO; AS) were calculated to provide the weighting to be added to the GIS land model for all field locations in central section. The medieval period data was excluded on the basis that the medieval settlement model is well understood in terms of spatial distribution.

Composite settlement	Period	Incidents#	Total	%	Probability average
HIGH GROUND	BA	22	34	64.71%	
HIGH GROUND	IA	24	47	51.06%	
HIGH GROUND	RO	18	36	50.00%	47.69%
HIGH GROUND	AS	4	16	25.00%	
HIGH GROUND	MED	0	12	0.00%	
Associated with Topographic Features	BA	10	34	29.41%	
Associated with Topographic Features	IA	19	47	40.43%	
Associated with Topographic Features	RO	12	36	33.33%	35.17%
Associated with Topographic Features	AS	6	16	37.50%	
Associated with Topographic Features	MED	2	12	16.67%	
Associated with WATERWAYS	BA	16	34	47.06%	
Associated with WATERWAYS	IA	19	47	40.43%	
Associated with WATERWAYS	RO	18	36	50.00%	46.87%
Associated with WATERWAYS	AS	8	16	50.00%	
Associated with WATERWAYS	MED	4	12	33.33%	
associated with River terrace ECOZONE	BA	16	18	88.89%	
associated with River terrace ECOZONE	IA	19	20	95.00%	
associated with River terrace ECOZONE	RO	15	17	88.24%	88.86%
associated with River terrace ECOZONE	AS	5	6	83.33%	
associated with River terrace ECOZONE	MED	2	2	100.00%	
Associated with fertile soils (brickearth, colluvium or alluvium)	BA	19	22	86.36%	
	IA	21	37	56.76%	
	RO	12	24	50.00%	54.53%
	AS	2	8	25.00%	

Table 7 - Waller (2008) land locational factors-the number of sites (incidents) out of the total sample no. (total) produce the % score for associated with the locational factor cited in the lefthand column. The probability average takes the score for each of the periods and applies average to produce the % score in the righthand column.

16.5.7 Wallers' study did not include the earlier prehistoric data due to the relative scarcity of evidence in the sample. Donahue and Lovis' data have been used to corroborate the weightings for the earlier periods.

16.5.8 Wallers' findings contribute several criteria weighting to the land model – distance to water, river terrace ecozone, and topographic feature (hill top/plateau), and free draining soils. Slope and aspect have been added to the model and the full weightings are set out as per Table 8 below. Slope weighting was derived from Donahue and Lovis (2006), who found that

discovered sites were more likely to be found on level ground on terraces or benches above the floodplain. In terms of distance to water Donahue and Lovis' work also corrolates with Waller. Sites in this study were on average closer to water than non-sites. Aspect simply assumes that sites facing between 125 and 270 degrees would be preferred to protect against prevailing westerly or northerly winds. This has been confirmed as a preference by comparison of 113 discovered sites on the route to date (see section 16.5).

16.5.9 The land suitability model provides a set of criteria which have been weighted and applied to each land parcel in the Central Section. Based largely on two studies that utilised investigated sites to analyse landscape locational factors in a bottom up approach, the model is not without foundation. However, in terms of the specific application to the central midlands, as in this context, the model will benefit from being tested and assessed against the actual results of surveys and investigations for HS2 Phase 1 central section. It is therefore recommended that a legacy task for the project shall be to look back, once the sites that contribute to the HERDS objectives have been fully understood and assess how such predictive models may be effectively applied in future historic environment decision making in the region.

Factor	Subclass	Representing	Scale	High	Med	Low	Very low
Water	River	Distance to water	<=400m	47	0	0	0
	Spring	Proximity to spring line	<=200m; <=400m	47	27	0	0
Topography	Slope	Level sites preferred	0-5, 5-10;10-15;15-20 degrees	88	29	19	5
	Aspect	Sites between SE and SW preferred	V.Low:0-45; Low:45-90; Low:90-135; High:135-180; High:180-225;Med:225-270;Med:270-315; V low:315-360 degrees	40	30	20	10
	River Terrace Ecozone	Location above watercourse floodplain preferred	Within zone	88	0	0	0
	Plateau location/hill top	Sites on level ground with good visibility preferred	Within zone	48	0	0	0
Soils	Density/drainage	Free draining preferred	Freely draining; Slightly impeded drainage; Impeded drainage; Naturally wet	54	24	12	5

Table 8 – Weighting applied to land suitability model- relative weighting derived from Waller (2008) and Donahue and Lovis (2006)

16.6 Appendix 6: Testing the land suitability model

Method: A point file was created for 113 locations within the central section where the baseline surveys had identified significant archaeological activity. This was intersected with the GIS land model file to extract the local land suitability data for the specific field. The data was exported to MS excel and pivot tables were used to summarise the baseline model (all fields) versus the discovered sites. The results were then compared to the expected weightings predicted by the two source case studies (Waller, 2008 and Donahue and Lovis, 2006)

16.6.1 **Results:** The results are set out in table 9.

Factor	Case study prediction for sites	All land (% of all land with the preferred score)	Discovered sites	Trend (difference between all land and discovered sites)
Nearness to water (within 400m of water course or 500m of spring line)	46.87%	50.17%	77.88%	+27.70%
Soils				
Naturally wet	n/a	6.08%	2.65%	-3.43%
Impeded drainage	n/a	52.32%	73.45%	+21.13%
Slightly impeded	n/a	9.41%	7.96%	-1.44%
Freely draining	54.53%	23.53%	15.93%	-38.60%
Slope (flat 0-5 deg)	n/a	77.56%	97.35%	+19.79%
Aspect (preference 90-270 degrees)	n/a	68.02%	86.73%	+18.70%
Associated with plateau/high ground	35.17%	19.16%	28.32%	+9.16%
Associated with River terrace ecozone	88.86%	22.70%	26.55%	+3.85%
Associated with either topographic location		41.86%	54.87%	+13.00%

Table 9 – Land suitability tested against 113 discovered sites in central section

16.6.2 As far as the general criteria go there is a positive correlation between the 113 discovered sites and the expected land suitability preferences. This is particularly strong in terms of distance to water, slope, and aspect. There is a negative correlation with soils and drainage, driven by the large positive correlation with impeded drainage, and the general lack of lighter soils within the project area. There is a positive correlation with the two topographic features classes, but

slightly less than predicted by Waller's (2008) site sample. When these are combined however a slight (13%) preference for site location is apparent.

16.6.3 In terms of overall effectiveness of the model the total scores (Table 10), provide a strong positive correlation for sensitivity scores of medium and high potentials with 84.96% (96 no.) of the total discovered sites scoring 155 or above. Only 17 locations had an overall score of less than 155 and none less than 105.

Sensitivity	Range	No. of sites	% of discovered sites
Low	105-154	17	15.04%
Medium	155-204	37	32.74%
High	205-254	29	25.66%
High	255-304	26	23.01%
High	305-354	4	3.54%
	Grand Total	113	

Table 10. Sensitivity rating all land versus discovered sites

16.6.4 The following section sets out the scope for further testing of a range of low, medium and high sensitivity locations, for evidence of sites undetected by the baseline surveys to date. Fields have been selected to provide a consistent coverage across the route.

16.7 Appendix 7: Investigation scope for no-data areas

Package	Fields	CR_ID shape
AC210 Group 1 **Bucks** **AT21**	F08_0032 F08_0035 F08_0036 F08_0039 F08_0043 F08_0045 F08_0048 F08_0051	C21044
Fusion Land model score (average for group)	200	Medium sensitivity
EngLaid Population period score	2/1	Prehistory/EMED
Hs2 risk rating -very high- high-med-low	2	High
Character area summary	Potter Row, between Frith Hill and Hammondshall Farm is identified by Buckinghamshire County Council as an archaeological notification area on the basis of a variety of finds which could indicate the existence of a former	

Package	Fields	CR_ID shape
	extensive area of 13th to 15th century pottery production and settlement. The possible location of a 16th to 17th century kiln site indicated by numerous finds of pottery has also been recorded in the gardens of the surrounding area. There is a strong potential for further in situ and unstratified ceramic and metal artefacts and associated below ground features. The Iron Age Grim's Ditch scheduled monument lies at the northern end of the study area and associated below ground remains may exist within this ASZ.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		No
Potentials for metal finds from HER ? - Md survey AT19 could be appropriate to supplement TP or FW survey		No
Area with no finds evidence to test assumptions - the real blank blanks		No
Current land use index	Nov 2019 data	Pasture
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	CWF geology not conducive to FW survey	AT21

Package	Fields	CR_ID shape
AC210 Group 2; Bucks		
AT21	F08_0071; F08_0074	C21043
AT21	F08_0082; F08_0085	C21042
Fusion Land model score (average)	205	Medium sensitivity
EngLaid Population period score	1	EMED
Hs2 risk rating -very high- high-med-low		None
Character area summary	Multi-period (Bronze Age, Iron Age, Roman, medieval and post-medieval) metal artefacts recovered during a series of metal detector surveys undertaken between 2005 and 2009 on the fields of Wendoverdean Farm and Manor Farm and to the north.	
Hs2 planned Field Walking area - yes/no?	No	
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes in field F08_0074 only
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No

Package	Fields	CR_ID shape
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	CWF geology not conducive to FW survey	AT21

Package	Fields	CR_ID shape
AC210 Group 3 **Bucks**		
AT21	F09_0002; F09_0005; F09_0007	C21041
AT21	F09_0012; F09_0013; F09_0015; F09_0016	C21040
AT21	F09_0023; F09_0024; F09_0027	C21039
Fusion Land model score (average)	175	Medium sensitivity
EngLaid Population period score	1/1	PRE/EMED
Hs2 risk rating -very high- high-med-low		None
Character area summary	Metalwork recovered during metal detecting survey to the west of Boddington Hill in 2004, 2008, 2010 dating to the early medieval, medieval and post-medieval periods. The site of a former windmill is also known from its depiction on Jeffrey's 18th century map of Buckinghamshire. Two Bronze Age palstaves were found in a gravel quarry north of Road Barn Farm. It is believed that they were probably moved there in 20th century since they were found tied together with modern copper wire. Pleistocene mammal remains were also found in the former gravel pit, now in use as a rifle range. Multi-period (Bronze Age, Iron Age, Roman, medieval and post-medieval) metal artefacts recovered during a series of metal detector surveys undertaken between 2005 and 2009 on the fields of Wendoverdean Farm and Manor Farm and to the north.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes		Yes quaternary HEAD deposits

Package	Fields	CR_ID shape
=AT21 no = possible FW AT20		
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Lightly vegetated
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route and compound
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pitting survey	AT21

Package	Fields	CR_ID shape
AC210 Group 4 **Bucks** **AT21**	F09_0118; F09_0110	C21038
Fusion Land model score (average)	214	Medium sensitivity
EngLaid Population period score	3/2	PRE/EMED
Hs2 risk rating -very high- high-med-low		None
Character area summary	A field in the north-west corner of the ASZ appears to show traces of ridge and furrow earthworks on the LiDAR plot. There are no other records. The ASZ, however, lies on the eastern edge of a former medieval moated site at Nashlee	

Package	Fields	CR_ID shape
	Farm and within the wider area of a probable medieval settlement of Nash Lee Green. The line of the B4009 Nash Lee Road may have been preceded by a Roman road and settlement evidence along the route from at least the Roman period is possible.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		No
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Lightly vegetated
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pits	AT21

Package	Fields	CR_ID shape
AC240 Group 1 **Bucks** **AT20**	F12_0018; F12_0011; F12_0017; F12_0019	C24011
Fusion Land model score (average)	166	Low sensitivity
EngLaid Population period score	1/2	PRE/EMED
Hs2 risk rating -very high- high-med-low		None
Character area summary	Akeman Street Roman Road (WAD001) lies to the south of the ASZ, and the small Romano-British town of Fleet Marston lies a short distant to the east. As such, there is considered to be potential for Romano- British remains in the hinterland of the settlement. However, no finds or features have previously been recorded within the ASZ.	
Hs2 planned Field Walking area - yes/no?		Yes
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		No
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		Yes
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		None

Package	Fields	CR_ID shape
Interface with EK compound or haul road	Yes	Haul route and compound
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Field-walking ploughed fields	AT20

Package	Fields	CR_ID shape
AC250 Group 1 **Bucks**		
AT21	F13_0056	C25105
AT21	F13_0120; F13_0119; F14_0008	C25104
Fusion Land model score (average)	143	Low sensitivity
EngLaid Population period score	0/0	PRE/EMED
Hs2 risk rating -very high- high-med-low		Medium
Character area summary	Doddershall may have included a medieval deerpark, which may have extended into this ASZ. At least one putative moated site is extant, and there are extant ridge and furrow earthworks. The River Ray represents an attractive location for early settlement, as one of the larger watercourses in a landscape of heavy clay. There is a potential medieval water mill to the north, and several pond- bays indicate historic exploitation of the river. Several earthworks, of unknown origin, were recorded during a walkover survey. Although finds and features in this area are relatively sparse, it formed part of the Doddershall estate, and lies immediately adjacent to a deserted medieval village.	
Hs2 planned Field Walking area - yes/no?		Yes
HS2 actual Field Walking area? Yes/No		Part completed

Package	Fields	CR_ID shape
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		Yes
Current land use index	Nov 2019 data	Mainly pasture/part ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route and compound
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC250 Group 2 **Bucks** **AT21**	F14_0054; F14_0059	C25103
Fusion Land model score (average)	180	Medium sensitivity
EngLaid Population period score	0/0	PRE/EMED
Hs2 risk rating -very high- high-med-low		None

Package	Fields	CR_ID shape
Character area summary	Limited evidence has been recorded, but there is evidence of medieval activity in the surrounding landscape. This area was probably part of the Royal Forest of Bernwood, before being disafforested in the later medieval period. There is some evidence of assarting. This area probably formed part of the Verney Estate, centred at Middle Claydon.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		Yes
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route and compound
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC250 Group 3 **Bucks** **AT21**	F16_0037; F17_0002; F17_0004;F16_0043	C25102
Fusion Land model score (average)	270	High sensitivity
EngLaid Population period score	0/1	PRE/EMED
Hs2 risk rating -very high- high-med-low		None
Character area summary	A large shrunken medieval village, Cowley (CAL065), lies on the top of a small hill. Two Bronze Age round barrows (CAL067) lie on a false crest, overlooking the course of the Padbury Brook. There is considered to be potential for currently unrecorded remains of similar and later date.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route and compound

Package	Fields	CR_ID shape
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC250 Group 4 **Bucks** **AT21**	F18_0009 F18_0010 F18_0011 F18_0005	C25101
Fusion Land model score (average)	271	High sensitivity
EngLaid Population period score	0/1	PRE/EMED
Hs2 risk rating -very high- high-med-low		Medium
Character area summary	A cropmark indicative of a ring ditch is recorded, but no other finds or features. There is considered to be some potential here for remains of prehistoric date. (F18_0010) No archaeological finds or features are recorded in this area. The potential for currently unrecorded remains is considered to be limited.	
Hs2 planned Field Walking area - yes/no?		Yes
HS2 actual Field Walking area? Yes/No		Yes in F18_0005.
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No

Package	Fields	CR_ID shape
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Part pasture/part ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul route
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC250 Group 5 **Bucks** **AT21**	F18_0051;F18_0055	C25100
Fusion Land model score (average)	167	Low sensitivity
EngLaid Population period score	0/0	PRE/EMED
Hs2 risk rating -very high- high-med		None
Character area summary	Low ridge crossed by presumed line of Roman road (NPB006) between Towcester and Alchester. Scattered enclosures (NPB015, NPB016, and NPB020) visible to aerial photography and known prehistoric site with some Romano-British activity at Finmere Quarry (NPB019) and potential ring ditches at Finmere airfield (NPB014.Medieval moated site at Newton Purcell (NPB007) and ridge and furrow between Newton Purcell and Barleyfields Farm (NPB092 and NPB093)	
Hs2 planned Field Walking area - yes/no?		No

Package	Fields	CR_ID shape
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		Yes
Current land use index	Nov 2019 data	Pasture
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	No	
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC250 Group 6 **Bucks** **AT21**	F19_0072	C25099
Fusion Land model score (average)	270	High sensitivity
EngLaid Population period score	0/0	PRE/EMED
Hs2 risk rating -very high- high-med		None
Character area summary	Adjacent plateau and opposite south facing slope would likely have better potential archaeological remains.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.

