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Palaeoenvironmental Assessment of Deposits at Hadleigh, Suffolk

By

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Summary

Following an archaeological evaluation of Hadleigh by Suffolk County Council in 2008 and a site visit in September 2008 by Birmingham Archaeo-Environmental, it was suggested that a programme of palaeoenvironmental assessment was carried out. Two sample sites were identified by the evaluation, the first (sequence 1) was a peat deposit located at the bottom of a shallow valley and the second (sequence 2) was a possible palaeosol buried by colluvial deposits at the head of the valley. The three trenches excavated in order to locate the peat deposit showed a curving linear feature infilled with a highly humified peat which trended into a more organic lens of humified peat. This was sealed by a thick layer of grey alluvial/colluvial material. The second site (sequence 2) was found to be a mostly sterile, colluvial infill of a small valley. Two darker more humic silt horizons which contained small amounts of charcoal were also recorded. Monolith and bulk samples were recovered from both locations and radiocarbon dating was carried out on two subsamples from sequence 1. Whilst sequence 2 produced no palaeoenvironmental information, sequence 2 appears to have begun accumulating in the Mesolithic through to the later Anglo-Saxon period, although accumulation is unlikely to have been continuous. The pollen record indicates the presence of dense woodland on and around the sampling site which may have been cleared during the Neolithic.

KEYWORDS: Hadleigh, Suffolk, peat, pollen, plant macrofossils, coleoptera

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Hadleigh, Suffolk:
Assessment of deposits for palaeoenvironmental potential

1. INTRODUCTION

In February 2009 Birmingham Archaeo-Environmental were commissioned to undertake a palaeoenvironmental assessment of deposits at Hadleigh, Suffolk (TM 03669 43030). The site is located to the south of the A1071 to the east of Hadleigh town and is at present given over to common ground with arable farmland to the east of a large headland which separates the common land. The topography consists of a small valley orientated north east to south west, sloping towards the south west.

An archaeological evaluation in 2008, carried out by Suffolk County Council Archaeological Services (SCAAS), located deposits of possible palaeoenvironmental significance. A small amount of medieval pottery was recovered from above a postulated buried soil (palaeosol) in a trench across the valley. An organic deposit was also recorded within a linear 'u-shaped' feature located in an area of wetland in the south western half of the site. Stratigraphic analysis and radiocarbon dating along with pollen, plant macrofossil and beetle assessments were carried out on the sediments collected from the fieldwork in February 2009. This report describes the results of these assessments and makes recommendations for further analyses.

2. METHODS

2.1 Trenching
Two trenches were excavated using a 360 tracked excavator north east to south west at the bottom of the valley across the wetland area to identify the

best location for recovering a sequence of deposits for analysis. A sequence 0.90m deep was collected in four 0.25m monolith tins (Sequence 1). Four 10 litre bulk samples were also recovered at 0.20m intervals throughout this sequence (Table 2).

A single trench was excavated across the small valley aligned north west to south east. This trench was 2m deep and unable to be bottomed onto the natural gravels. The sediment was recovered in two 0.50m Kubiena tins and two 10 litre bulk samples (Sequence 2).

2.2 Stratigraphic Analysis
Whilst an initial assessment of the sedimentary archive was made on-site, detailed stratigraphic recording was undertaken at the Birmingham Archaeo-Environmental laboratory at the University of Birmingham. Sediments were recorded using the Troels-Smith (1955) classification scheme. The scheme breaks down a sediment sample into four main components and allows the inclusion of extra components that are also present, but that are not dominant. Key physical properties of the sediment layers are also identified according to darkness (Da), stratification (St), elasticity (El), dryness of the sediment (Dr) and the sharpness of the upper sediment boundary (UB). A summary of the sedimentary and physical properties classified by Troels-Smith (1955) and the nomenclature used is provided in Table 3.

2.3 Pollen Assessment

A total of 7 subsamples were assessed for pollen for Sequence 1 and a single subsample was assessed for pollen from Sequence 2. Pollen preparation followed standard techniques including potassium hydroxide (KOH) digestion, hydrofluoric acid (HF) treatment and acetylation (Moore *et al.,* 1991). At least 125 total land pollen grains (TLP) excluding aquatics and spores were counted for each sample. However, pollen concentrations were very low in the top two samples (2.80m and 2.84m depths) and full counts were not possible for these samples.

2.4 Plant Macrofossil Assessment

Samples 7 (0.90-1.10m depth) and 8 (0.10-0.20m depth) from Sequence 2 were processed using standard water flotation methods for the extraction of environmental remains. The flot (the sum of the material from each sample that floats) was sieved to 0.3mm and air dried. The heavy residue (the material which does not float) was not examined and therefore the results presented here are based entirely on the material from the flot.

Samples 2 (0.64-0.84m depth), 3 (0.44-0.64m depth), 4 (0.24-0.44m depth) and 5 (0-0.42m depth) from Sequence 1 were processed using standard methods for waterlogged remains as described by Kenward *et al.* (1980). Plant remains were extracted by means of a 'washover' to concentrate the lighter, organic fraction. The components of the fraction were recorded whilst wet. The washover and the residue were stored wet.

