

1EW03 - Enabling Works Central

AWHi – Fieldwork Change Control Form A (Spec A) for Mitigation by Design at Colne Valley Wetland, Colne Valley Viaduct, Hillingdon (C10049, FCCFA024 Site Code 1C21CVVPR

Document no.: 1EW03-FUS-EV-FRM-CS01_CL01-000031

Revision	Author	Checked by	Approved by	Date approved	Reason for revision
Co1	Joseph Groarke	Paul Riccoboni	Jay Carver	23.09.2021	First Issue

HS2 Ltd - Code 1 - Accepted

Route Wide Project Plan FORM A: SPEC A: Doc. No. 1EW03-FUS-EV-REP-C000-009812

Short description of proposed change: Implementation of proposed Mitigation by Design which was recommended by stakeholders and HS2 following trial trenching at Dews Farm (C10049, see proposals in DRN 1EW03-FUS-EV-NTE-CS01_CL01-000026). Measures should be put in place to preserve the archaeological deposits by:-

- Maintaining the current HERAS fencing and signage around the area defined in figure 1 to prevent any construction impact prior to creation of the ecological habitat;
- Undertake the ecological mitigation works comprising creation of wetland, woodland and grassland habitats in such a way that ensures sensitive archaeological remains are not disturbed or removed e.g., not subjected to any mechanical ground-breaking works - see Appendix 1 and Appendix 3 for a summary of the construction constraints); and
- Periodic monitoring of the area by a competent person to ensure compliance with the defined process and control measures.

Mitigation by Design preservation Area C10049 (Figure 1)

The triangular area (C10049) requires the following measures to create the ecological mitigation area (See Spec A).

In summary the most important considerations for Align are:

- Align have stated by email via HS2 on 30/03/2021) that they have no intention to reduce ground within area C10049; aside from possible construction of a hibernacula and grassing of the area.
- The habitat construction for the hibernacula will require the removal of approximately 100mm of topsoil. If this specification is correct, the archaeological horizon and thus the flint scatter will not be impacted, and therefore preserved in situ.
- If possible, the grassing of the land surface should involve overseeding as opposed to scarification and subsequent seeding, to keep disturbance to a minimum.
- Fencing (with an access gate) and signage need to be erected around area C10049 when the habitat construction is not taking place ensure that:
 - 1) No plant shall damage the existing surface of the field;
 - 2) Access to the area is appropriately limited; and
 - 3) Where possible, topsoil shall be left in-situ as a protective layer over the archaeology surface. The maximum depth of impact for the hibernacula construction will be 100mm, however topsoil depth is approximately 300mm in this location, which will ensure the archaeological horizon is not disturbed.
- Implement part time monitoring of operation by a competent person, Env manager/Clerk of works, during both the construction of the habitat site and periodically before and after to assure process and conditions are followed. See subcontractor deliverable section for other actions required around assurance.

Limitations on the seeding operation

Disturbance of near-surface soils: during even modest ground preparation, damage to the underlying ground may still occur due to rutting under wheeled plant and compaction under heavy-tracked plant on soft soils. In order to mitigate this effect:

- Any machinery used to prepare the soil needs to be of a type which will not cause excessive ground disturbance or damage to the below ground archaeological remains (e.g., any disturbance greater than 100mm would be considered unacceptable);
- Align need to ensure that any operations should avoid unnecessary plant movements;
- The seeding operation shall not use deep ploughing techniques as this would adversely affect the below ground archaeological remains;
- Grouting or alteration to the ground water regime (including dewatering) is not permitted.
- The area cannot be used for any enabling works associated with the seeding operation. This may include construction of access roads, accommodation and storage areas, vehicle-turning areas, etc;
- Any required temporary drains and/or service lines should be sighted away from this area;
- The option of temporarily reusing existing service ducting and surviving fencing or hoarding and their footings should be explored;
- Any other potentially damaging activity which may affect below ground archaeological remains associated with the grass seeding is not permitted. At all times, if in doubt, Align should seek advice from the Contractor's archaeologists.