Package	Fields	CR_ID shape
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC250 Group 7 **Bucks** **AT21**	F20_0013;F20_0028	C25098
Fusion Land model score (average)	288	High sensitivity
EngLaid Population period score	0/3	PRE/EMED
Hs2 risk rating -very high- high-med		None
Character area summary	This is a typical locality to find activity of all periods up to the medieval. This could include Bronze Age round barrows and later prehistoric and/or Romano-British settlement activity. There is very little reported archaeology from this area apart from the Romano-British activity recorded from Turweston (NPB058 and NPB059) but this is almost certainly a result of there having been little in the way of archaeological work. The margin of valley of the River Great Ouse north of Brackley suggests that a similar density of archaeological activity as recorded there may also be expected here. Probability is highest on plateau margins where Limestones are not capped by till.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		No
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No

Package	Fields	CR_ID shape
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC300 Group 1 **N'hants** **AT21**	F21_0007; F21_0008 F21_0012 F21_0018	C30038
Fusion Land model score (average)	303	High sensitivity
EngLaid Population period score	3/0	PRE/EMED
Hs2 risk rating -very high- high-med		High
Character area summary	Southerly aspect makes this a quite likely location for archaeological remains. Upper slope is a typical location for Mesolithic and Early Neolithic activity on the edge of a valley and for the location of Bronze Age barrows. Cropmark of an enclosure has been recognised just to the south of Versions Farm.	
Hs2 planned Field Walking area - yes/no?		No

Package	Fields	CR_ID shape
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes part
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Pasture/crop
Other factors - coverage across key townships to chart date of pottery material		None
Interface with EK compound or haul road	Yes	Haul road/compound
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pit array	AT21

Package	Fields	CR_ID shape
AC300 Group 2 **N'hants**		
AT20	F21_0070	C30036
AT20	F21_0060 F21_0046 F21_0050 F21_0034	C30037
Fusion Land model score (average)	156	Low sensitivity
EngLaid Population period score	0/1	PRE/EMED
Hs2 risk rating -very high- high-med		High
Character area summary	Typical locality for Mesolithic and early Neolithic exploitation of an interfluve with some potential for later periods too. Most likely scattered enclosures rather than the dense belt of activity adjacent to the River Great Ouse. Cropmarks of such enclosures evident north of Radstone (NPB090). Iron Age settlement activity has been identified at Brackley Fields and cropmarks of settlement are also evident near Hall Farm (NPB076) and to the east of Radstone (NPB085, NPB087 and NPB088). Excavated evidence for Middle Iron Age settlement immediately to the south (NPB083). Density of activity may not be as intensive as along the River Great Ouse valley side but potential is still high. Top of a south facing slope overlooking the valley of the River Great Ouse on a local exposure of limestone makes this a good location for archaeological remains. This is confirmed by the almost uninterrupted belt of discoveries extending north from Brackley and along the A43 (NPB072, NPB073 and NPB074). These include evidence for Iron Age settlement activity at Brackley Fields (NPB074) and Romano-British activity including possible Romano-Celtic temple and burials near Sundale (NPB073) Cropmarks of settlement sites are also evident near Fox Covert (NPB077). This area has not been developed in the same way as the bypass and archaeological survival will be high.	
Hs2 planned Field Walking area - yes/no?		No

Package	Fields	CR_ID shape
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes north part
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Pasture north and ploughed south
Other factors - coverage across key townships to chart date of pottery material		Complete artefact collection across Radstone parish
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Fieldwalking	AT20

Package	Fields	CR_ID shape
AC300 Group 3 N'hants		
AT21	F22_0048 F22_0047 F22_0054	C30035
AT19	F22_0048 F22_0047 F22_0054	C30039
Fusion Land model score (average)	178	Medium sensitivity
EngLaid Population period score	2/8	PRE/EMED
Hs2 risk rating -very high- high-med		High
Character area summary	Typical area for Mesolithic and Early Neolithic activity and finds from near Dean Barn (GLB050 and 051) appear to confirm this. Cropmark sites near Magpie Farm and possible Anglo-Saxon cemetery north of Marston Hill Farm (GLB049).	
Hs2 planned Field Walking area - yes/no?		Yes
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		No
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		Yes- combine with MD survey
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		Complete artefact collection across Marston parish

Package	Fields	CR_ID shape
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test Pits/MD survey	AT21/AT19

Package	Fields	CR_ID shape
AC310 Group 1 N'hants		
AT21	F23_0010; F23_0015	C31037
AT21	F22_0068 F22_0071	C31038
Fusion Land model score (average)	207	Medium sensitivity
EngLaid Population period score	4/0	PRE/EMED
Hs2 risk rating -very high- high-med		Medium
Character area summary	Between settlements at Thorpe Mandeville and Lower Thorpe. Within open field system. Potentially early enclosure landscape with some survival of ridge and furrow. Cropmark sites (GLB067 and 068) at top of tributary stream valley.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		No
Potential for MD survey AT19 (could be appropriate to		Yes- combine with MD survey

Package	Fields	CR_ID shape
supplement TP or FW survey)		
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed
Other factors - coverage across key townships to chart date of pottery material		Complete artefact collection across Thorpe Mandeville parish
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pits	AT21

Package	Fields	CR_ID shape
AC310 Group 2, N'hants		
AT21	F24_0001 F24_005 F24_0002 F24_0003	C31036
AT21	F24_0007	C31040
Fusion Land model score (average)	225	Medium sensitivity
EngLaid Population period score	0/0	PRE/EMED
Hs2 risk rating -very high- high-med		High/very high
Character area summary	Lower part of south facing slope is a possible location for past settlement, but this activity is more likely to be found on adjacent ridges. Rising ground above confluence of streams with Cherwell makes this a relatively good location for past activity. Valley floor, possibly former low lying moor	

Package	Fields	CR_ID shape
	prone to flooding. Would generally be considered poor location for archaeological activity but is likely site of Battle of Edgcote.	
Hs2 planned Field Walking area - yes/no?		Yes all
HS2 actual Field Walking area? Yes/No		Yes F24_007 only
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Possible in North field
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Part Ploughed winter crop
Other factors - coverage across key townships to chart date of pottery material		No
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pits	AT21

Package	Fields	CR_ID shape
AC320a Group 1 **N'hants**		
AT21	F25_0064	C32052
AT21	F25_0044	C32053
AT19	F25_0044	C32054 (MD survey)
Fusion Land model score (average)	186	Medium sensitivity
EngLaid Population period score	6/1	PRE/EMED
Hs2 risk rating -very high- high-med		None
Character area summary	(South) Plateau on edge of Cherwell headwater system and also overlooking Itchen catchment to north. Excellent location for past activity including potential prehistoric ceremonial complexes, suggested by cropmarks (GLB165) and a find of Bronze Age axe hoard. Archaeological deposits may be truncated by features associated with the World War II airfield. (North) Relatively poorly drained valley floor unlikely location for early activity but good palaeo- environmental potential.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		Yes
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Possible in North field
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		Yes. Combine MD survey with work (previous BA finds)
Low suitability Area with no finds		No

Package	Fields	CR_ID shape
evidence to test model assumptions -		
Current land use index	Nov 2019 data	North pasture. South Ploughed winter crop
Other factors - coverage across key townships to chart date of pottery material		Yes Aston Le Walls
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pits/md survey	AT21/AT19

Package	Fields	CR_ID shape
AC321 Group 1 **Warwickshire** **AT20**	F28_0004; F27_0031; F28_0008;	C32050
Fusion Land model score (average)	184	Medium sensitivity
EngLaid Population period score	0/0	PRE/EMED
Hs2 risk rating -very high- high-med		None
Character area summary	No known archaeology earlier than well-known remnants of ploughed out medieval field systems and post medieval agriculture/ farmsteads (Church Farm, LBS012).There is potential for unknown buried late prehistoric/Roman/early medieval archaeology. Includes possible early Salt Way (LBS024).	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No

Package	Fields	CR_ID shape
Tun/Thorpe place name - yes /no		Part Wormleighton
Alluvial/colluvium soil potential? - yes =AT21 no = possible FW AT20		Yes
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		No
Current land use index	Nov 2019 data	Ploughed light growth
Other factors - coverage across key townships to chart date of pottery material		No
Interface with EK compound or haul road	Yes	Haul road/compound
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Fieldwalking	AT20

Package	Fields	CR_ID shape
AC321 Group 2, Warwickshire		
AT21	F28_0057 F28_0058 F28_0065 F29_0002	C32049
AT20	F29_0016	C32048
Fusion Land model score (average)	157	Low sensitivity
EngLaid Population period score	1/0	PRE/EMED
Hs2 risk rating -very high- high-med		Medium (part)
Character area summary	No known archaeology earlier than well-known remnants of ploughed out medieval field systems and post medieval agriculture/ farmsteads, although suspected site of Windmill at top of hill. Hilltop position may have been attractive for settlement/ defence in the past. There is potential for unknown buried late prehistoric/Roman/early medieval archaeology. No known archaeology earlier than well-known remnants of ploughed out medieval field systems and post medieval agriculture/ farmsteads (ridge-and-furrow preserved in pasture to the south of Harp Farm seen on LiDAR, WA1.33 and earthwork boundaries WA1.34) but including evidence for brick kilns at Harp Farm (LBS055) Potential for unknown buried late prehistoric/Roman/early medieval archaeology. No known archaeology earlier than well-known remnants of ploughed out medieval field systems and post medieval agriculture/ farmsteads. Potential for unknown buried late prehistoric/Roman/early medieval archaeology. There have been significant concentrations of finds and sites to north in Lower Itchen.	
Hs2 planned Field Walking area - yes/no?		No
HS2 actual Field Walking area? Yes/No		No
Tun/Thorpe place name - yes /no		No
Alluvial/colluvium soil potential? - yes		Yes

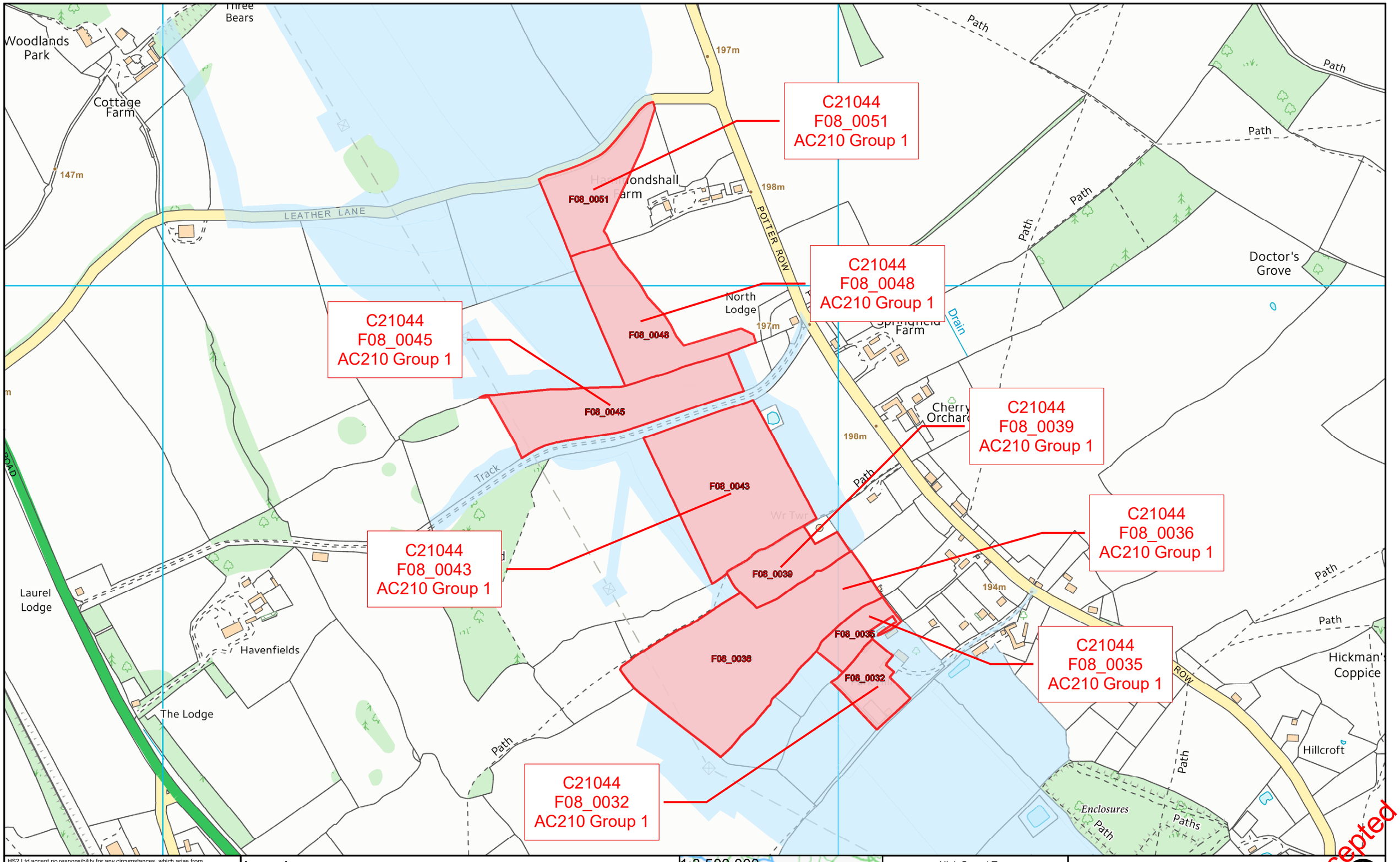
Package	Fields	CR_ID shape
=AT21 no = possible FW AT20		
Potential for MD survey AT19 (could be appropriate to supplement TP or FW survey)		No
Low suitability Area with no finds evidence to test model assumptions -		Yes
Current land use index	Nov 2019 data	Part Ploughed light growth/part pasture
Other factors - coverage across key townships to chart date of pottery material		No
Interface with EK compound or haul road	Yes	Haul road
Core HERDS objective		Listed at Section 5 above.
Activity type proposed	Test pits/ Field walking	AT20/AT21

16.8 Appendix 8: 1EW03-FUS-GI-MAP-C000-000032. Site location drawings

Sets out the location of individual survey groups

16.9 Appendix 9: 1EW03-FUS-GI-MAP-C000-000033. Map Book

Summarises the relationship of no data survey groups to other intrusive surveys that have been defined within EWC Central area



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 1 of 20)

Activity Code: AT21
Package: AC210 Group 1
CR_ID: C21044

Protect

HS2

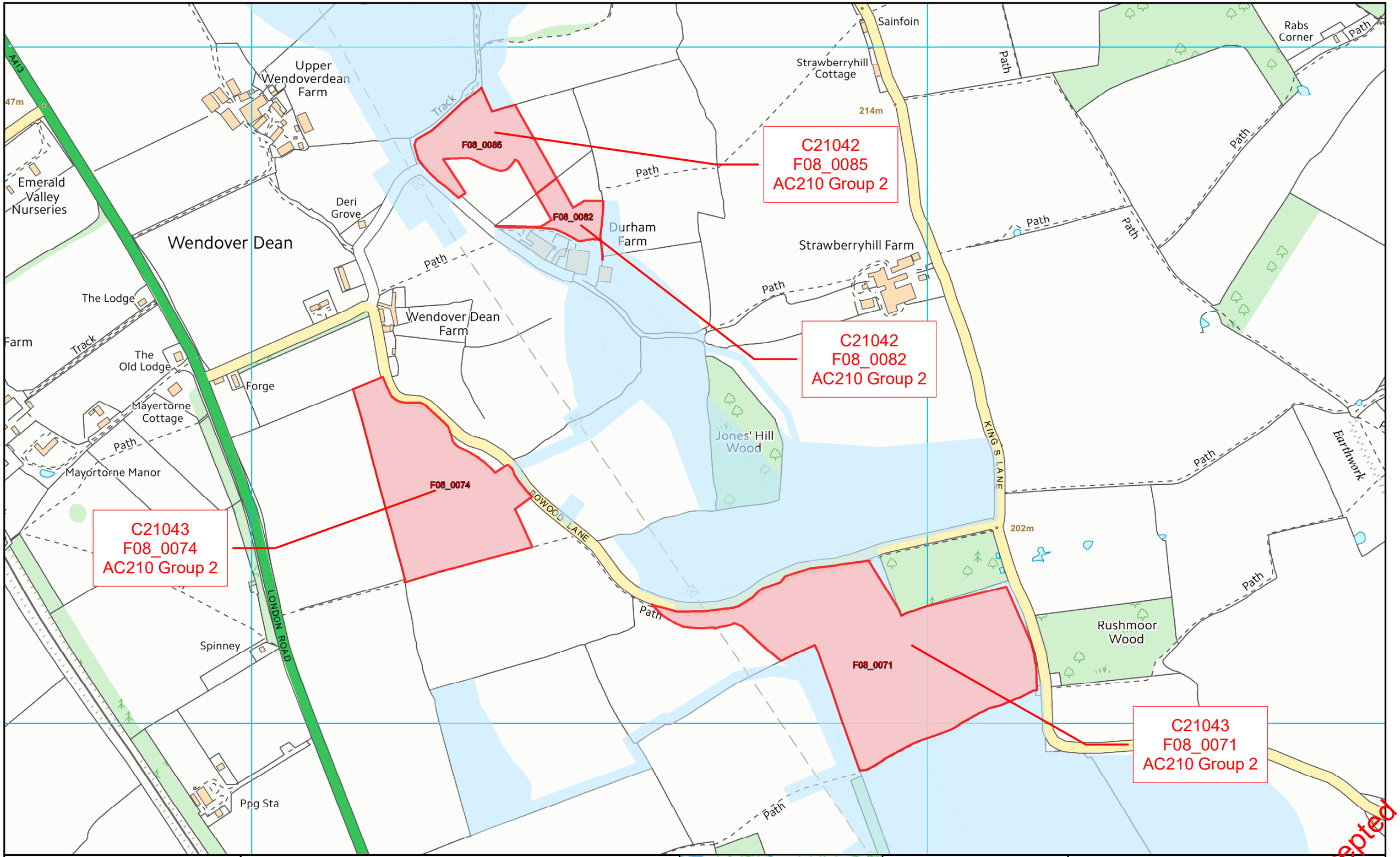
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:5,000