The processed samples were sorted, and material identified, under a low power binocular microscope at magnifications of x10 and x40.

2.5 Beetle Assessment

The four samples described above from Sequence 1 were processed for Coleoptera (beetle) assessment following the standard method of paraffin flotation outlined in Kenward *et al.* (1980). The insect remains were sorted from the paraffin flot and the sclerites identified under a low power binocular microscope at x10 magnification. This assessment was carried out to answer four main questions:

1. Are insect remains present? And if so, are they of interpretative value?

2. Do the insect remains from these samples provide information concerning the past water and river conditions present?

3. Do the insect remains from these samples provide information about the environment in the area at the time of these deposits formed?

4. Do the insect faunas recovered indicate a human presence in the landscape?

2.6 Radiocarbon Dating

Two sub-samples (see Table 1) were submitted for radiocarbon dating to SUERC, East Kilbride. Sub-samples were taken from the top (0.10m) and base (0.90m) of the sequence 1, where it was considered preservation conditions would yield sufficient amounts of organic carbon for dating. Each sample underwent acid/alkali/acid pre-treatment prior to dating.

3. RESULTS

3.1 Stratigraphy

Sequence 1

In the valley bottom trench a clearly defined curvilinear feature was identified running from the south west to the north west (Fig.2, Plate 1). This appears to be a small channel, 0.50m wide and 0.84m deep, incised into the basal gravels and at the base of which a thin horizon of organic silty peat had accumulated (Plate 2). This trended into a more silt rich organic deposit (Unit 3) which was in turn overlain by an inorganic blue grey silt clay alluvial/colluvial deposit (Unit 2). This indicates episodes of sediment deposition by fluvial processes and/or slope wash. A small piece of heat shattered flint was recovered from the base of the monolith.

Sequence 2

In the trench excavated perpendicular to the small valley a sequence of colluvial sediments some 2m thick were recorded (Plate 3). A series of stratigraphic units were recognised although the boundaries between the different units were very diffuse and the stratigraphy somewhat homogeneous. The lower most deposit was red brown silty clay (Unit 6; 1.9-2m) which was overlain by a thin band of mid red brown silt clay (Unit 5; 1.7-1.9m) with charcoal flecks (Plate 4). This deposit was recorded in the original trial trench and identified as a possible palaeosol. Above this was a red brown silt clay deposit (Unit 4; 1.1-1.7m) with occasional flint pebbles. Sealing this was a mid brown silt clay with charcoal flecks (Unit 3; 0.9-1.10m), with occasional flint nodules. This was also interpreted as a possible palaeosol during the evaluation but again the upper and lower boundaries were diffuse. This deposit was then overlain by a light yellow brown silt clay with chalk flecks (Unit 2) which was in turn sealed by the topsoil (Unit 1). Bulk samples were retained from the upper (Unit 3) and the lower possible palaeosols (Unit 5).

3.2 Radiocarbon dating and pollen Assessment

The results of the radiocarbon dating of the near base and top samples from sequence 1 are given in Table 1. The majority of the pollen samples provided sufficient counts for palaeoenvironmental interpretation. No pollen was present in sample 0.26m, sequence 2. The results of sequence 1 are presented in the form of a pollen diagram (Fig.3), produced using TILIA and TILIA*GRAPH (Grimm 1991). A stratigraphic column and associated radiocarbon dates are also provided to aid interpretation. To facilitate discussion, the diagram has been divided into two local pollen assemblage zones with the site prefix 'HL'. All percentage figures are of Total Land Pollen (TLP) unless otherwise specified.

HL-1: 0.90-0.55m

The base of the pollen diagram is dated to 5800±50 BP (Beta-258109; 4780-4530 cal. BC) indicating a Mesolithic date for the beginning of sediment accumulation. This zone is dominated by tree and shrub pollen (over 90%) TLP consisting of *Alnus glutinosa* (alder), *Tilia* (lime), *Corylus avellana*-type (hazel) and *Ulmus* (elm). Low values of herbaceous taxa including Poaceae (grasses) and Cyperaceae (sedges) are recorded but values for Pteropsida (monolete) indet. (ferns) percentages are relatively high. The impression is of a generally closed woodland environment around the sampling site, with *Alnus* growing on

the poorly drained soils around the sampling site but with mixed woodland in which *Tilia* was a dominant component present on the adjacent better drained slopes. Some grasses and sedges were probably growing on the wetland area, with a rich fern understorey suggested.

HL-2:0.55-0.00m

This zone sees a marked reduction in tree and shrub pollen and an increase in herbs. *Alnus* falls to 15% before recovering slightly at the top of the zone. *Corylus* falls slightly but *Ulmus* disappears from the record and *Tilia* is reduced to trace values (<1%). Poaceae and Cyperaceae both rise to c. 35%, and other herbs specifically Lactuceae (indet.) (dandelions etc.) and *Plantago lanceolata* (ribwort plantain) are recorded. A steady fall in Pteropsida is apparent across the zone concomitant with a low but consistent curve for *Pteridium aquilinum* (bracken).