Mitigation of ground disturbance: Rutting and compaction of the underlying strata can be reduced by careful plant selection and by working in the dry summer months when soils will be stronger. Careful mapping of the soil resources within the EMP management plans will assist in confining the seeding operation to areas and depths of least archaeological sensitivity. Intermittent archaeological supervision during the grassland seeding will be required so to ensure the agreed Contractor's management plan is carried out in accordance with the above, and that any unexpected remains are duly reported in accordance with HS2 CoCp and then dealt with by a trained archaeological professional.

Assurance for C10049

- Implement part time monitoring of operation by a competent person, i.e. an Environmental manager/ Clerk of works, to assure process and conditions are followed. See subcontractor deliverable section for other actions required around assurance.

Justification for selection of PIS: Trenching of the gravel terrace rising north from the watercourse at Dews Farm revealed multiphase settlement activity, with the earliest remains comprising evidence for Late Mesolithic-Early Neolithic mobile/seasonal settlement (see Doc. No. 1EW03-FUS-EV-REP-CS01_CL01-012108). Due to the importance and sensitivity of the remains it has been agreed with stakeholders, LPA archaeologist (Sandy Kidd) and Historic England (Jim Williams) and HS2 HERDS that the highly significant Late Mesolithic-Early Neolithic artefact scatter and associated cut features indicative of temporary/seasonal settlement are preserved with the remains being left in-situ.

In accordance with AWH work package plan 1EW03-FUS-EV-PLN-C000-001847 C02 Paragraph 3.9.2 it is proposed to preserve archaeological deposits in situ where there is adequate topsoil, subsoil or colluvial cover to archaeological levels and the below ground impacts from the Scheme. As approximately 300mm of topsoil is present sealing the flint layer, and the construction of the hibernacula in this area will only require topsoil removal of 100mm at a maximum, there will be sufficient topsoil coverage to protect the archaeology from the limited activities recommended in this document.

Site Background: Dews Farm was the subject of a Schedule 17 application to the local authority (Hillingdon Council) after the area was identified in the early phases of the project as a critical path ecological habitat mitigation site. After numerous appeals, the Fusion Schedule 17 application was rejected. The area was subjected to a trial trench evaluation in February/March 2019, with one trench (no.84) targeting the area of C10049, which was located over the then proposed pond location.

Trench 084 identified an extensive and significant spread of worked flint artefacts with associated cut features. The artefact scatter comprised approximately 1000 worked and burnt flints and a small assemblage of prehistoric pottery. The scatter covered an area of approximately 3450m² with several possible foci of activity surrounding the group of cut features. The worked flints were not found in the topsoil, but rather from the upper c.400mm of the underlying weathered Upnor Formation, approximately 300mm below the current ground surface. Two principal periods of activity are represented; Late Mesolithic to Early Neolithic and Late Neolithic to Early Bronze Age. A tanged and barbed arrowhead was also found.

Topography/Geology:

Geological mapping (BGS 2005) of the area indicates that the south-western portions of the site are underlain by bedrock of the Upper Cretaceous Chalk Group (undifferentiated Seaford Chalk and Newhaven Chalk Formations), whilst the remainder of the site lies on younger (Eocene, c. 60-58 million years ago) bedrock of the Lambeth Group (undifferentiated Reading and Upnor Formations).

Table 2 Known Heritage assets within 500m of the Site

Asset Name	ES Reference	Asset description	Archaeological/ historical period

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Mesolithic activity (artefacts – tranchet axes, cores and flakes)	CVA021	Monument	Mesolithic
Mesolithic lithic working site	CVA029	Found during gravel extraction at Dews Pit	Mesolithic
Bronze Age ring ditch	CVA010	A Bronze Age ring-ditch (CVA010), possibly representing a barrow was recorded to the west of the evaluated area prior to being destroyed by gravel extraction at Dews Farm Road Pit (now Harefield No.2 Lake).	Bronze Age

Summary of archaeological potential: The prehistoric flints found on site are a significant multi-phased assemblage and ground breaking works in this area would certainly disrupt and remove the archaeological remains. Therefore, preserving the site in-situ would provide the most appropriate response. The protection of these remains during the construction of HS2 and will require a specific mitigation and management plan in the form of a Heritage Management Plan to be appended to each contractor's Local Environmental Management Plan.