0 50 100 150 200 Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



C21042
F08_0085
AC210 Group 2

C21042
F08_0082
AC210 Group 2

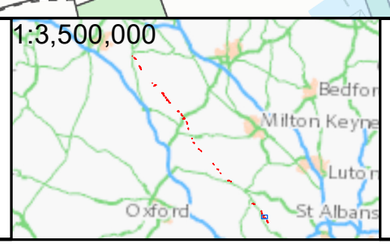
C21043
F08_0074
AC210 Group 2

C21043
F08_0071
AC210 Group 2

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 2 of 20)

Activity Code: AT21
Package: AC210 Group 2
CR_ID: C21042 C21043

Protect

HS2

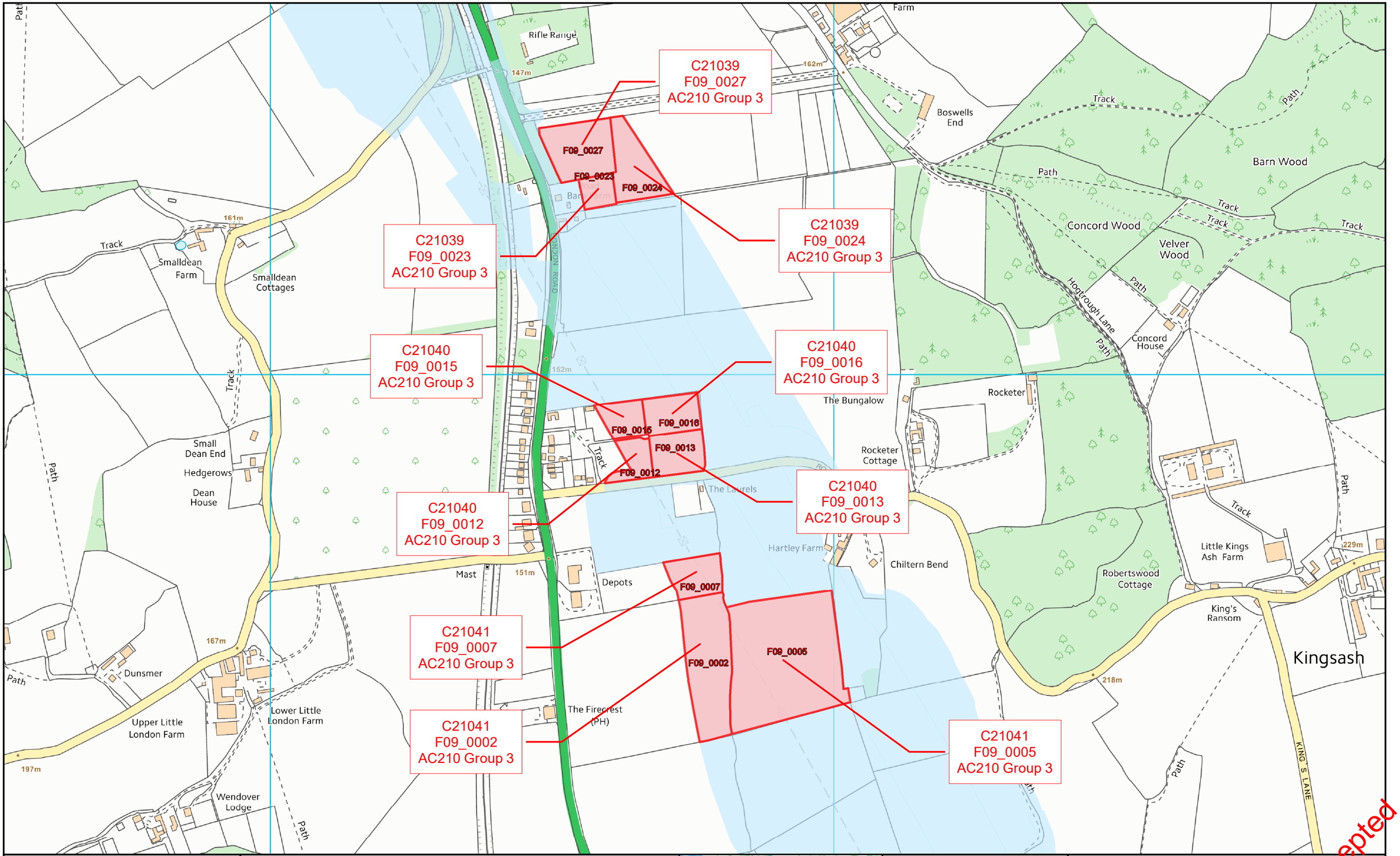
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:5,000

0 50 100 150 200
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 3 of 20)

Activity Code: AT21
Package: AC210 Group 3
CR_ID: C21039 C21040 C21041

Protect

HS2

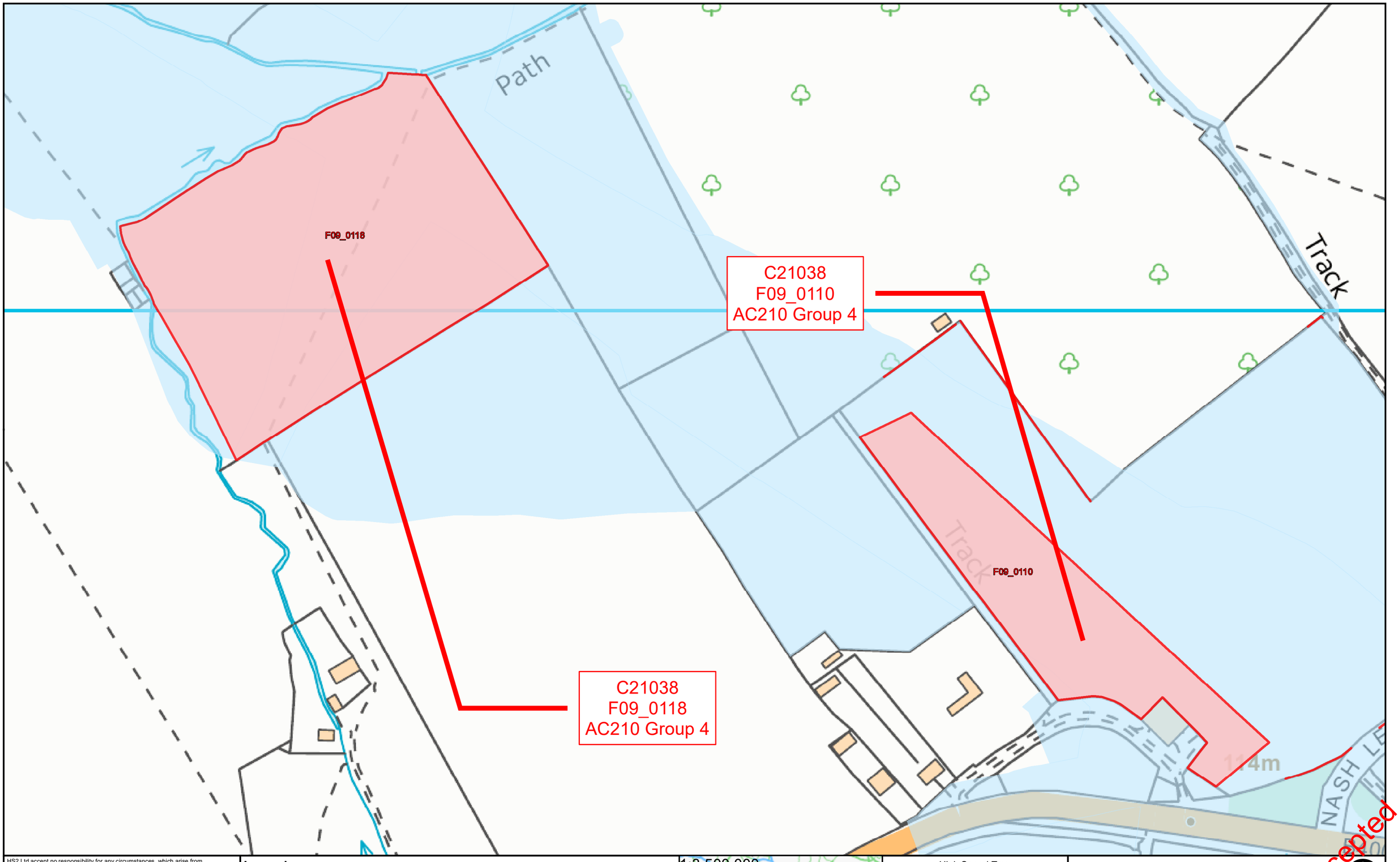
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:6,000

0 120 180 240
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted

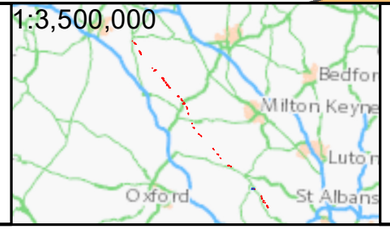


Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 4 of 20)

Activity Code: AT21
Package: AC210 Group 4
CR_ID: C21038

Protect

HS2

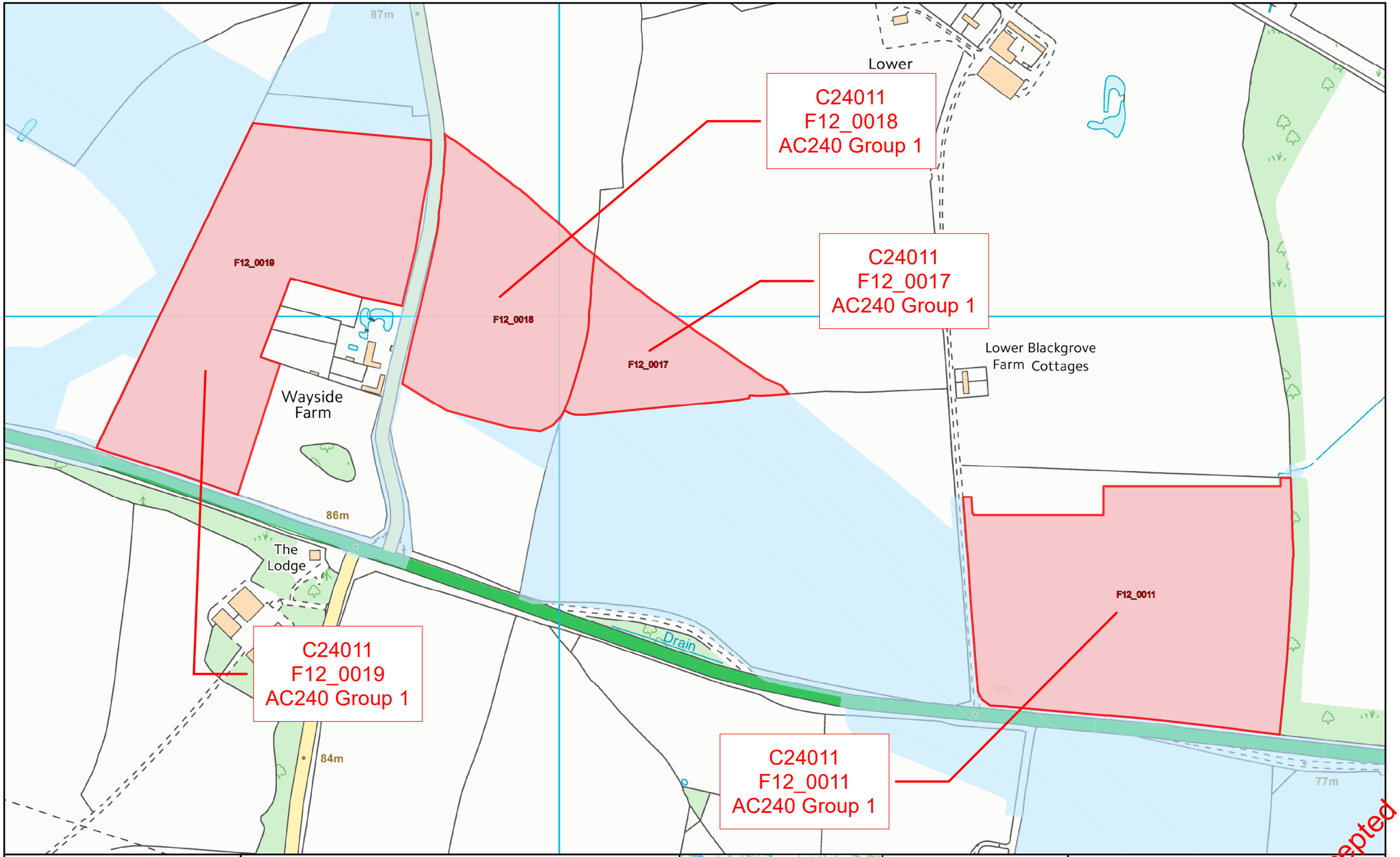
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,000

0 20 40 60 80
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

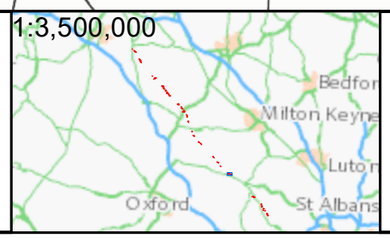
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 5 of 20)

Activity Code: AT20
Package: AC240 Group 1
CR_ID: C24011

Protect

HS2

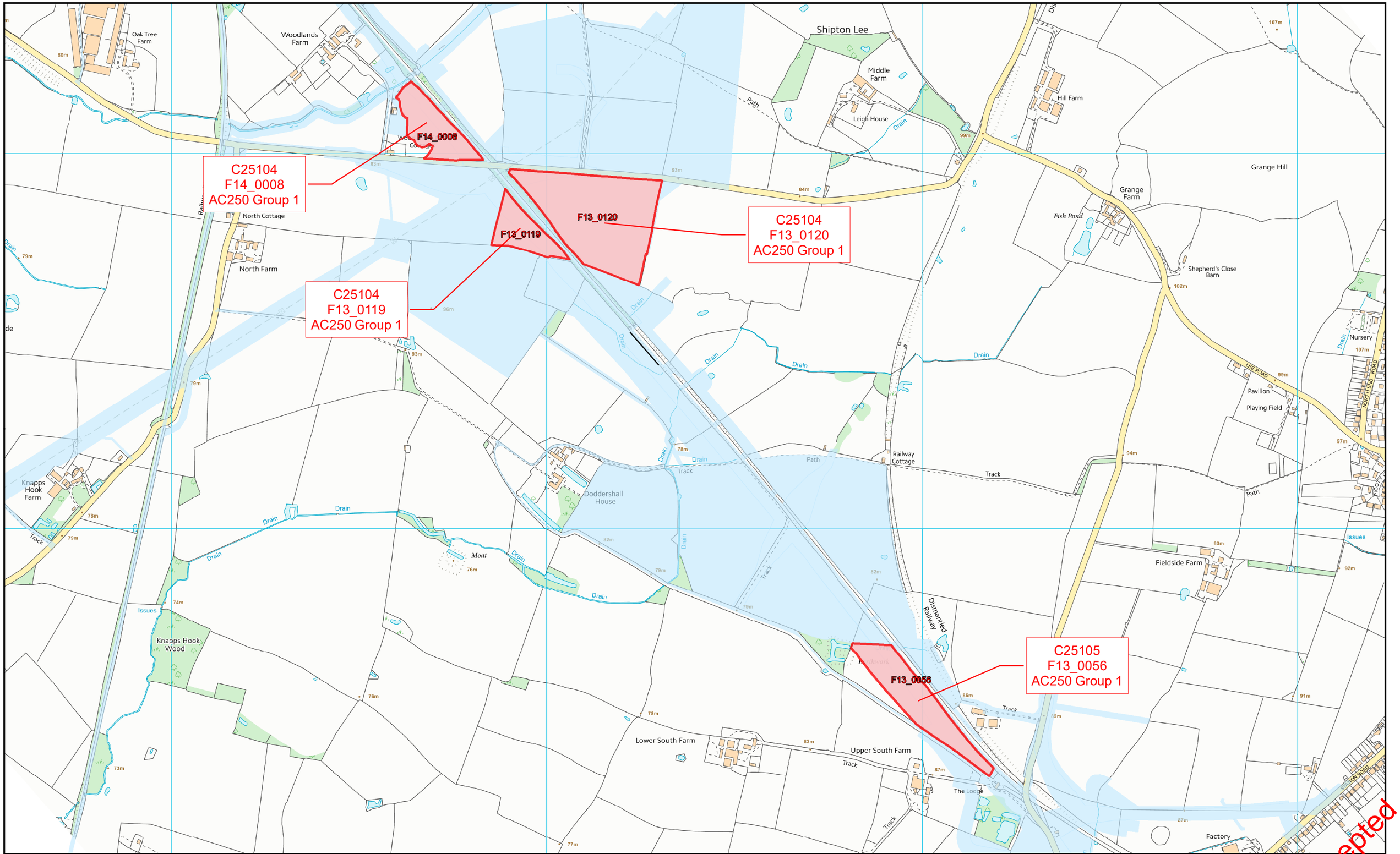
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:4,000

0 40 80 120 160
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

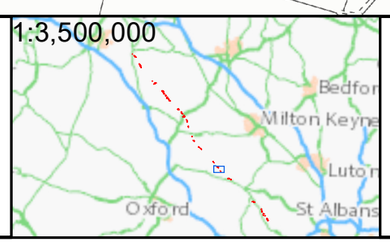
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 6 of 20)