The impression is of an opening up of the woodland on and around the sampling site and the expansion of grasses and sedges. The decline in *Alnus, Tilia* and *Ulmus* suggests that the demise of tree cover was a landscape scale event with both wetter and drier soils affected, although percentages of the former are probably sufficient to indicate the persistence of some *Alnus* around the sampling site. Likewise, some *Corylus* scrub seems to have remained locally for the period of time represented by the diagram.

The expansion in Cyperaceae probably reflects a spread of these plants on the wetland area itself following the decline in *Alnus*, whilst the rise in grasses and other herbs such as *P.lanceolata* reflects the expansion of open ground vegetation communities following the depletion of the woodland on the surrounding slopes. The relatively high percentages of Lactucaeae indicate that these plants were significant in the nearby vegetation, suggesting a pastoral, meadow-like environment. This interpretation is probably also confirmed by the record of taxa including *Pteridium* (bracken), *Rumex* (docks) and lower values of the tall herbs Apiaceae (carrot family) and Caryophyllaceae (pink family). A radiocarbon date of 960±40 BP (Beta-258108, cal. AD 1010-1170) is available for the close of the zone, indicating a later Anglo-Saxon date.

3.4 Plant macrofossil assessment

The waterlogged samples both contained poorly preserved organic remains which included plant detritus, grass fronds and decayed wood fragments. Samples 7 and 8 produced very small flots from which contained minute fragments of charcoal and no identifiable plant material other than a single poorly preserved cereal grain, possibly wheat (cf. *Triticum*) which was retrieved from sample 7.

3.5 Beetle Assessment

Very few identifiable or diagnostic insect sclerites were present in the four samples. The sclerites mainly consisted of abdominal segments or very fragmented elytra, pronota and heads. All were generally poorly preserved, most notably they appeared washed out and flimsy. This is often indicative of well-humified deposits or secondary deposition. The following identifiable insect remains were noted (species with question mark in front of them are tentative identifications):

Sample 2 0.64-0.84m (base of section): *Hydraena* sp. (1 pronotum); *Hydroporus* sp. (1 pronotum); *Acidota* sp. (1 left, 2 right elytra); *Lathrobium* sp. (1 head); *Longitarsus* spp. (2 fragments of right elytra); *Acritus nigricornis* (1 left elytron).

Most of these species are indicative of swamp or marsh conditions and are typical of wetland environments. *Longitarsus* spp. are a large genus of Chrysomelidae (leaf) beetles that live on a wide variety of plants, including wetland plants (Bullock 1993). *A. nigricornis* is a small Histerid beetle found in decaying vegetable matter and rotting wood (Halstead 1963). It is often encountered in palaeoenvironmental deposits in what are thought to be damp woodland or carr woodland environments (Girling 1979; Robinson 1991). However, the number of insects recorded here is too small to make any definitive statement on the nature of the environment at this time.

Sample 3 0.44-0.64m: *Acidota* sp. (1 right elytron); *Bembidion* sp. (1 left elytron).

This was the poorest sample in terms of identifiable remains. Again, the two species identified to genus only do not provide any clarity as to the nature of the environment at this time.

Sample 4 0.24-0.44m: *Eusphalerum minutum* (1 right elytron); *Acidota* sp. (1 right elytron); *Tachinus/Tachyporus* sp. (1 pronotum); 1 modern fly contaminant.

E. minutum is commonly encountered in wetland environments, occurring generally in sedges and rushes (Lott 2003). *Acidota* sp. is generally indicative of wetlands, while *Tachinus/Tachyporus* spp. are indicative of decaying plant matter and fouler habitats such as dung or carrion. Again, fossil remains are insufficient in number to be definitive about the environmental conditions at the time of deposition.

Sample 5 0-0.24m (top of section): *Cyphon* sp. (1 right elytron); *Lathrobium* sp. (1 head); *Clivina fossor* (1 right/1 left elytron, 1 head); Carabidae indeterminate (2 fragments of head cases); fly heads indeterminate (2).

Cyphon sp. and *Lathrobium* sp. are generalist wetland indicators. *Clivina fossor* is generally found in open habitats in disturbed or cultivated ground, including gardens and fields (Luff 2007). As this sample came from the blue-grey alluvial silt, this beetle was probably incorporated into the deposit in runoff from nearby arable or disturbed ground.

4. DISCUSSION AND CONCLUSIONS

Sequence 2 clearly represents a colluvial deposit which has accumulated as a result of the progressive movement of sediment down hill. Colluviation may occur naturally under the influence of gravity and/or climate change, but it is likely that the effects of human activity such as woodland clearance and agriculture are related in part at least to such processes. Dating or characterising the episode represented at Hadleigh is problematic in the absence of any supporting palaeoenvironmental data. It may be tentatively hypothesised that the presence of a possible *Triticum* grain in sample 7 indicates that the accumulation of this deposit is related at least in part to the destabilisation of soils by arable cultivation. The

putative palaeosols are probably more likely to represent periods of a relatively decrease in rates of slow colluvial deposition, rather than an actual stabilisation sufficient to allow *in situ* soil development.

Sequence 1 represents the accumulation of peat in what appears to have been an area of fen carr established on the poorly drained soils at the base of the slope. The evidence for a shallow channel may suggest this was a watercourse which became impeded leading to paludification and peat accumulation. The base of the organic sequence dates to the Mesolithic period. The pollen record indicates the presence of alder carr on the wetland and dense lime dominated woodland cover in the wider area.