CFA/character area	Character Area summary	Sub Zone	Risk Model (where)
Community Forum Area CFA7 - Colne Valley	Archaeological Character Area (ACA) 07-01 East Side of Colne Valley. This character area is predominantly underlain by a solid geology of London Clay of Eocene date overlain in parts by superficial deposits, including Head deposits and Terrace Gravel including the Harefield Terrace. The predominately suburban nature that now occupies parts of this area serves to partially mask the visibility of archaeological assets. Colluvium on the lower slopes may also serve to mask archaeological features and deposits.	N/A	214 - Moderate

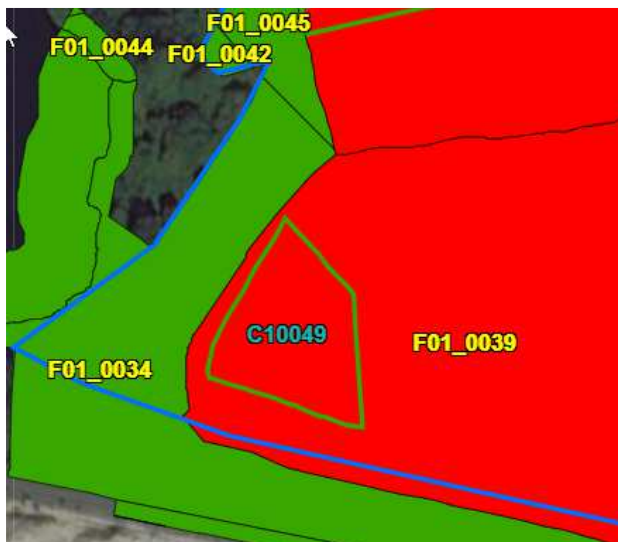
Subcontractor's resource plan: (Staff numbers, and time profile): **Attendance required by a Fusion HERDS Archaeologist during construction if ground is reduced for any reason (before November 2021).** Align will need to ensure the mitigation measures and provide assurance that the conditions set out in this form shall be met. The best option to demonstrate compliance will to create a Heritage Management Plan for the construction phase and including this activity within the Align Environmental Management Plan (EMP).

<p>Subcontractor Deliverables:</p> <ul style="list-style-type: none"> Record monitoring actions with photos and written narrative at intervals to document process, record date activities took place, plant used, soil types and weather and ground conditions; Contractor's Archaeologist - post construction environmental performance report to be prepared – with outcomes and archive with project lessons learned legacy product – report to state depth and type of fill that covers archaeological remains if applicable and any compaction applied, and details of any separator layer (topsoil left in place/ Or geotextile membrane and starter layer); and Contractor's Archaeologist – Site Code 1C21DEWPR. Submit HER/OASIS record, with references, to document what area has been subject to preservation and link to relevant reference reports. If ground works take place before November 2021 Fusion-JV will supply the archaeologist to monitor any ground reduction. If work is post- November 2021 then ALIGN will need to provide the appropriate resources.
<p>PC Programme of the works: Align programme required. Align should record the requirement for the preservation of this Site during the construction phase in their local EMP and produce a Heritage Management Plan for submission to HS2. The procedures for ensuring how the preservation of this area during construction will be guaranteed, both from unintended temporary / land management activities as well as from natural regeneration and scrub growth, the roots of which might impact on the preserved lithics and their association with each other, should be formulated with Align and HS2, and outlined in their Heritage Management Plan.</p>

Table 4: Previous Surveys and survey results		
Report name/ref	Survey type	Results
C10019 Phase 1 (1EW03-FUS-EV-REP-CS01_CL01-012108)	Trial Trenching	Trenching of the terrace rising north from the watercourse revealed multiphase settlement activity. The earliest remains comprising evidence for Late Mesolithic-Early Neolithic mobile/seasonal settlement.
C10019 Phases 2 and 3 TT - 1EW03-FUS_MHI-EV-REP-CS01_CL01-000013 (in prep)	Additional Trial Trenching	<p>Within the Phase 2 trial trenching area a single pit containing late prehistoric pottery, associated with an undated ditch and two further undated pits were identified in Trench 024. Several further undated pits were recorded in Trenches 023 and 25.</p> <p>Within Phase 3 at HOAC a deep sequence of organic deposits including peat and silt clays which represent the silting of a palaeochannel on the edge of the lower terrace of the Colne Valley. These deposits have the potential to be of late Mesolithic to early Neolithic date. Within Trench 103 in the HOAC carpark the truncated remains of gravel surface, possibly a yard surface associated with the post-medieval core of Dews Farm, was recorded and immediately to the east Trenches 116 and 117 recorded the concrete floor surfaces and redbrick internal wall foundations for an early 20th century dairy shed / cowbarn recorded on Ordnance Survey maps and a 1914 photograph of Dews Farm. Within field F01_0038 Trench 091 revealed the remains of an undated possible timber</p>