Activity Code: AT21
Package: AC250 Group 1
CR_ID: C25104 C25105

Protect

HS2

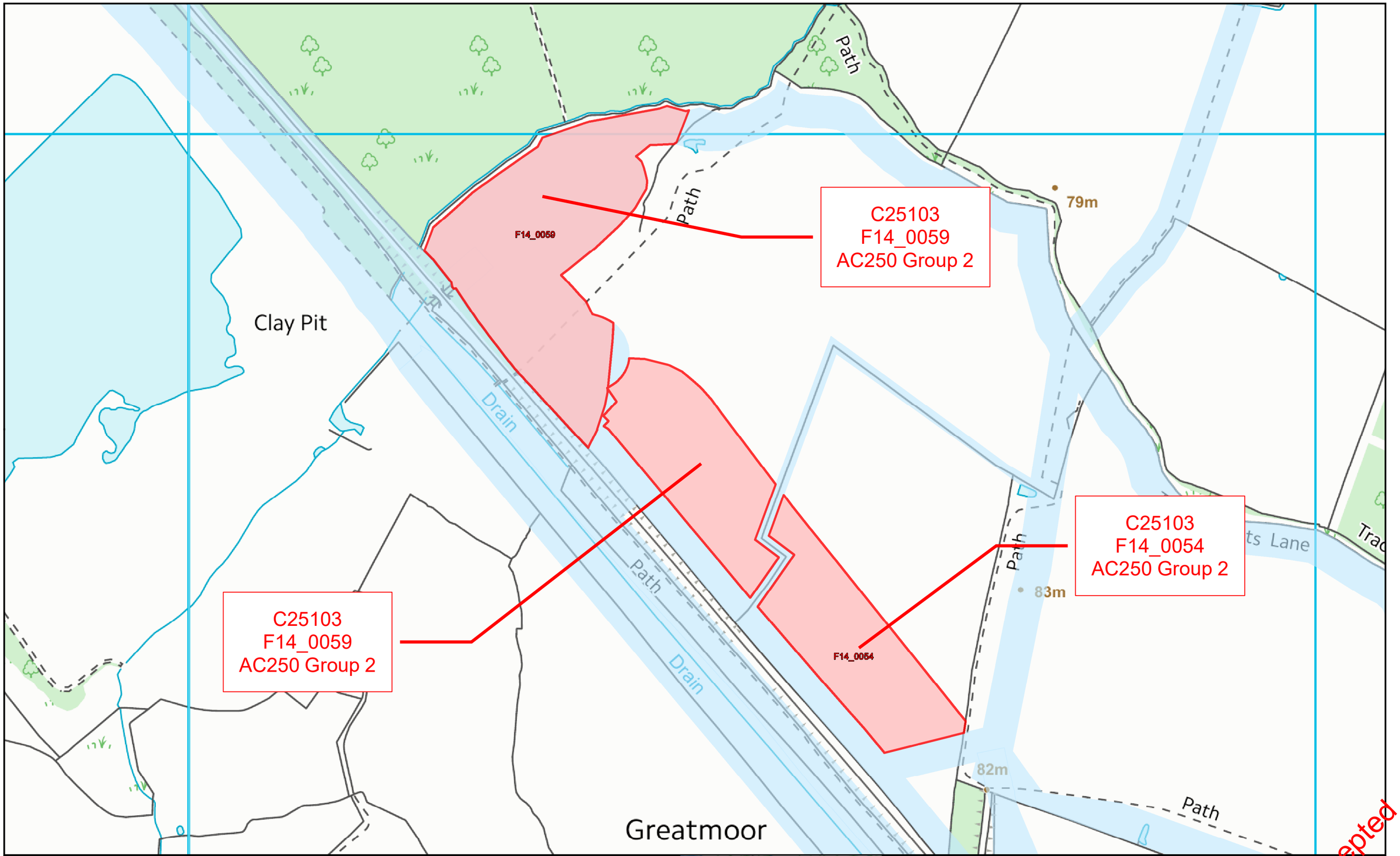
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:9,000

0 90 180 270 360 Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 7 of 20)

Activity Code: AT21
Package: AC250 Group 2
CR_ID: C25103

Protect

HS2

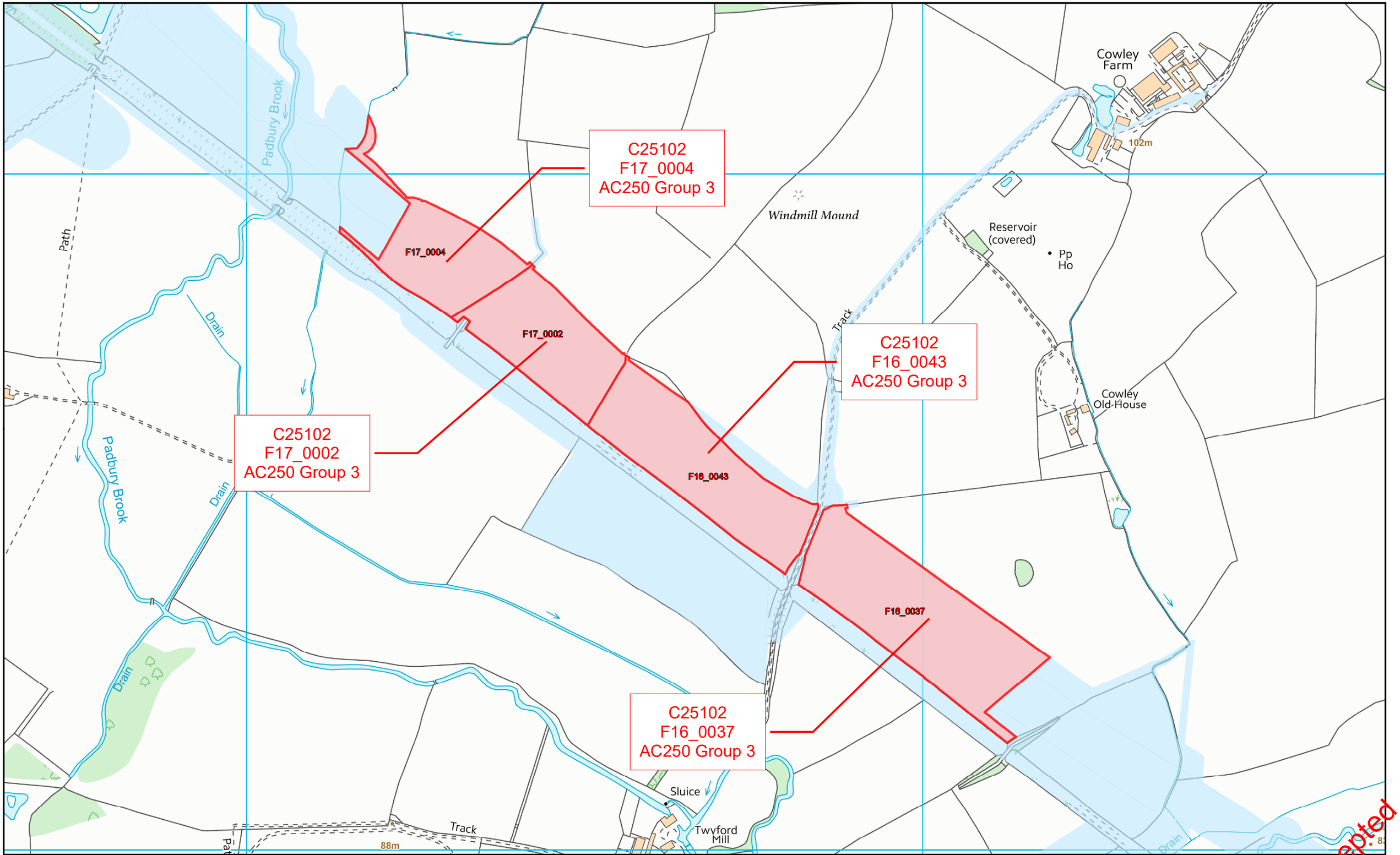
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:3,000

0 30 60 90 120 Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 8 of 20)

Activity Code: AT21
Package: AC250 Group 3
CR_ID: C25102

Protect

HS2

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

Scale at A3: 1:5,000

0 50 100 150 200
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted

C25101
F18_0011
AC250 Group 4

C25101
F18_0009
AC250 Group 4

C25101
F18_0010
AC250 Group 4

C25101
F18_0005
AC250 Group 4

F18_0010

F18_0011

F18_0009

F18_0005

96m

Ford

The Old Vicarage

Path

107m

School End

Barton H
Farm

rounds
rm

Path

102m

Moat

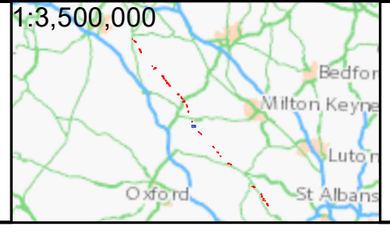
Moat

Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 9 of 20)

Activity Code: AT21
Package: AC250 Group 4
CR_ID: C25101

Protect

HS2

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

Scale at A3: 1:3,000

0 30 60 90 120
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted

C25100
F18_0055
AC250 Group 5

F18_0055

F18_0051

C25100
F18_0051
AC250 Group 5

elds Barn
rm

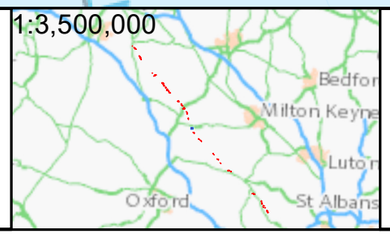
Drain

Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 10 of 20)

Activity Code: AT21
Package: AC250 Group 5
CR_ID: C25100

Protect

HS2

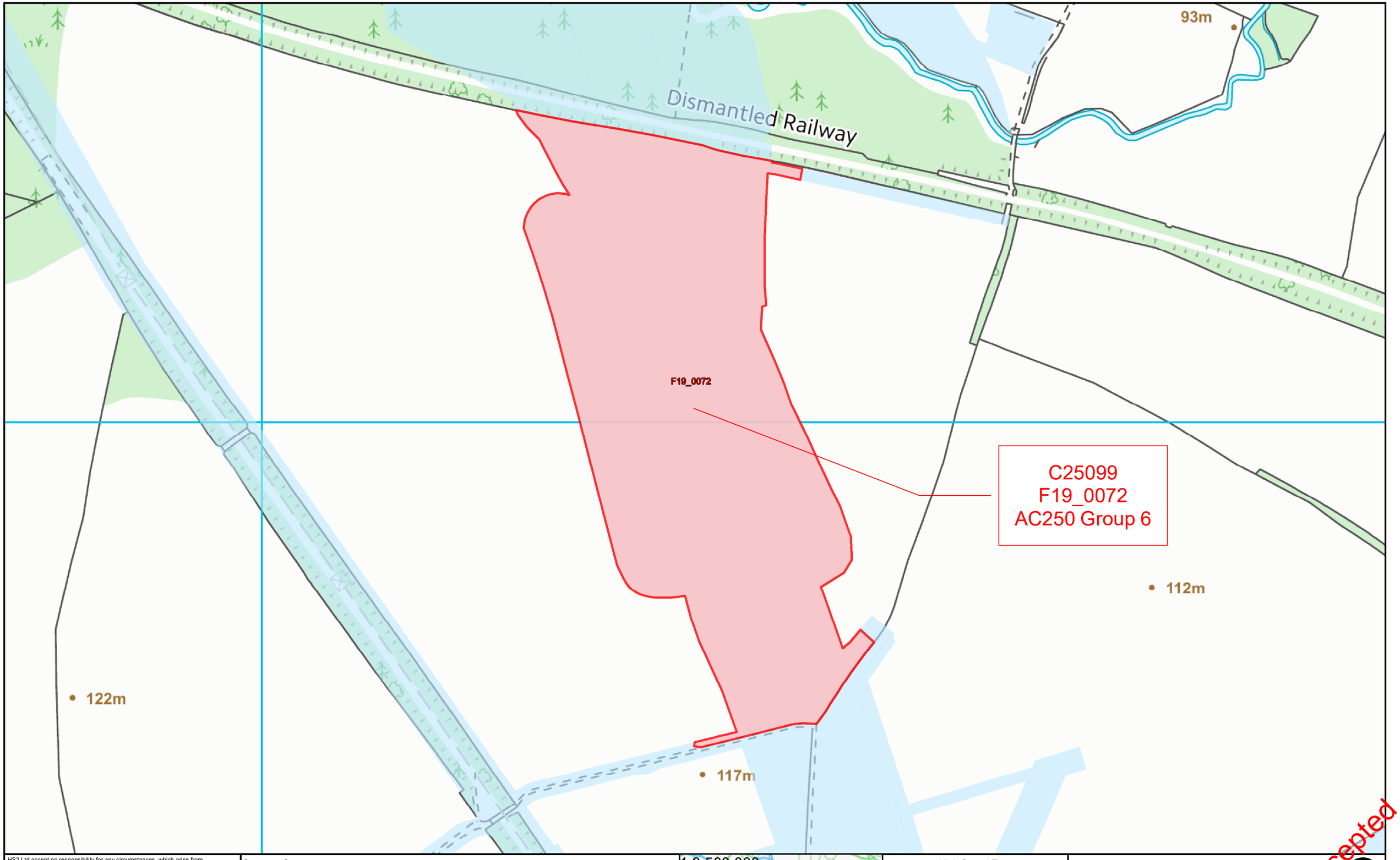
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:2,000

0 20 40 60 80
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

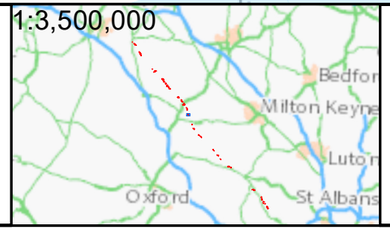
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 11 of 20)

Activity Code: AT21
Package: AC250 Group 6
CR_ID: C25099

Protect

HS2

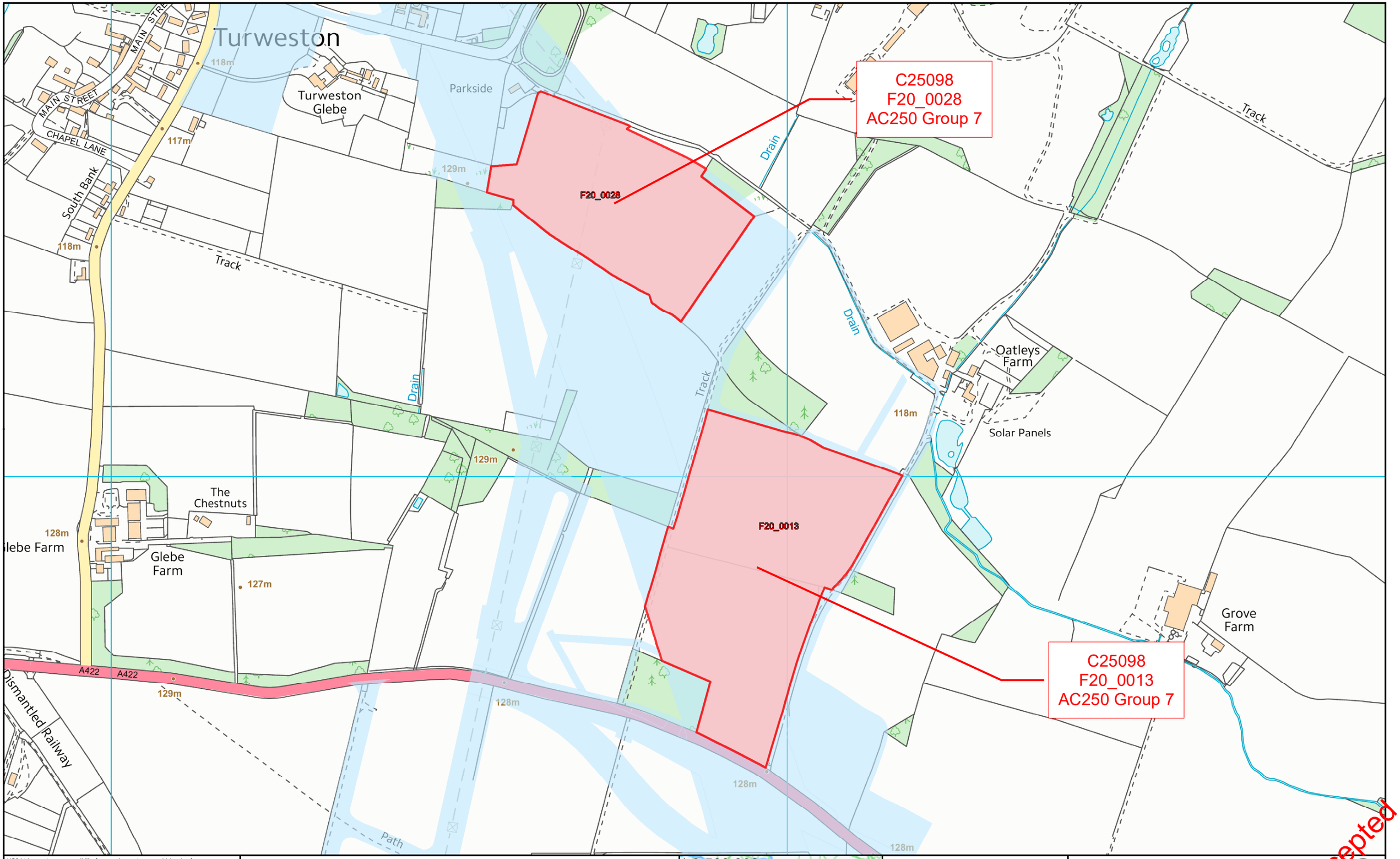
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:3,000

0 30 60 90 120
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 12 of 20)