The reduction in woodland apparent in HL-2 is almost certainly related to the effects of human activity. Whilst undated, it is possible that it reflects Neolithic clearance for farming/settlement at the time of the Elm Decline (ca. 3700 cal. BC) which may be apparent at the HL-1 to HL-2 boundary. The pollen spectra suggests this marked the advent of farming with a suite of herbs including dandelions and ribwort plantain suggesting a pastoral emphasis.

The relatively late Holocene radiocarbon date for the top of the sequence indicates either a very low sediment accumulation rate or alternatively an hiatus in the sequence. The latter may be the more likely given the clay and silt rich nature of the deposits.

The beetle assessments produced less information than the pollen, but those taxa present would appear to confirm the presence of marshy ground and damp woodland with a subsequent transition to a sedge/rush dominated wetland and more open, disturbed ground.

5. RECOMMENDATIONS FOR FURTHER ANALYSIS

Sequence 2 produced no coherent palaeoenvironmental information and no further work on these deposits is recommended. Sequence 1 has produced more promising palaeoenvironmental data. The pollen record in particular has the potential to shed significant light on the timing and nature of human activity in this part of Suffolk for which very little data are currently available. Further more detailed pollen analyses and radiocarbon dating are recommended. As charred plant remains were present in small numbers and completely absent from the waterlogged samples examined, no further archaeobotanical analysis is necessary. The preservation and concentration of coleoptera remains was generally insufficient to merit any further analyses.

6. ARCHIVE

All monolith and bulk samples taken during fieldwork are currently stored at Birmingham Archaeo-Environmental, University of Birmingham, Edgbaston, Birmingham, B15 2TT. In addition, original core logs, site location plans, photographs and associated material are stored within Birmingham Archaeo-Environmental.

7. ACKNOWLEDGEMENTS

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8. REFERENCES

Anderberg, A L (1994) *Atlas of seeds, Part 4 Resedaceae-Umbelliferae.* Sweden: Risbergs Tryckeri AB.

Behre, K.E. 1981. The interpretation of anthropogenic indicators in pollen diagrams. Pollen et Spores

Berggren, G (1981) *Atlas of seeds and small fruits of Northwest-European plant species with morphological descriptions.* Stockholm: Swedish Museum of Natural History.

Berggren, G (1969) *Atlas of seeds, Part 2, Cyperaceae:* Stockholm, Swedish Natural Science Research Council.

Bullock, J.A. (1993) Host plants of British beetles: A list of recorded associations. *Amateur Entomologist*, 11a, 1-24.

Cappers, R., Bekker, R., and Jans, J. (2006) *Digitalezadenatlas Van Nederland.* Groningen: Barhuis Publishing & Groningen University Library.

Girling, M.A. (1979) The fossil insect assemblages from the Meare Lake Village, *Somerset Levels Papers* 5, 52-32

Halstead, D.G.H. (1963) Coleoptera: Histeridae. *Handbooks for the Identification of British Insects* IX, 10. Royal Entomological Society of London.

Kenward H. K., Hall A.R., and Jones A.K.G. (1980). A Tested Set of Techniques for the Extraction of Plant and Animal Macrofossils from Waterlogged Archaeological Deposits. *Scientific Archaeology*. 22. 3-15.

Lott, D.A. (2003) *An annotated list of wetland ground beetles (Carabidae) and rove beetles (Staphylinidae) found in the British Isles including a literature review of their ecology.* English Nature Reports No. 488. Peterborough.

Luff, M.L. (2007) The Carabidae (ground beetles) of Britain and Ireland. *Handbooks for the Identification of British Insects*, **4**, Part **2** (2nd Edition). Royal Entomological Society of London.

Moore, P.D., Webb, J.A. & Collinson, M.E. 1991. *Pollen Analysis*, 2nd Edition. Blackwell Scientific Publications, Oxford.

Reimer, P J, Baillie, M G L, Bard, E, Bayliss, A, Beck, J W, Bertrand, C J H, Blackwell, P G, Buck, C E, Burr, G S, Cutler, K B, Damon, P E, Edwards, R L, Fairbanks, R G, Friedrich, M, Guilderson, T P, Hogg, A G, Hughen, K A, Kromer, B, McCormac, G, Manning, S, Bronk Ramsey, C, Reimer, R W, Remmele, S, Southon, J R, Stuiver, M, Talamo, S, Taylor, F W, van der Plicht, J, and Weyhenmeyer, C E, 2004. IntCal04 Terrestrial radiocarbon age calibration, 0–26 Cal Kyr BP, *Radiocarbon*, 46, 1029–58

Robinson, M.A. (1991) The Neolithic and Late Bronze Age insect assemblages, pp.277-326. In S. Needham *Excavation and Salvage at Runnymede Bridge, 1978: A Late Bronze Age Waterfront Site.* British Museum, London.

Stace, C. (1997). (second edition) *New Flora of the British Isles*. Cambridge: Cambridge University Press.