		structure comprising two east-west aligned, parallel rows of five post holes. Immediately west of the post holes were two possible north-south aligned beam slots. Trench 093 revealed an east-west aligned boundary ditch of Romano-British date.
C10046 1EW03-FUS_MHI-EV-REP-CS01_CL01-000005	Archaeological Recording	Full archaeological recording of a targeted part of the Phase 1 area which revealed a small number of pits containing Late Mesolithic or early Neolithic worked flints, Bronze Age, activity comprising two burnt mounts, pits, and elements of a possible field system significant. Romano-British enclosure ditches and pits representing limited evidence of industrial activity and waste disposal and a single medieval pit were also recorded.

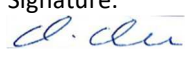

Table 5 Drawings: See Figure 1 1EW03-FUS-GI-MAP-CS01_CL01-000042



Mitigation by Design of Archaeological levels within ecological mitigation are C10049	CS 26+150	CS 26+200	Colne Valley Viaduct Design Element Statement Number 025-L2
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Table 6: Contributes to HERDS Objectives: N/A – No archaeological impact

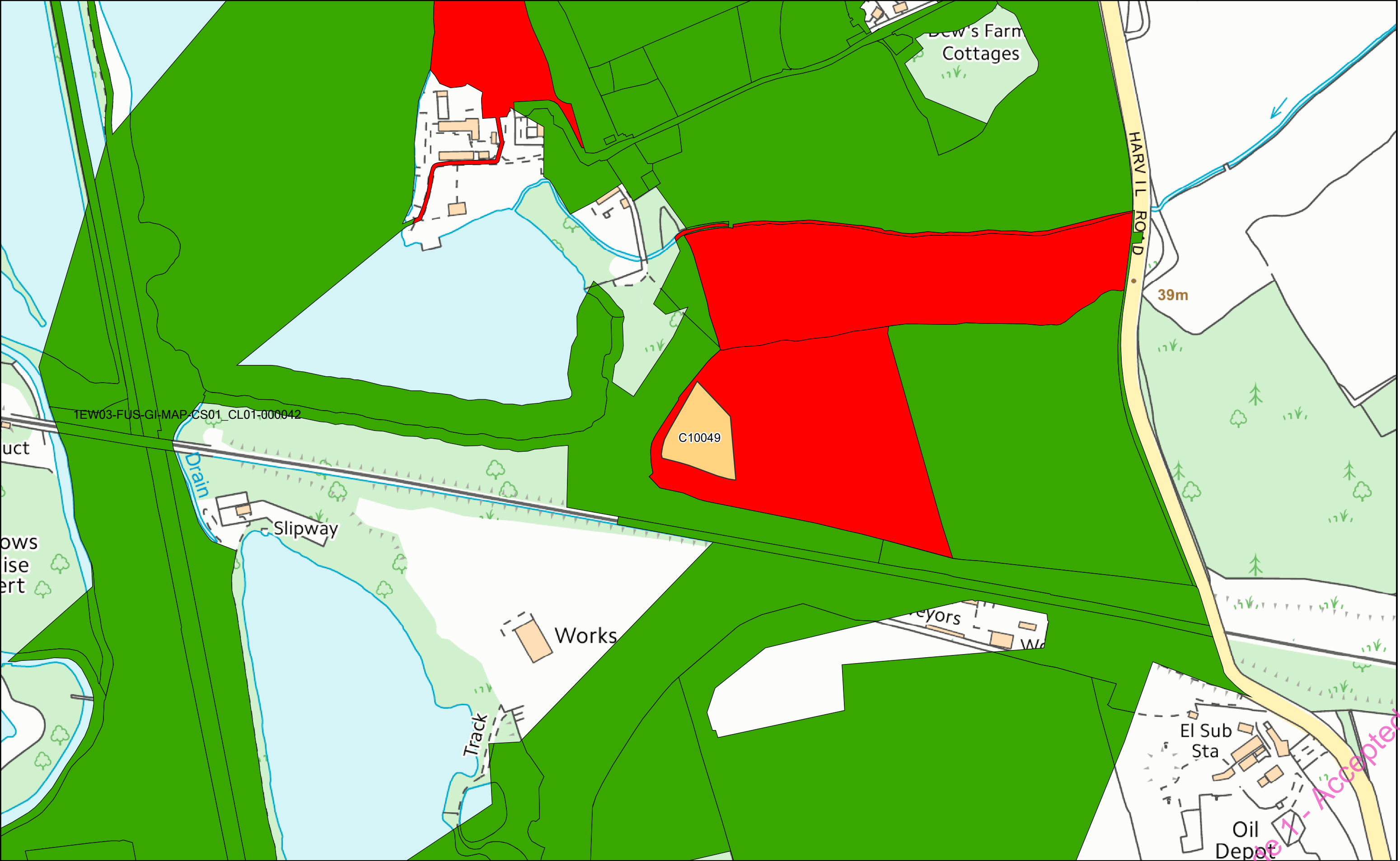
Specific Objective	Potential Contribution	Methods to be applied
High Speed Rail (London – West Midlands) – Heritage Memorandum Objective 2.1.1	The nominated undertaker, so far as is reasonably practicable, will seek to reduce harm to the historic environment	Methods to achieve through retaining archaeology level in situ below current ground level in area of grassland mitigation planting