Activity Code: AT21
Package: AC250 Group 7
CR_ID: C25098

Protect

HS2

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

Scale at A3: 1:5,000

0 100 150 200
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted

C30038
F21_0018
AC300 Group 1

C30038
F21_0007
AC300 Group 1

C30038
F21_0008
AC300 Group 1

C30038
F21_0012
AC300 Group 1

Sundale
Track
Gallop
F21_0018
107m
Drain
Issues
Issues
A43
Versions Farm
Bungalow
F21_0007
F21_0012
F21_0008
TK
A43
Track
Versions
Farm
118m

Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 13 of 20)

Activity Code: AT21
Package: AC300 Group 1
CR_ID: C30038

Protect

HS2

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

Scale at A3: 1:3,000

0 60 90 120
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted

C30036
F21_0070
AC300 Group 2

C30037
F21_0060
AC300 Group 2

C30037
F21_0046
AC300 Group 2

C30037
F21_0050
AC300 Group 2

C30037
F21_0034
AC300 Group 2

F21_0070
F21_0060
F21_0050
F21_0046
F21_0034

Halse Copse Cottages
Halse Copse Farm
Halse Copse
Issues
Path
Water Tower
Halse Grange
Halse
Manor Farm
Lower Farm
PW
Pp Ho
Track
Drain
Fox Covert
Solar Farm
The Woolridge (Track)
Radstone
Manor Farm
Sewage Works
Medieval Village of Radstone (site of)
FB
Coldharbour Farm
Briary House
Twin Gables
Mast
Hall Farm
El Sub Sta
Spr
Track

Legend

Limit Of Land To Be Acquired or Used

Site Location Boundary

1:3,500,000

Bedford
Milton Keynes
Luton
Oxford
St Albans

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 14 of 20)

Activity Code: AT20
Package: AC300 Group 2
CR_ID: C30036 C30037

Protect

HS2

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

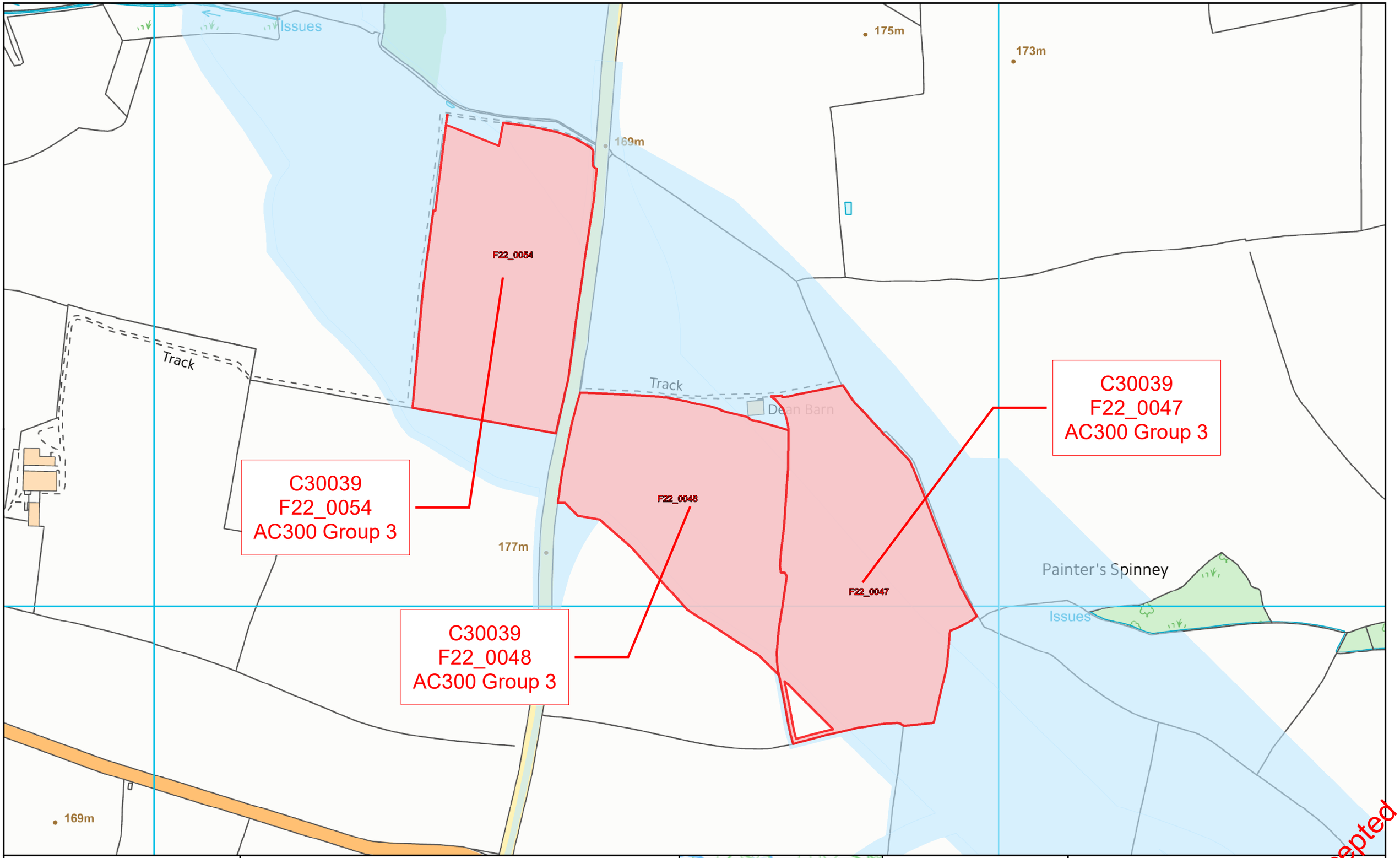
Scale at A3: 1:11,000

0 110 220 330 440
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032

Date: 21/04/2020

Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 15 of 20)

Activity Code: AT21/AT19
Package: AC300 Group 3
CR_ID: C30039

Protect

HS2

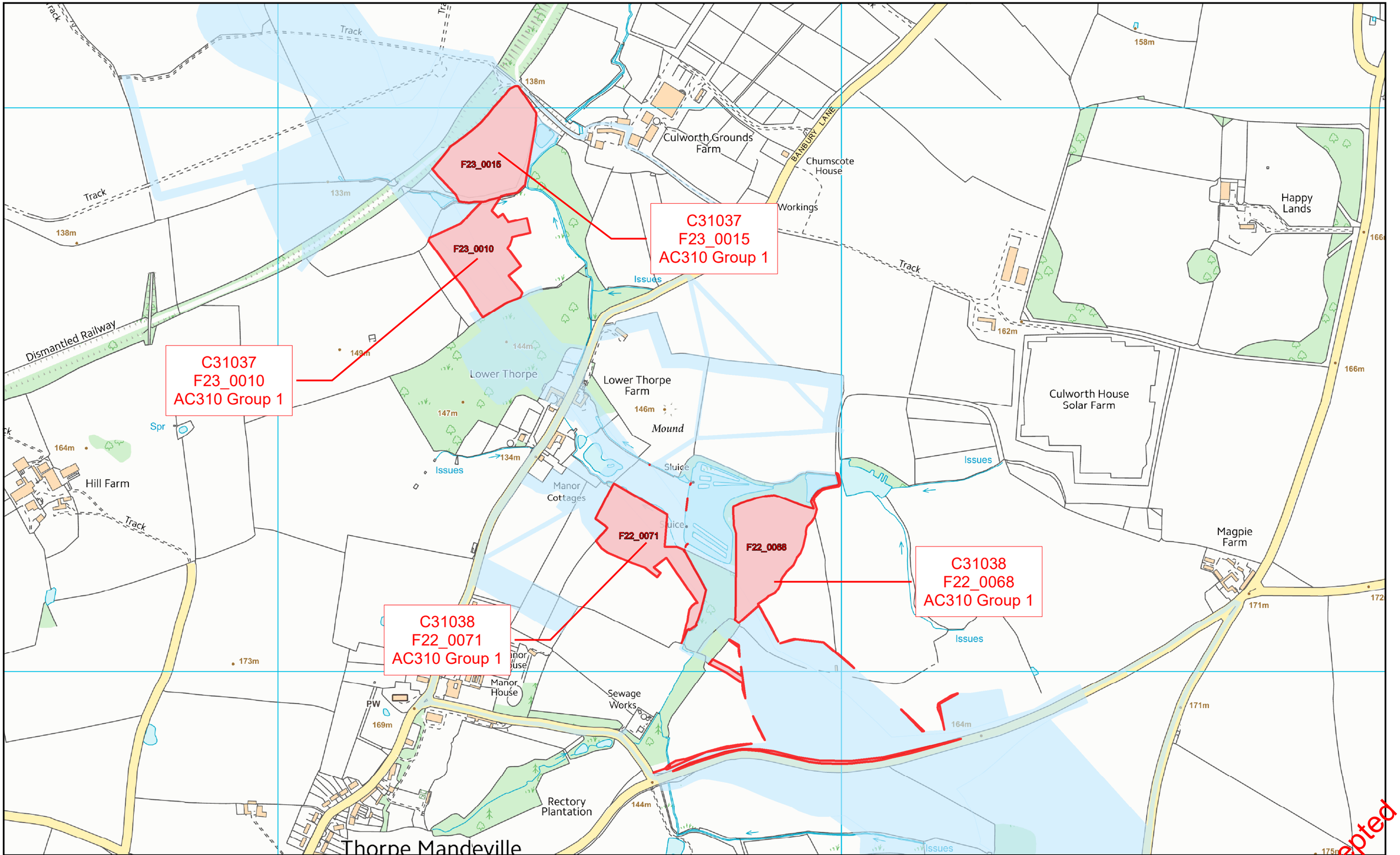
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:4,000

0 40 80 120 160
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

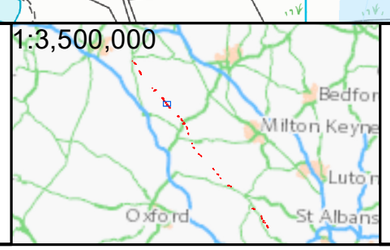
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 16 of 20)

Activity Code: AT21
Package: AC310 Group 1
CR_ID: C31037 C31038

Protect

HS2

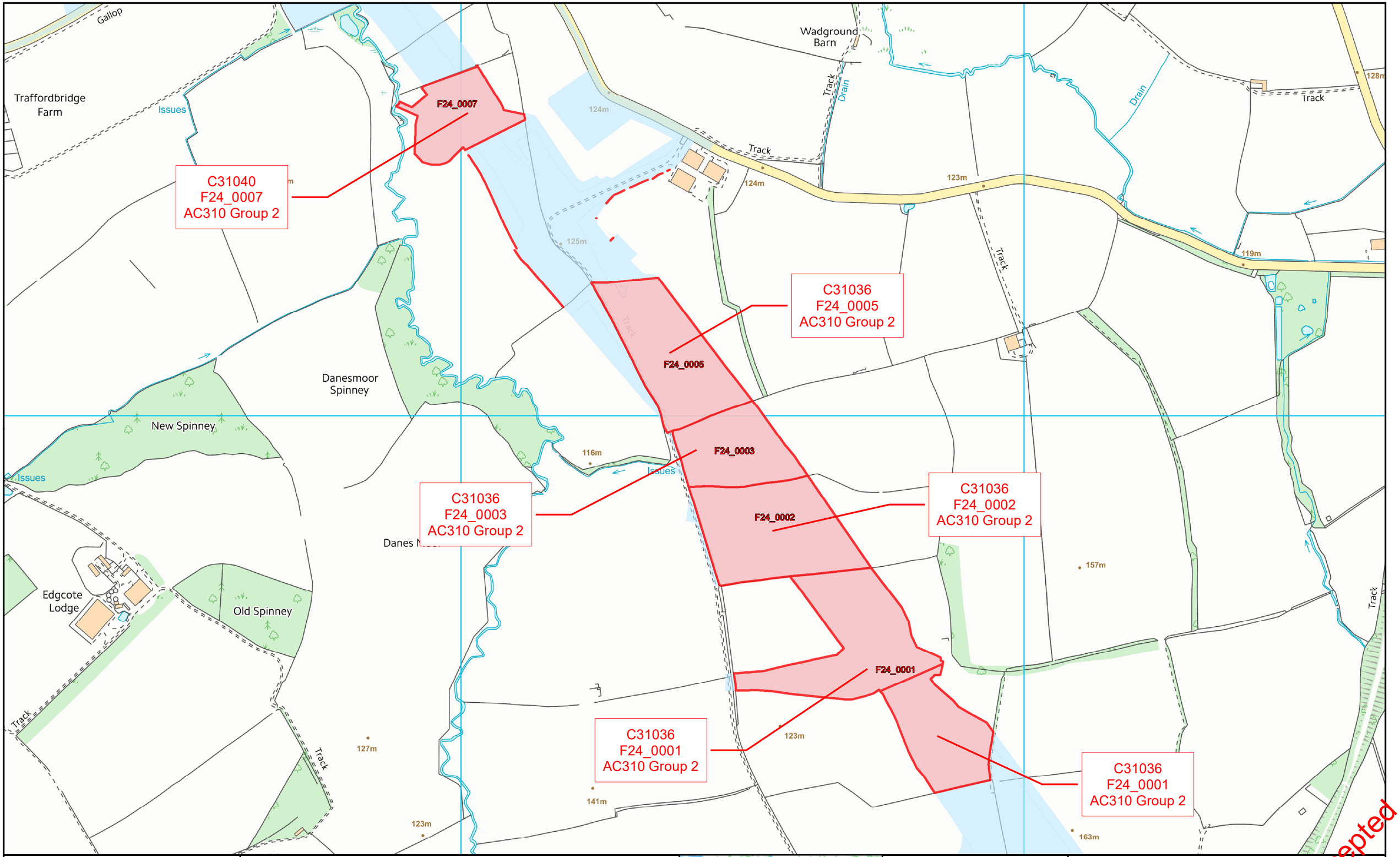
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:6,000

0 120 180 240
Meters

Doc Number: 1EW03-FUS-GI-MAP-C060-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 17 of 20)

Activity Code: AT21
Package: AC310 Group 2
CR_ID: C31036 C31040

Protect

HS2

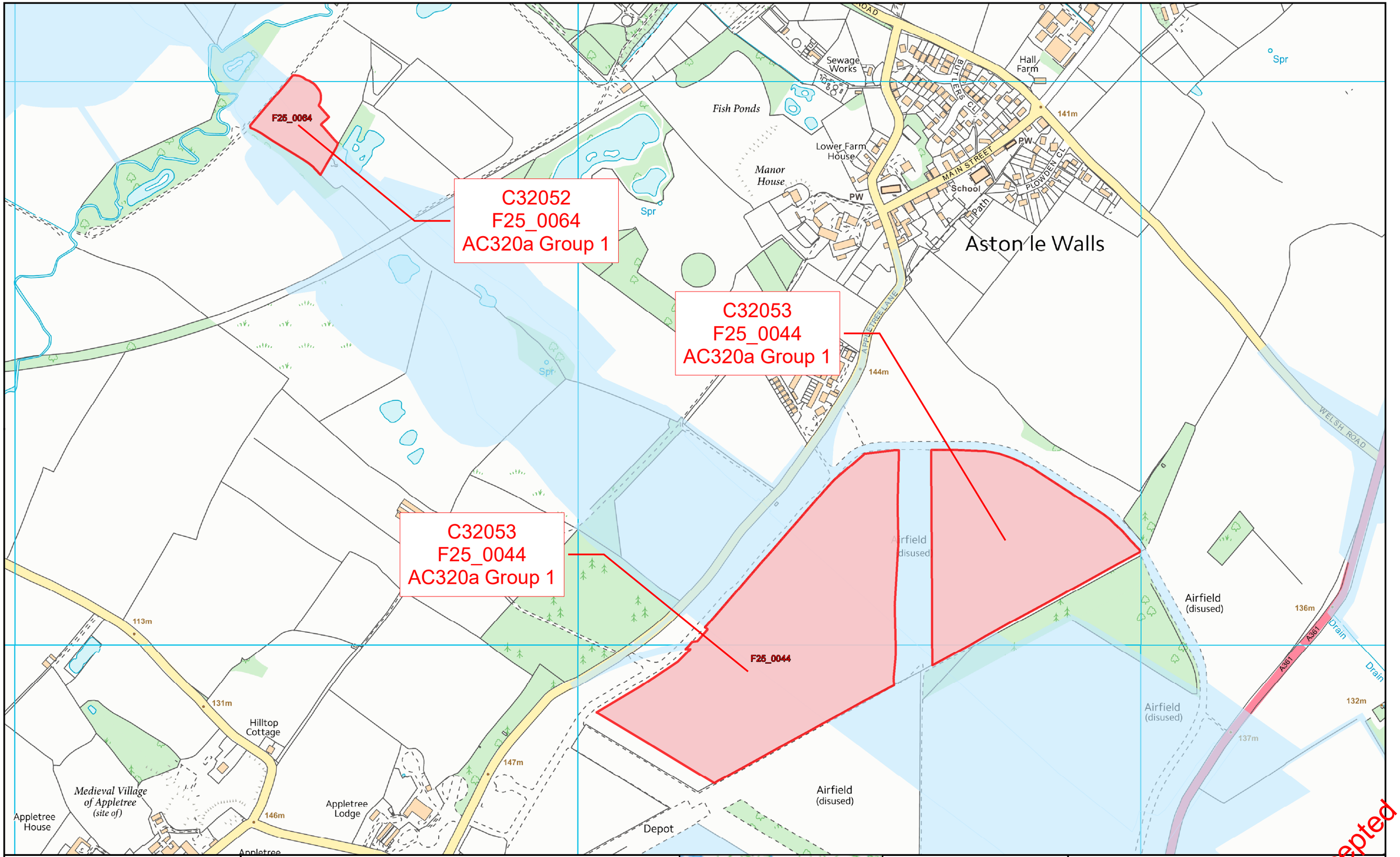
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:6,000