Zohary, D. and Hopf, M. (2000). *Domestication of Plants in the Old World: The Origin and Spread of Cultivated Plants in West Asia, Europe, and the Nile Valley*. (3rd edition). Oxford: Oxford University Press.

Troels-Smith, J. (1955). Karakterisering af lose jordater (characterisation of unconsolidated sediments). *Denmarks Geologiske Undersogelse*, Series IV/3, 10, 73.

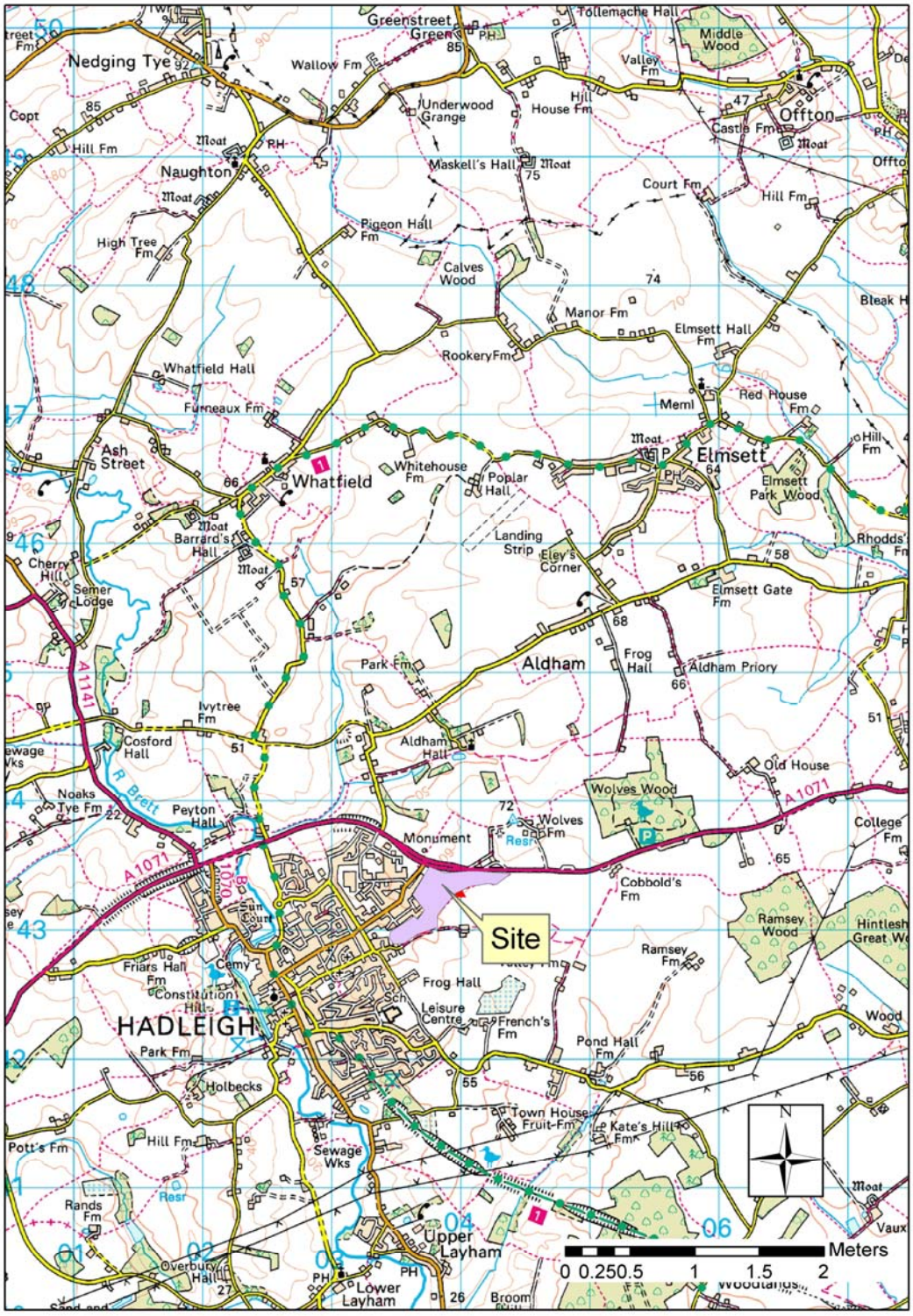

Figure 1: Site location

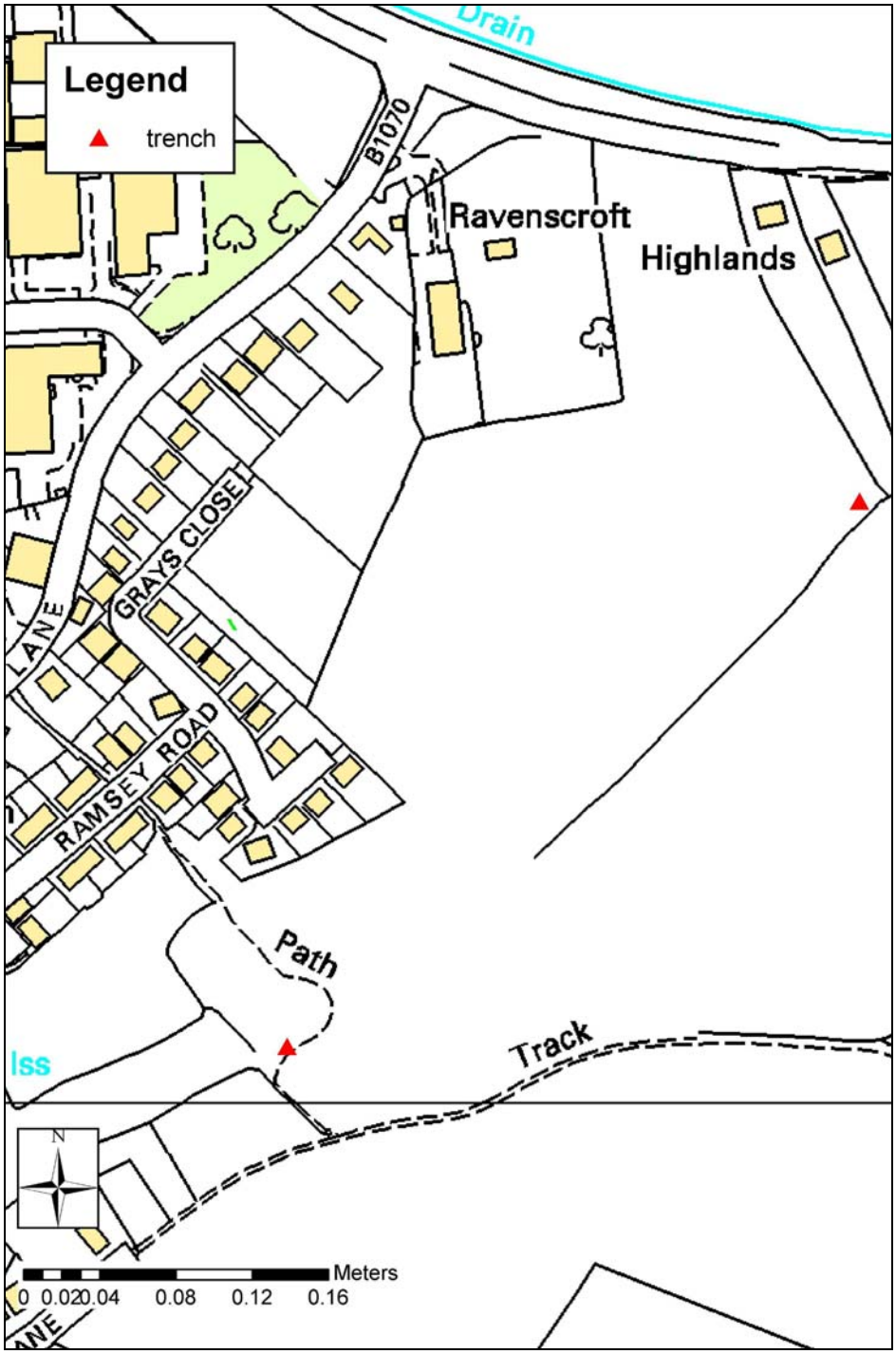

Figure 2. Trench locations: Sequence 1 to the west of the study area and sequence 2, to the east.