Compiled by: (HERDS Designer)	Name: Joe Groarke	Date: 30.06.2021	Signature: 
Checked by: (Contractor)	Name: Paul Riccoboni	Date: 05/07/2021	Signature: 
Consultation with:	Name:	Date:	Signature:
(LPA Archaeologist)	Sandy Kidd	Issued 12/7, comments not returned	
(HE Stakeholder Archaeologist)	Jim Williams	Comments returned 14.07.21	J. Williams
Approved by: (HS2 Historic Environment)	Name: Emma Hopla (HS2)	Date:	Signature:
		28.09.21	
(HS2 Project Manager)	Tom Clarke	Date:	Signature: to accept this Doc on eB

Appendix 1: Sketch of the Align Main Works Landscaping design



Appendix 2: Figure showing area required to preserve archaeology



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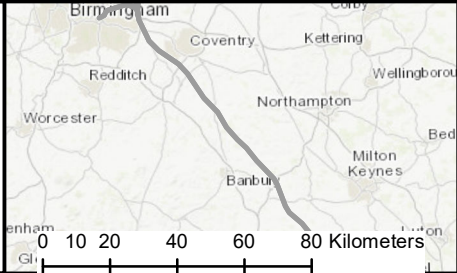
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Legend

- No Further HERDS Investigation Required
- Further HERDS Investigation Required - Separate DRN
- Preservation in Situ



High Speed Two
Areas of No Further Work
Colne Valley

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

1EW03-FUS-GI-MAP-CS01_CL01-000042

Date: 09/07/21

Appendix 3: Principal Contractor's (PC) Key Responsibilities

The High-Speed Rail (London - West Midlands) Act- Code of Construction Practice (2017) sets out the generic requirements on the PC, in relation to archaeology works.

The PC is required to carry out construction works in such a way as to ensure that disturbance to all heritage assets is managed in accordance with accepted historic environment practice and, where disturbance cannot reasonably be avoided, is controlled and limited as far as reasonably practicable (COCOP 2017, 8.1.8).

As part of the PC's environmental management system (EMS), an historic environment element will be developed for the management of the archaeological and heritage works during construction. In addition to demonstrating adherence to the Heritage Memorandum (2017) and Project Specification Requirements, the plan shall include the following:

- The PC to ensure Subcontractor's site staff are inducted, safety competent and signed up to daily briefings;
- The PC shall prepare and manage the soil management plans, and provide plant and equipment including temporary demarcation fencing;
- The PC will carry out works in such a way as to ensure that disturbance to all heritage assets is managed in accordance with accepted historic environment practice and, where disturbance cannot reasonably be avoided, is controlled and limited as far as reasonably practicable;
- Implementation of controls to avoid damage by settlement where reasonably practicable (and to record effects should these occur) to heritage assets. HS2 Information Paper C3: Ground Settlement provides guidance;
- Implementation of controls on the movement of construction vehicles and machinery in areas of heritage interest (e.g. archaeological remains and historic buildings);
- The development and implementation of a procedure for soil stripping and excavation before commencement of such works. This procedure will identify the interface of those works with areas of identified archaeological investigations. The procedure will reference the HS2 procedure for unexpected discoveries of national importance (see COCP Section 8.2);
- Procedures to be adopted to preserve archaeological remains in situ beneath earthworks;
- Management of protective measures that will be implemented for heritage assets that are to be retained within the land likely to be acquired or used for construction.
- The PC shall issue a EMP for the activity for review and comment by Fusion HERDS team and HS2 (as appropriate);
- Where required, the PC shall adopt stockpile creation in compliance with specific methodologies set out in this Form A designed to protect archaeological remains in-situ;
- The PC shall comply with specific methodologies and conditions set out in this Form A for the restoration of temporary land to be returned to owners, to protect archaeological remains that have been preserved in-situ;
- The procedures for ensuring the how the preservation of this area will be guaranteed during the construction phase, both from unintended temporary / land management / railway maintenance activities, as well as from natural regeneration and scrub growth, the roots of which might impact on the preserved lithics and their association with each other, should be formulated with Align and HS2, and also outlined in their Heritage Management Plan.

Appendix 4: Stakeholder Comments

Document No.	Revision	Reviewer	Section/ Page	Comment	Date of comment	Owner/Author Response (if applicable)
Please see associated guidelines on the tab below before completing your review.						
1EW03-FUS-EV-FRM-CS01_CL01-000031	C01	Jim Williams, Historic England	General	This FCCF provides a clear indication of the potential of the area being preserved and the mechanisms during the landscaping phase of work to ensure these significant remains are not damaged. How will the long term preservation of this area be guaranteed, both from unintended temporary / land management / future railway maintenance activities, as well as from natural regeneration and scrub growth, the roots of which might impact on the preserved lithics and their association with each other? Could some information about this be provided in this document with an indication of how it will be managed / owned etc.	13/07/2021	Discussed – In meeting with HS2 . The purpose of this document is to define measures and area. This has been added to document
AWH – Fieldwork Change Control Form A (Spec A) for Preservation in Situ, at Colne Valley Wetland, Colne Valley Viaduct, Hillingdon (C10049), FCCFA024			Appendix 2	It would be useful to mark the precise area covered by the FCCF on the Align landscape design.	13/07/2021	Cannot be achieved - Align drawing is a sketch/representation and not to scale so an accurate overlay cannot be shown

Dear Joseph,

Thank you for providing the preservation in-situ strategy. I am happy with the methodology but like Jim I would welcome clarity on future site management.

Best wishes

Sandy Kidd MA MCIfA MRTPI FSA
Senior Archaeological Investigator
Policy & Evidence
Historic England
Mobile phone: 07760 456812

From: Joseph Groarke <Joseph.Groarke@Fusion-JV.com>
Sent: 12 July 2021 16:44
To: Kidd, Sandy <Sandy.Kidd@HistoricEngland.org.uk>; Williams, Jim <Jim.Williams@HistoricEngland.org.uk>
Cc: Paul Riccoboni <Paul.Riccoboni@Fusion-JV.com>; Welch, Chris <Chris.Welch@HistoricEngland.org.uk>; Iain Williamson <iain.williamson@fusion-jv.com>
Subject: FCCF Form A for PIS at Colne Valley Wetland

THIS IS AN EXTERNAL EMAIL: do not click any links or open any attachments unless you trust the sender and were expecting the content to be sent to you

Hi Sandy/Jim,

Please find attached the FCCF for PIS at Colne Valley Wetland for your consultation. If you have any comments please send them back to me and I'll be happy to address them.

All the best

Joe Groarke ACIfA
Assistant Design Manager (HERDS)

Mitigation by Design Meeting 21/09/2021

A meeting between HS2, HE and Fusion was held on the 21st September 2021. During the meeting it was decided that this document would be amended to change the title to more accurately reflect the proposals for the site during the construction phase, and the measures for the long term management of the site would be discussed with HS2 and HE during this period.