0 60 120 180 240 Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 18 of 20)

Activity Code: AT19/AT21
Package: AC320a Group 1
CR_ID: C32052 C32053

Protect

HS2

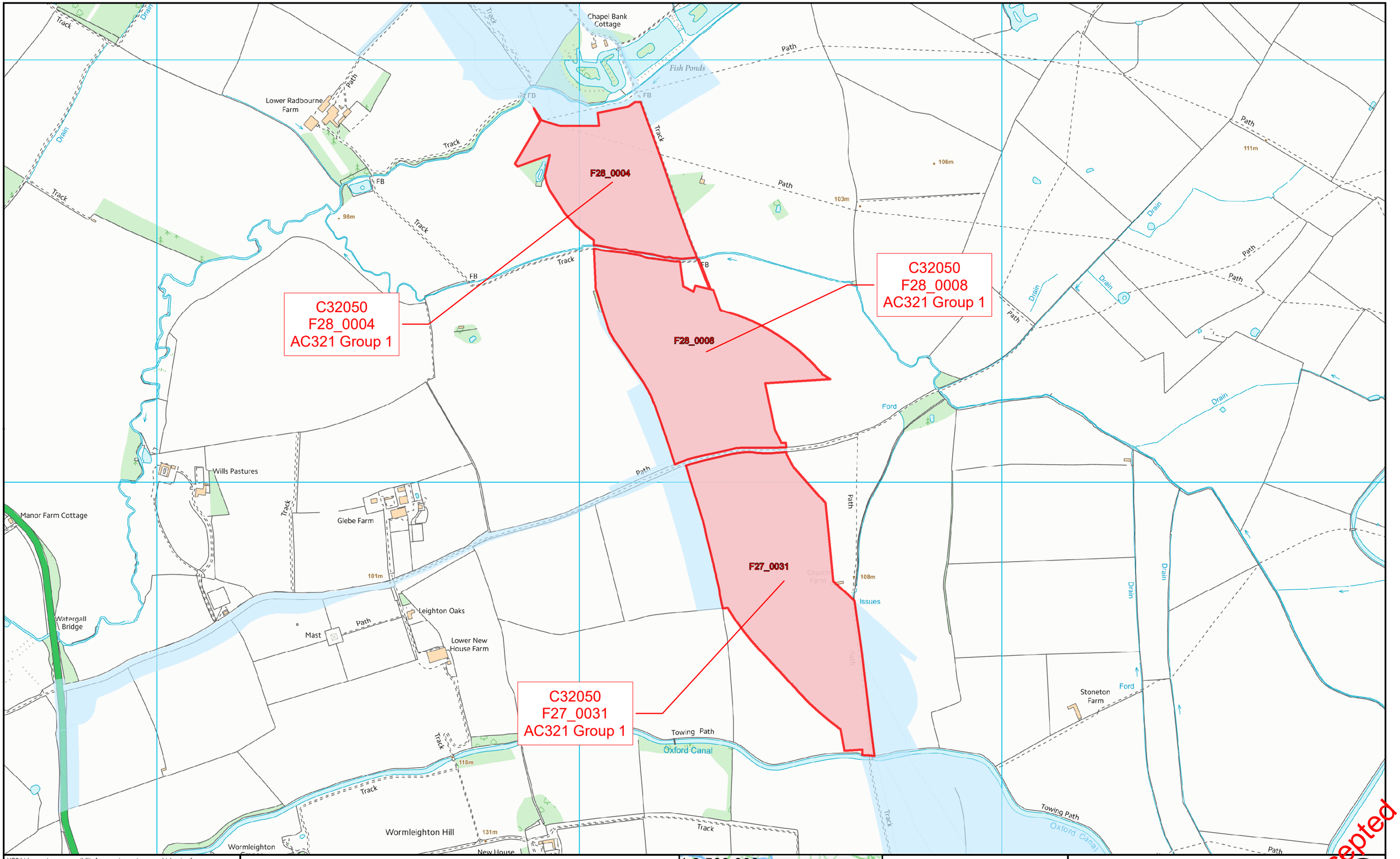
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:6,000

0 60 120 180 240 Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000

High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 19 of 20)

Activity Code: AT20
Package: AC321 Group 1
CR_ID: C32050

Protect

HS2

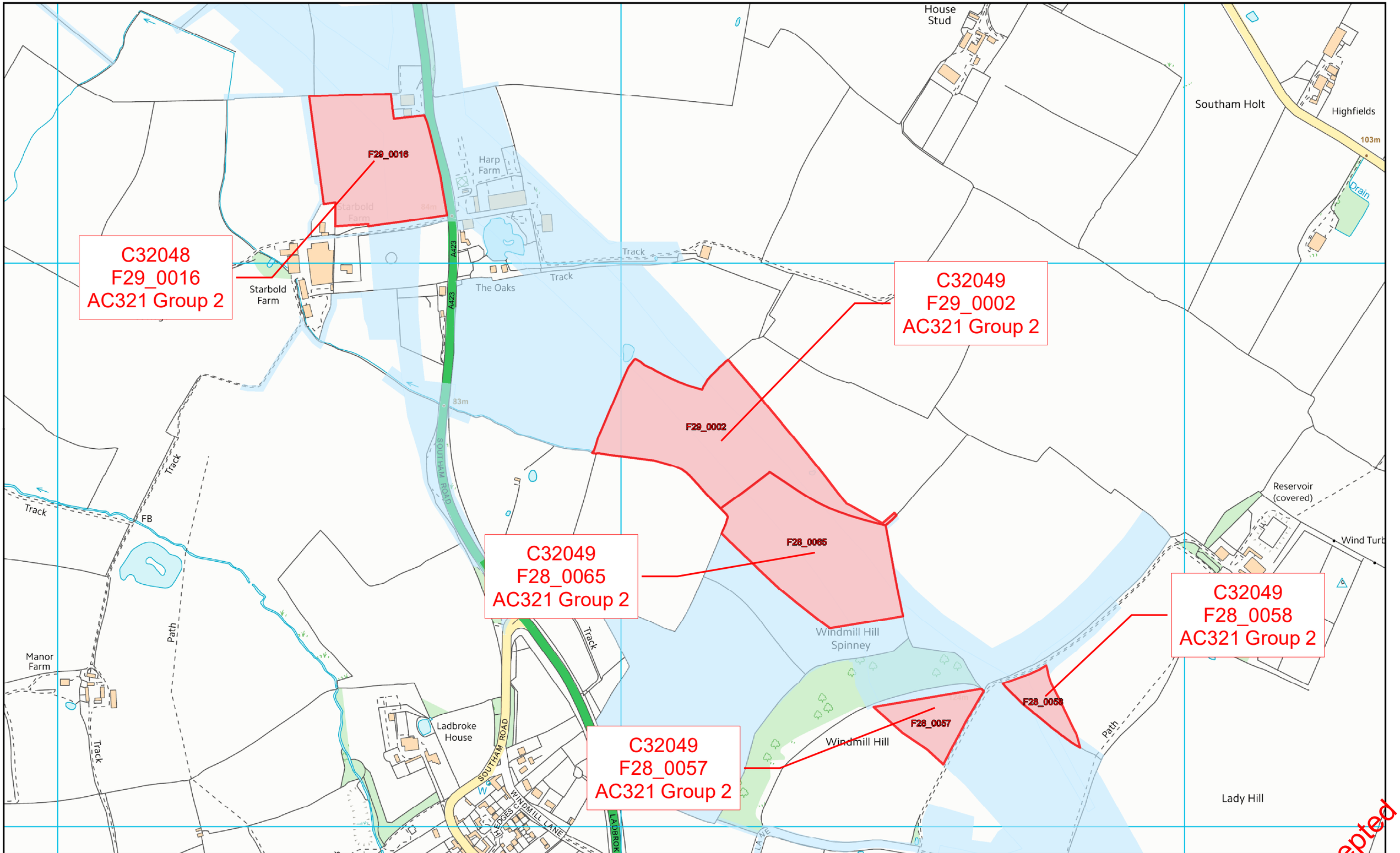
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:8,000

0 160 240 320
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

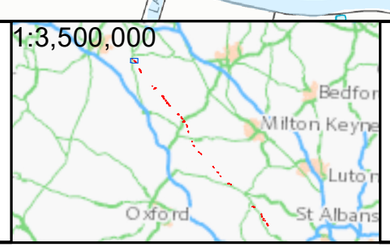
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary

1:3,500,000



High Speed Two
AWH PP Assessment

SITE LOCATION PLAN
(PAGE 20 of 20)

Activity Code: AT20/AT21
Package: AC321 Group 2
CR_ID: C32048 C32049

Protect

HS2

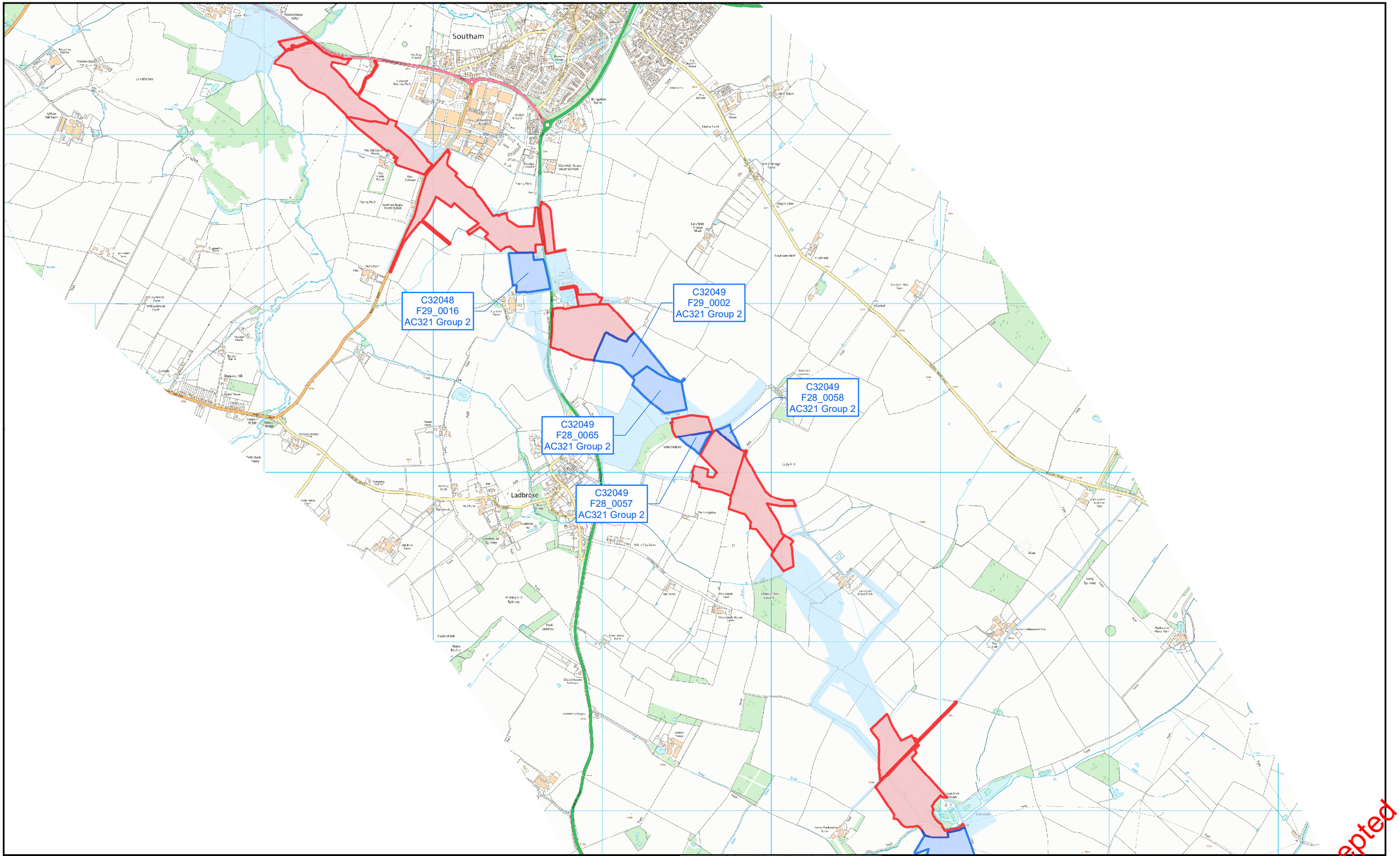
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:6,000

0 60 120 180 240
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000032 **Date:** 21/04/2020

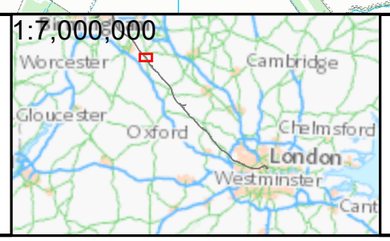
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 1 OF 16)

Protect

HS2

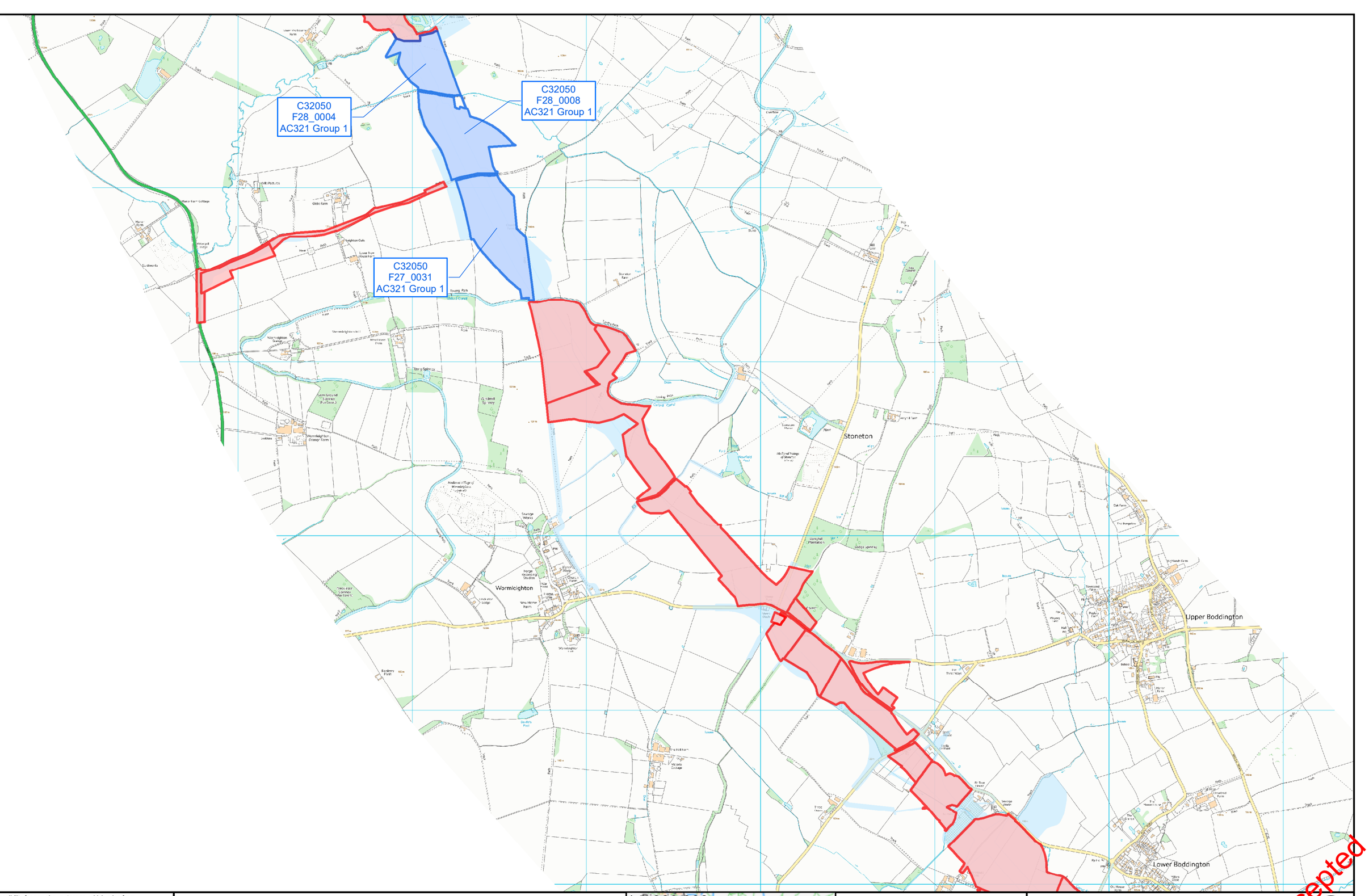
Scale at A3: 1:20,000

0 200 400 600 800
Meters

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

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

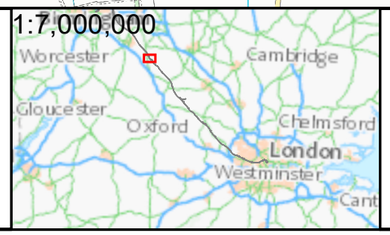
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 2 OF 16)