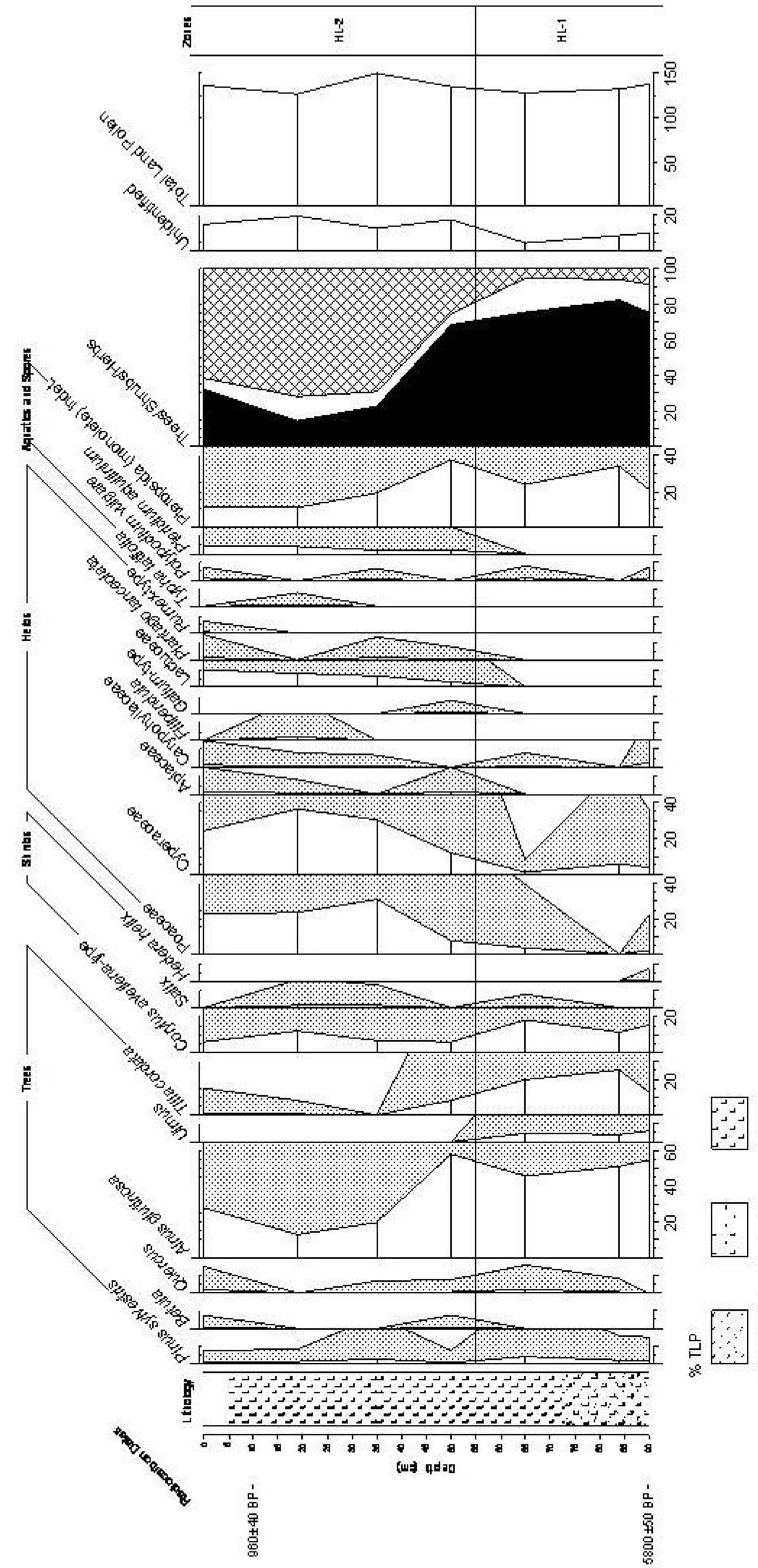

Figure 3: Hadleigh Percentage Pollen Diagram Shading=exagerration x 10

Plate 1: Curvilinear channel feature in which peat accumulation commenced (sequence 1)

Plate 2: Sequence 1 stratigraphy with monolith tins in position.

Plate 3: Trench 2 north west facing section

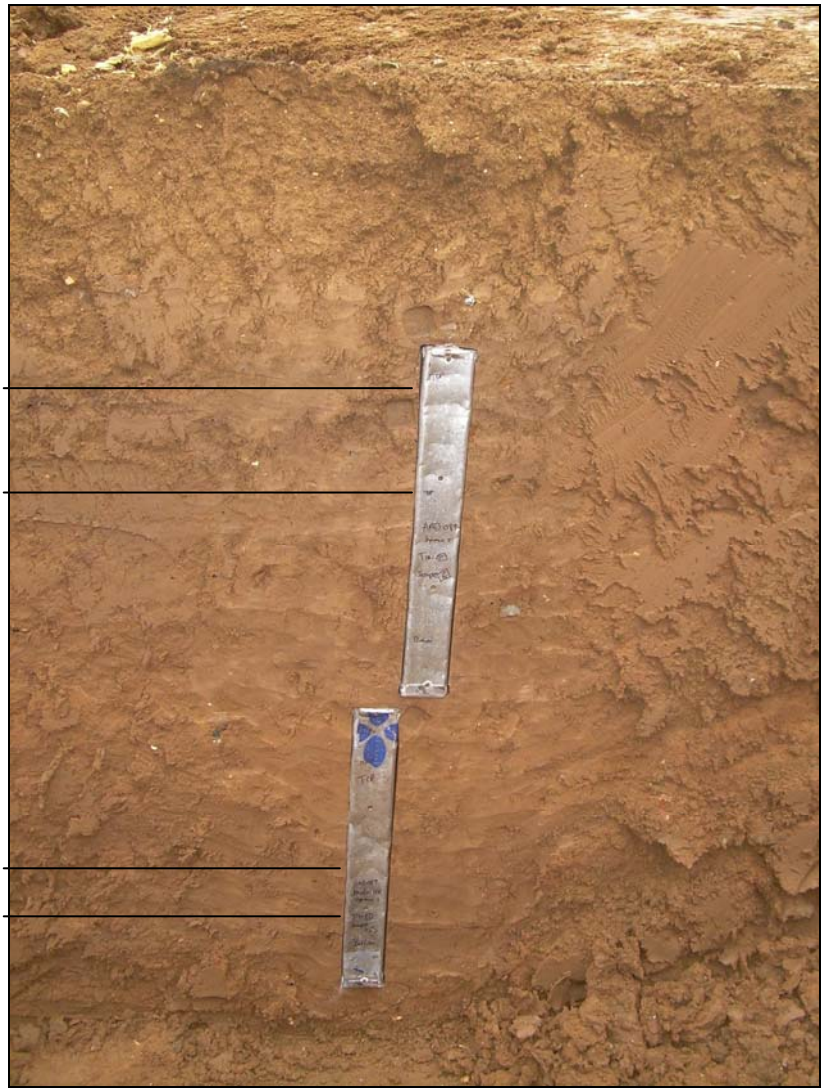

Plate 4: Sequence 2 with possible palaeosol horizons marked.