Protect

HS2

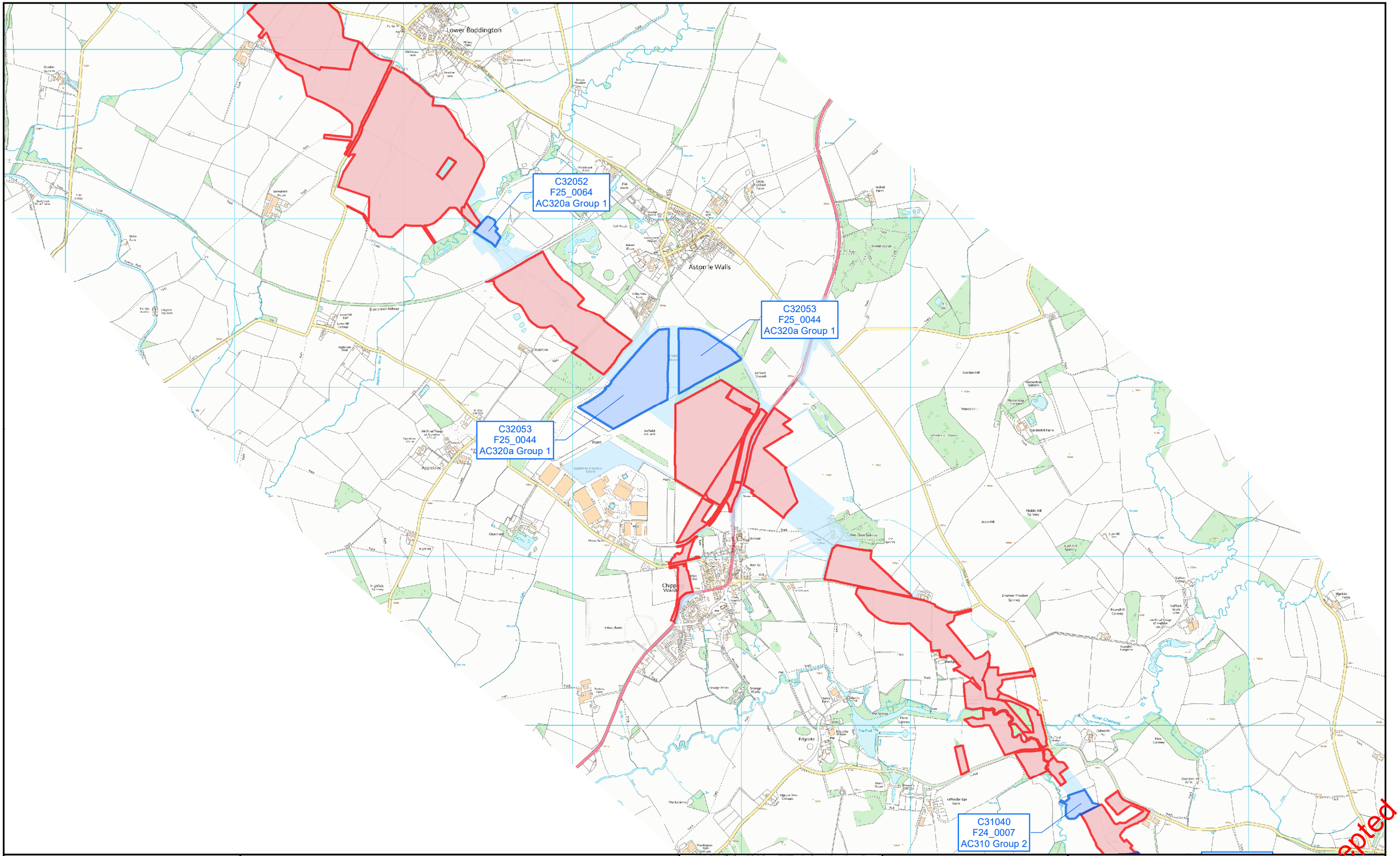
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C060-000033 **Date:** 21/04/2020

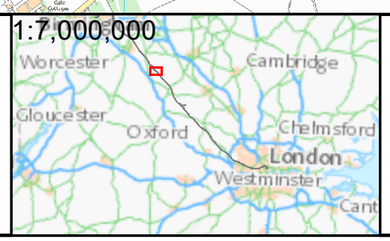
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 3 OF 16)

Protect

HS2

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

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C31040
F24_0007
AC310 Group 2

C31036
F24_0005
AC310 Group 2

C31036
F24_0003
AC310 Group 2

C31036
F24_0002
AC310 Group 2

C31036
F24_0001
AC310 Group 2

C31036
F24_0001
AC310 Group 2

C31037
F23_0015
AC310 Group 1

C31037
F23_0010
AC310 Group 1

C31038
F22_0068
AC310 Group 1

C31038
F22_0071
AC310 Group 1

C30035
F22_0047
AC300 Group 3

C30035
F22_0054
AC300 Group 3

C30035
F22_0048
AC300 Group 3

Culworth
Sulgrave
Thorpe Mandeville
Stuchbury
Greatworth

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000

High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 4 OF 16)

Protect

HS2

Scale at A3: 1:20,000

0 200 400 600 800
Meters

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

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C30036
F21_0070
AC300 Group 2

C30037
F21_0060
AC300 Group 2

C30037
F21_0046
AC300 Group 2

C30037
F21_0050
AC300 Group 2

C30037
F21_0034
AC300 Group 2

C30038
F21_0018
AC300 Group 1

C30038
F21_0012
AC300 Group 1

C30038
F21_0007
AC300 Group 1

C30038
F21_0008
AC300 Group 1

Creatworth

Radstone

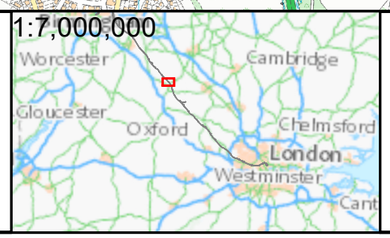
Whitfield

Airfield

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 5 OF 16)

Protect

HS2

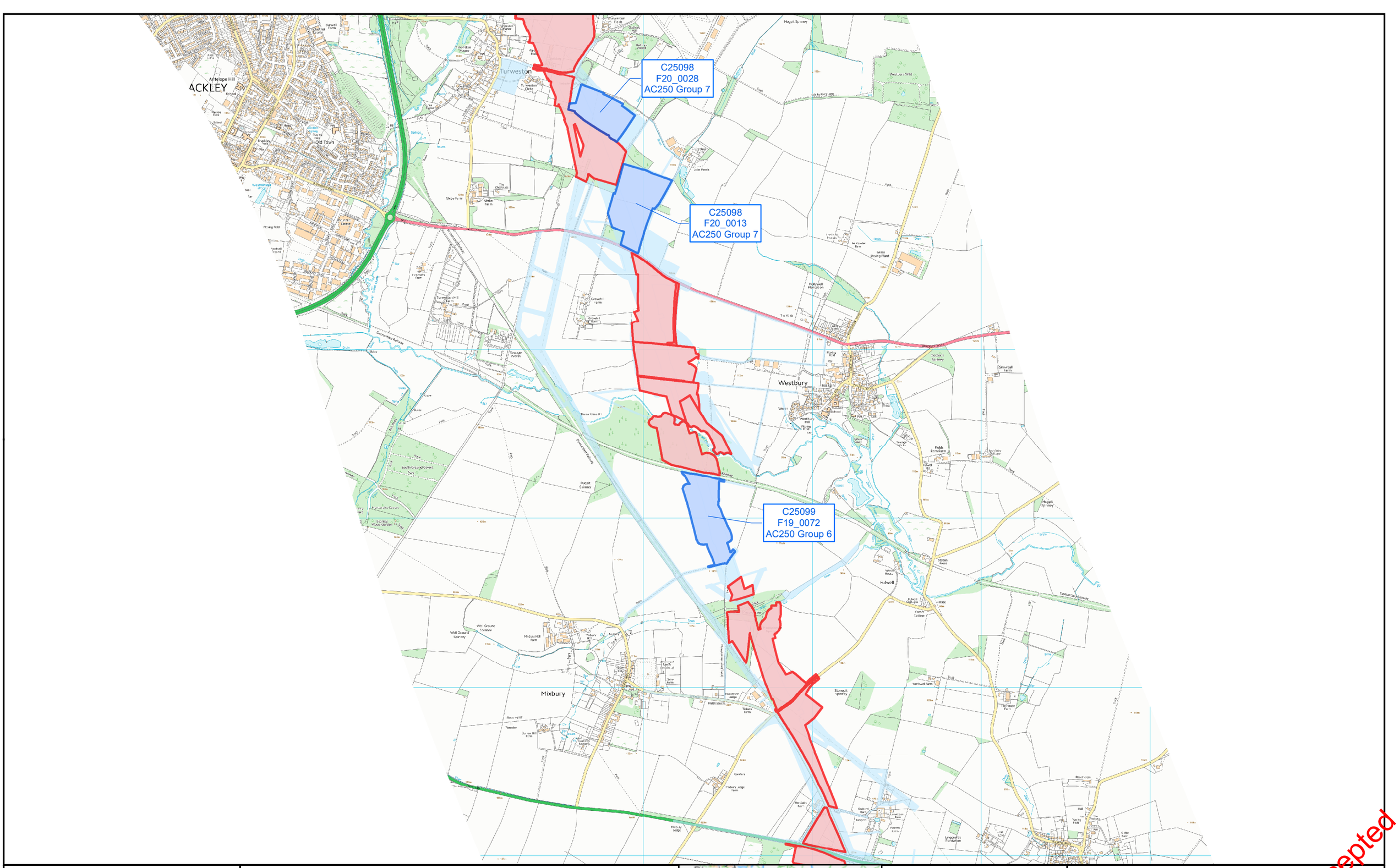
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C060-000033 **Date:** 21/04/2020

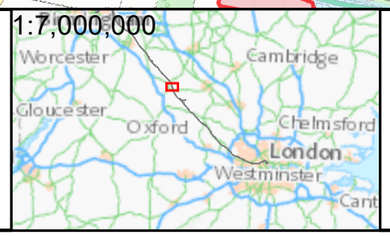
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 6 OF 16)

Protect

HS2

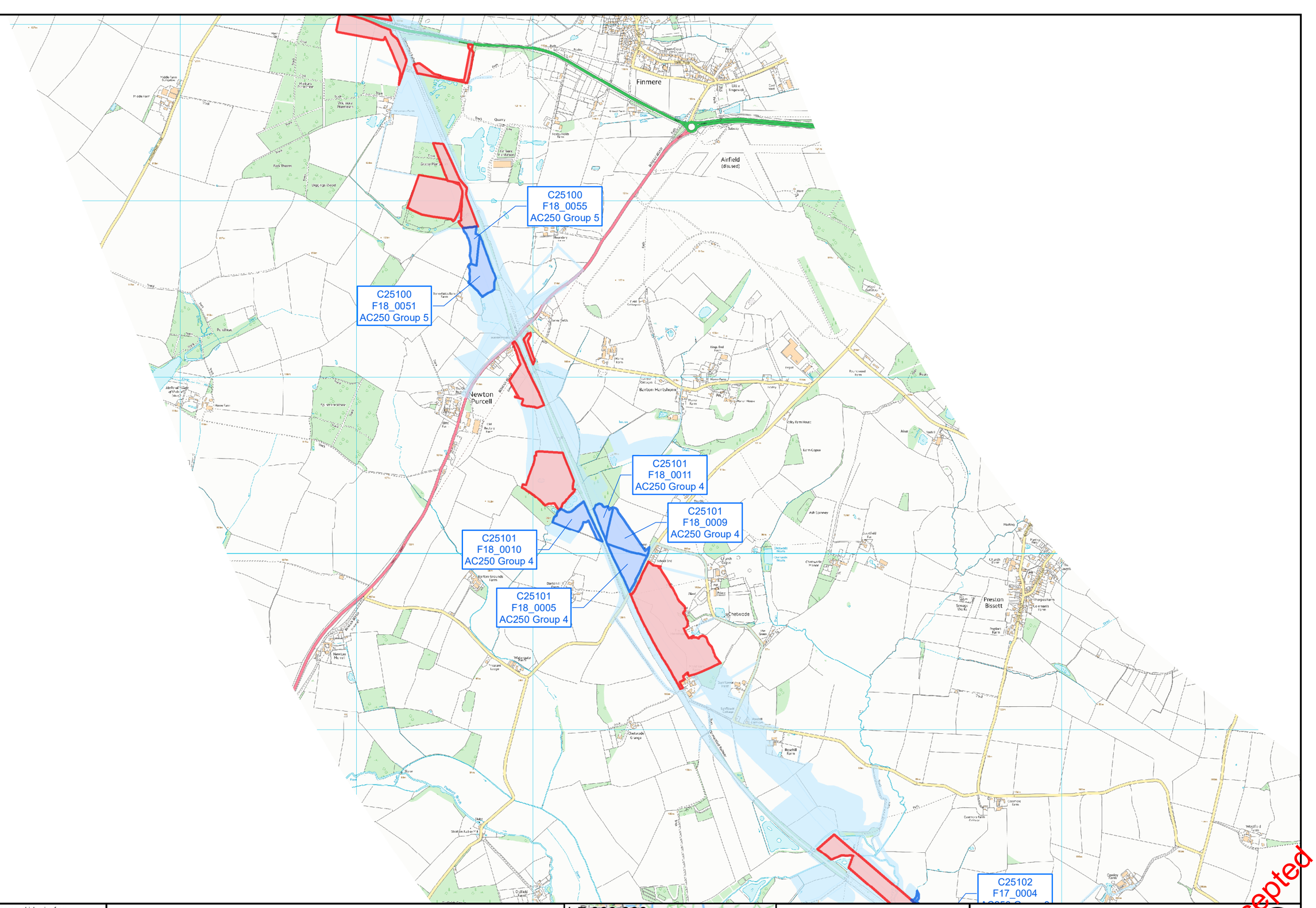
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

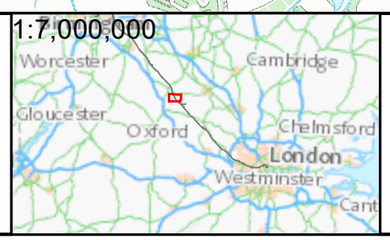
Code 1 - Accepted



Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 7 OF 16)

Protect

HS2

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

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C25102
F17_0004
AC250 Group 3

C25102
F16_0043
AC250 Group 3

C25102
F17_0002
AC250 Godington
AC250 Group 3

C25102
F16_0037
AC250 Group 3

Twyford

Grebe Lake

Charndon

Calvert

Steeple Claydon

Home Wood

Sheephouse Wood

Landfill Site

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000

High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 8 OF 16)

Protect

HS2

Scale at A3: 1:20,000

0 200 400 600 800
Meters

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

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C25103
F14_0059
AC250 Group 2

C25103
F14_0054
AC250 Group 2

C25103
F14_0059
AC250 Group 2

C25104
F14_0008
AC250 Group 1

C25104
F13_0120
AC250 Group 1

C25104
F13_0119
AC250 Group 1

C25105
F13_0056
AC250 Group 1

Greatmoor

Finemere Wood

River Ray

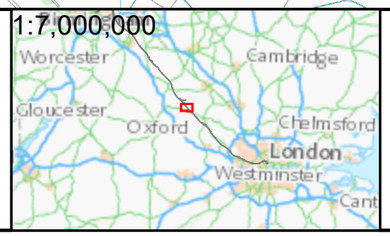
Shipton Lee

Quainton

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 9 OF 16)

Protect

HS2

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

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C24011
F12_0018
AC240 Group 1

C24011
F12_0017
AC240 Group 1

C24011
F12_0019
AC240 Group 1

C24011
F12_0011
AC240 Group 1

Waddesdon

Fleet Marston

Berryfield

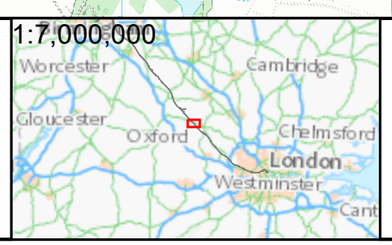
Wormstone

Eythrope Park

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 10 OF 16)

Protect

HS2

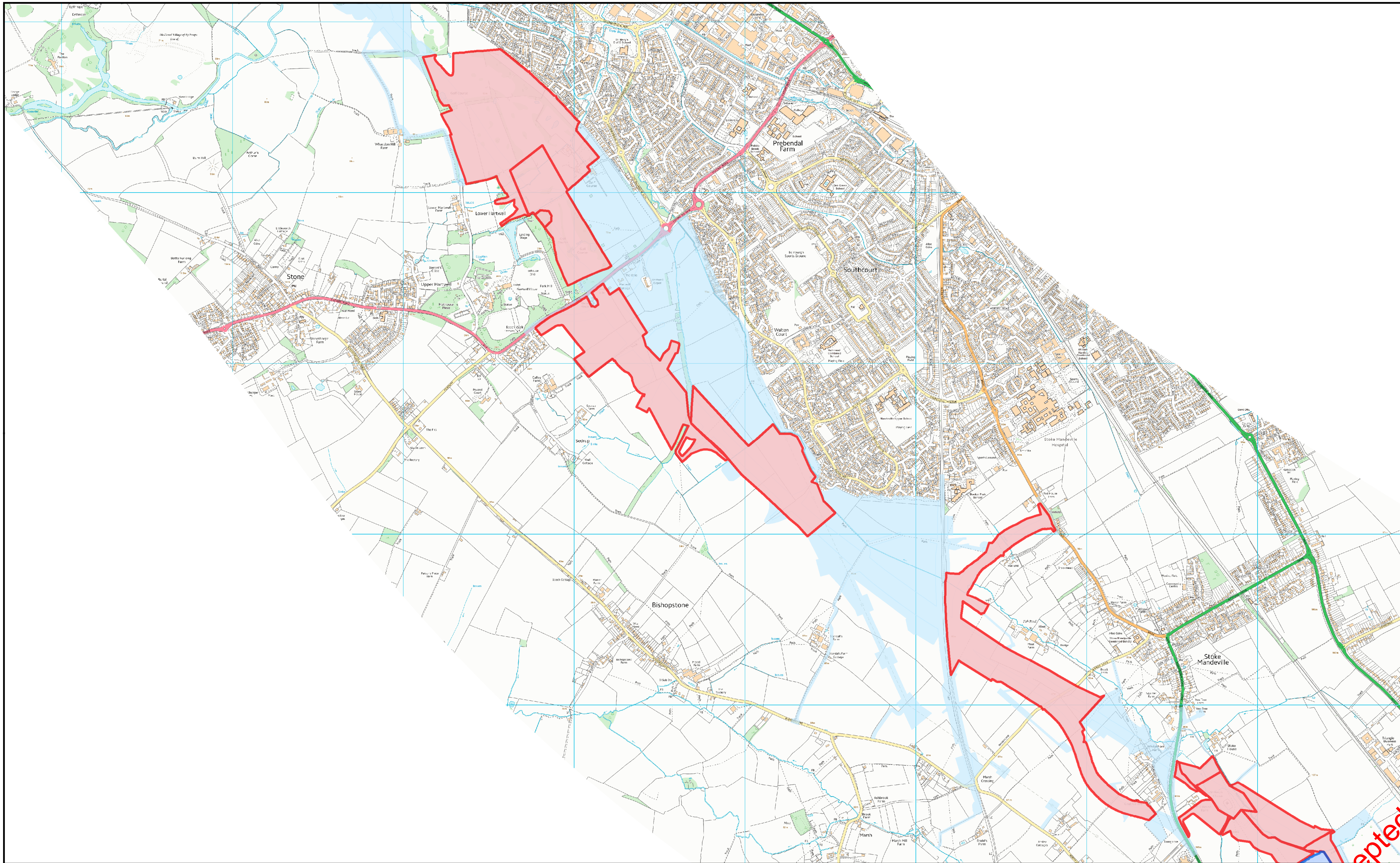
Scale at A3: 1:20,000

0 200 400 600 800
Meters

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

Doc Number: 1EW03-FUS-GI-MAP-C060-000033 **Date:** 21/04/2020

Code 1 - Accepted



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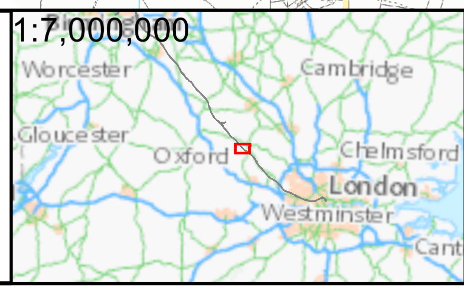
Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 11 OF 16)

Protect

HS2

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

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C21038
F09_0118
AC210 Group 4

C21038
F09_0110
AC210 Group 4

C21039
F09_0027
AC210 Group 3

C21039
F09_0024
AC210 Group 3

C21039
F09_0023
AC210 Group 3

C21040
F09_0016
AC210 Group 3

C21040
F09_0015
AC210 Group 3

C21040
F09_0013
AC210 Group 3

C21040
F09_0012
AC210 Group 3

C21041
F09_0005
AC210 Group 3

C21041
F09_0007
AC210 Group 3

C21041
F09_0002
AC210 Group 3

C21042
F08_0085
AC210 Group 2

C21042
F08_0082
AC210 Group 2

World's End
Wendover
Terrick
Chalkshire
Dunsmore
Kingsash
Lee Gate
Coombe Hill
Wendover Dean

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000

High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 12 OF 16)

Protect

HS2

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

Scale at A3: 1:20,000

0 200 400 600 800
Meters

Doc Number: 1EW03-FUS-GI-MAP-C000-000033 **Date:** 21/04/2020

Code 1 - Accepted

C21043
F08_0082
AC210 Group 2

C21043
F08_0074
AC210 Group 2

C21043
F08_0071
AC210 Group 2

C21044
F08_0051
AC210 Group 1

C21044
F08_0048
AC210 Group 1

C21044
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AC210 Group 1

C21044
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AC210 Group 1

C21044
F08_0036
AC210 Group 1

C21044
F08_0043
AC210 Group 1

C21044
F08_0035
AC210 Group 1

C21044
F08_0032
AC210 Group 1

Lee Common

Ballinger Common

Hunt's Green

Great Missenden

Hyde End

Hyde Heath

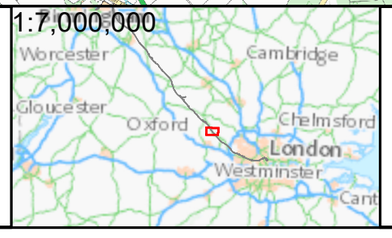
Abbey Park

Wendover Woods

Legend

- Limit Of Land To Be Acquired or Used
- Site Location Boundary - AWH No Data Further Work
- Site Location Boundary - Other Intrusive Surveys Planned

1:7,000,000



High Speed Two
AWH PP Assessment

ALL INTRUSIVE WORKS
ALONG HS2 ALIGNMENT
(PAGE 13 OF 16)

Protect

HS2

Scale at A3: 1:20,000

0 200 400 600 800
Meters

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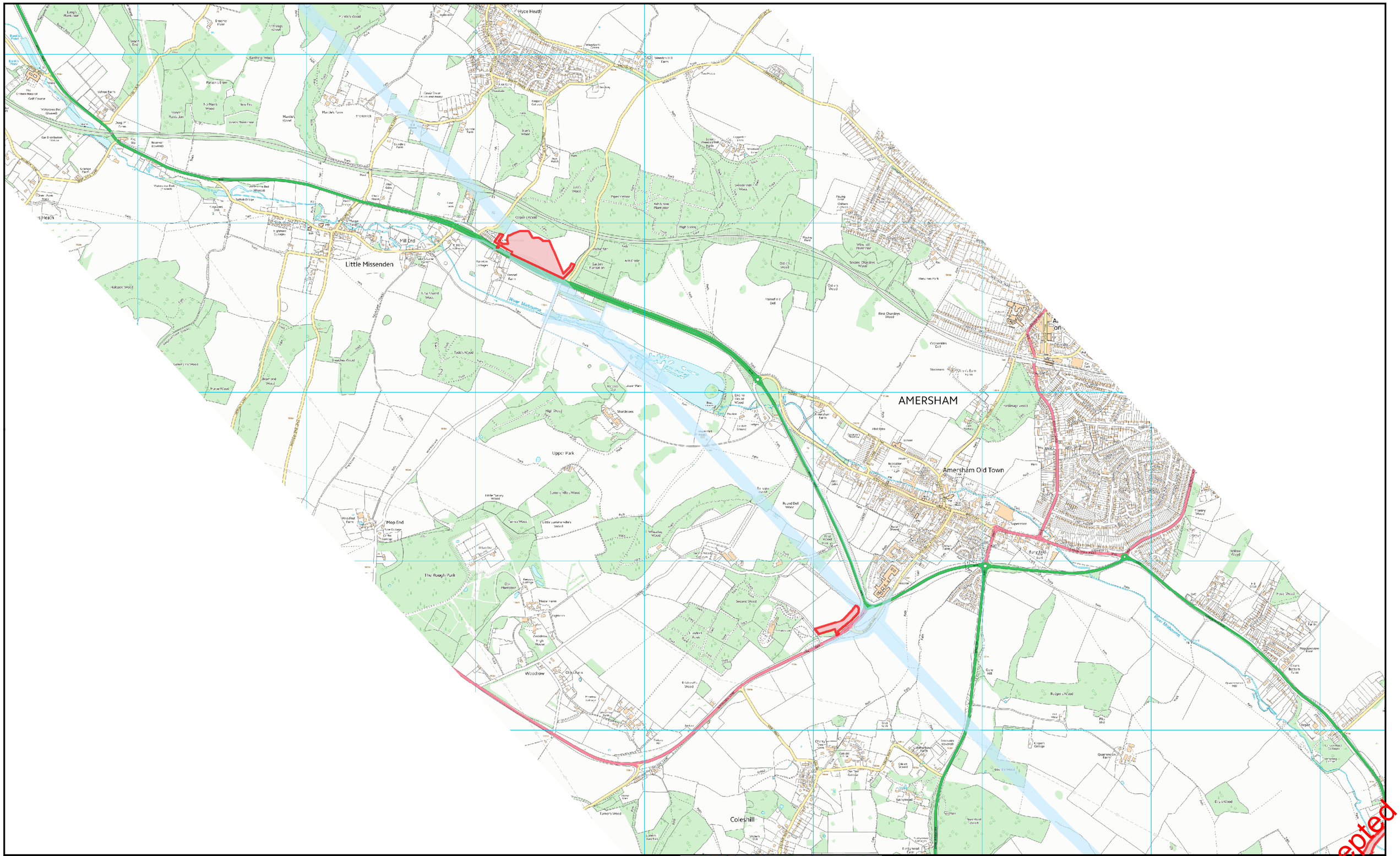

Legend

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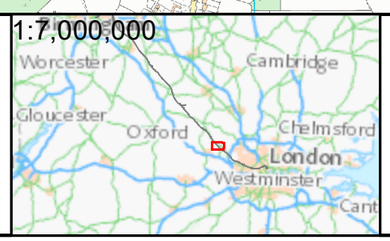
1:7,000,000



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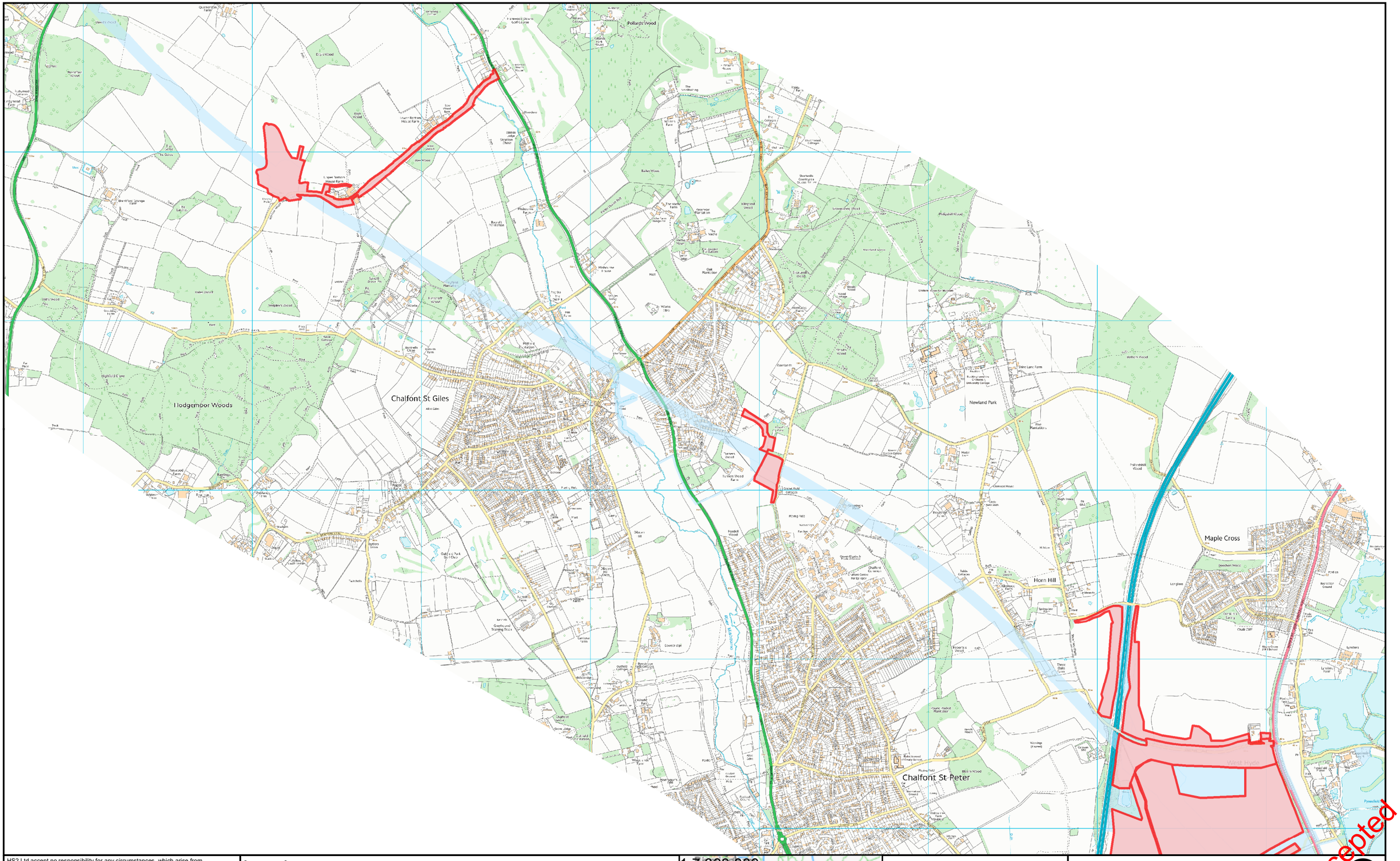

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Legend

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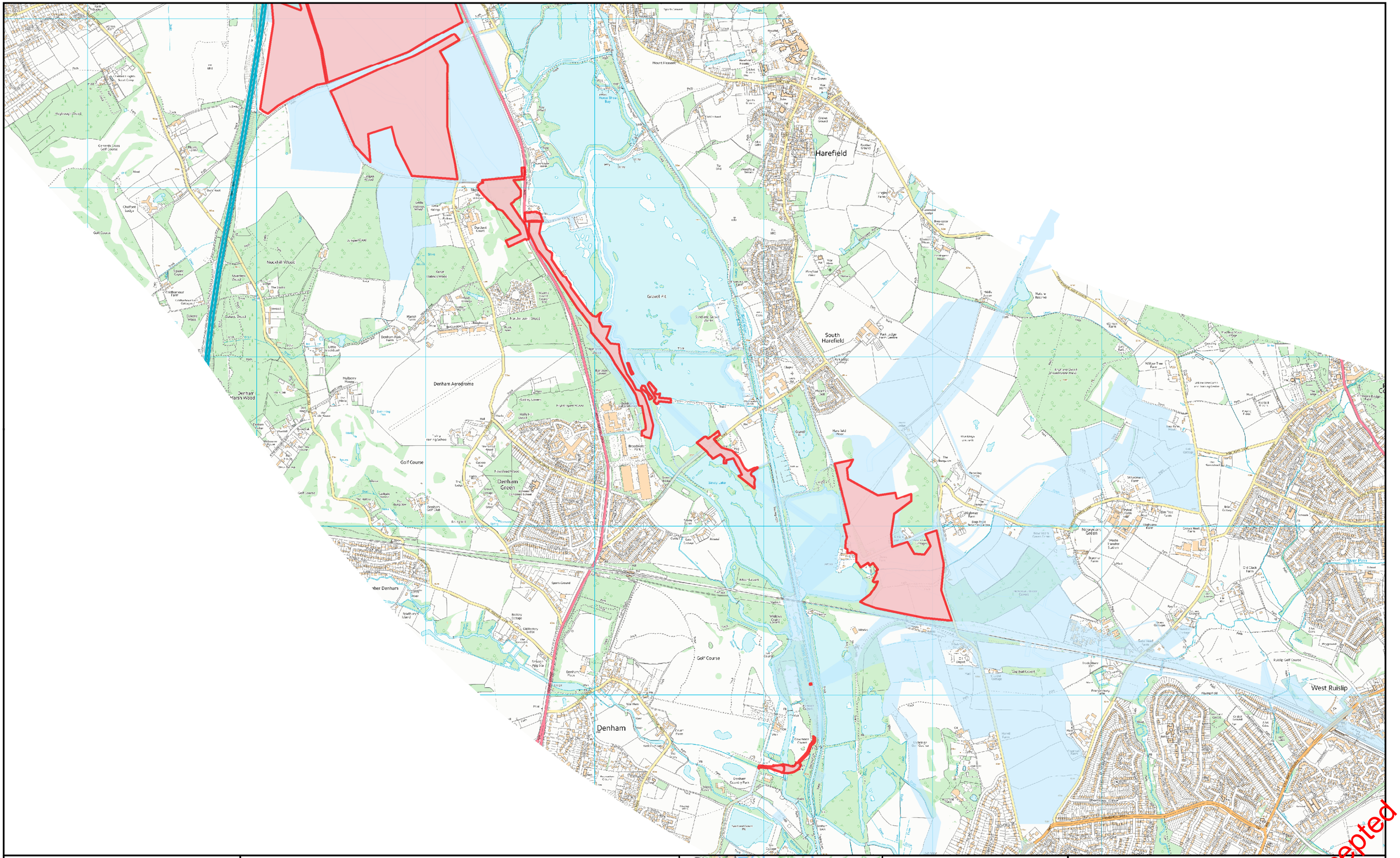

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