Sample	Lab Code	Age BP	δ13C	Calibrated BC/AD
0.10m Organic sediment (acid-alkai-acid)	Beta-258108	960±40	-25.8	1010-1170 cal. AD
0.90m Organic sediment (acid-alkali-acid)	Beta-158109	5800±40	-27.2	4780-4530 cal. BC

Table 1: Radiocarbon dates from Hadleigh.

Sample no	Type	Quantity	Deposit	Sample type	Description
1	Monolith	4x 25cm tins	Sequence 1	WL	#1 at bottom
2	Bulk	10L	0.64-0.84m	WL	Bottom
3	Bulk	10L	0.44-0.64m	WL	
4	Bulk	10L	0.24-0.44m	WL	
5	Bulk	10L	0-0.24m	WL	Top
6	Monolith	2x 50cm tins	Sequence 2	Soil micromorph	#1 at bottom
7	Bulk	10L	0.90-1.10m	Charred	Bottom
8	Bulk	10L	0.10-0.20m	Charred	Top

Table 2: Samples taken for palaeoenvironmental assessment at Hadleigh.

Degree of Darkness	
nig.4	black
nig.3	
nig.2	
nig.1	
nig.0	white

Degree of Stratification	
strf.4	well stratified
strf.3	
strf.2	
strf.1	
strf.0	no stratification

Degree of Elasticity	
elas.4	very elastic
elas.3	
elas.2	
elas.1	
elas.0	no elasticity

Degree of Dryness	
sicc.4	very dry
sicc.3	
sicc.2	
sicc.1	
sicc.0	water

	Sharpness of Upper Boundary
lim.4	< 0.5mm
lim.3	< 1.0 & > 0.5mm
lim.2	< 2.0 & > 1.0mm
lim.1	< 10.0 & > 2.0mm
lim.0	> 10.0mm

	Sh	*Substantia humosa*	Humous substance, homogeneous microscopic structure
I Turfa	*Tb*	*T. bryophytica*	Mosses +/- humous substance
	Tl	*T. lignosa*	Stumps, roots, intertwined rootlets, of ligneous plants
	Th	*T. herbacea*	Roots, intertwined rootlets, rhizomes of herbaceous plants
II Detritus	*Dl*	*D. lignosus*	Fragments of ligneous plants >2mm
	Dh	*D. herbosus*	Fragments of herbaceous plants >2mm
	Dg	*D. granosus*	Fragments of ligneous and herbaceous plants <2mm >0.1mm
III Limus	*Lf*	*L. ferrugineus*	Rust, non-hardened. Particles <0.1mm
IV Argilla	*As*	*A.steatodes*	Particles of clay
	Ag	*A. granosa*	Particles of silt
V Grana	*Ga*	*G. arenosa*	Mineral particles 0.6 to 0.2mm
	Gs	*G. saburralia*	Mineral particles 2.0 to 0.6mm
	Gg(min)	*G. glareosa minora*	Mineral particles 6.0 to 2.0mm
	Gg(maj)	*G. glareosa majora*	Mineral particles 20.0 to 6.0mm
	Ptm	*Particulae testae molloscorum*	Fragments of calcareous shells

Table 3: Physical and sedimentary properties of deposits according to Troels-Smith (1955)

Appendix 1

Summary of the stratigraphy

Sequence 1 (TM 03669 43030)

0.00-0.05m Topsoil and turf

0.05-0.35m	**Da**	**St**	**El**	**Dr**	**UB**
	2+	0	0	3	-

Ag2, As2, Ga+
Mid-brown silt clay with gritty particles

0.35m-0.73m	**Da**	**St**	**El**	**Dr**	**UB**
	2+	0	0	3	2

Ag2, As2, Ga+, Th+
Blue grey clay silt with pale rootlets

0.73-1.30m	**Da**	**St**	**El**	**Dr**	**UB**
	3	0	1	4	2

Dh2, As1, Ag1, Ga+
Well humified silty peat, pale rootlets, small flint pebbles and sandy particles trending into darker peat layer at base.

Sequence 2 (TM 03970 43317)

0-0.20m Topsoil

0.20-0.90m	**Da**	**St**	**El**	**Dr**	**UB**
	2	0	0	3	1

Ag2, As2, Ga+
Light yellow brown silt clay with chalk flecks

0.90-1.10m	**Da**	**St**	**El**	**Dr**	**UB**
	2+	0	0	4	1

Ag2, As2, Ga+, Gg(maj)+
Mid brown silt clay with charcoal flecks, (buried soil) occasional flint nodules

1.10-1.70m	**Da**	**St**	**El**	**Dr**	**UB**
	2	0	0	4	1

Ag2, As2, Ga+, Gg(maj)+
Red brown silt clay with occasional flint

1.70-1.90m	**Da**	**St**	**El**	**Dr**	**UB**
	2	0	0	4	1

Ag2, As2, Ga+
Mid red brown silt clay with charcoal flecks (buried soil)

1.90-2.00m	**Da**	**St**	**El**	**Dr**	**UB**
	2	0	0	4	1

Ag2, As2, Ga+
Red brown silt clay