

AN ARCHAEOLOGICAL
EVALUATION ON LAND AT
TREETOPS, DELL ROAD,
GRAYS, ESSEX

SITE CODE: ETDG16
REPORT NO: R12519

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PRE-CONSTRUCT
ARCHAEOLOGY

An Archaeological Evaluation on Land at Treetops, Dell Road, Grays, Essex

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1 ABSTRACT

- 1.1 This report details the result of an archaeological evaluation undertaken by Pre-Construct Archaeology on behalf of Keepmoat on land off Dell Road, Grays, Essex RM17 5RP. The archaeological work was conducted between 31st May and 3rd June 2016 in accordance with the standards specified by the Chartered Institute of Archaeologists and following the guidelines issued by Historic England.
- 1.2 Nine evaluation trenches (Trenches 1 to 9) were proposed across the site. Only Trench 5 was not excavated for logistic and health and safety reasons.
- 1.3 No evidence of prehistoric occupation was observed during the evaluation of the north part of the site. This area was situated at approximately 16m OD and the natural geology comprised Seaford Chalk Formation and Newhaven Chalk Formation. The natural chalk was extensively overlain by late post-medieval/modern deposits associated with sand, gravel and chalk quarrying activity carried out at the site from the 19th century. No evidence of terrace gravel was observed in the north part of the site. It was clear, given the level of the northern part of the site compared to the southern part of the site, that the northern part had been extensively horizontally truncated by historic quarrying.
- 1.4 Evaluation Trenches 6 to 9 were all located in the southern part of the site at a level of approximately 27m OD, and revealed thick deposits of terrace gravel. No archaeological evidence for prehistoric occupation of the site was observed during the evaluation. The terrace gravel in Trenches 7, 8 and 9 was tested by a geoarchaeologist for evidence of lithics (Quest, forthcoming).
- 1.5 Evidence for late post-medieval occupation of the site was observed in Trench 7 where a number of masonry foundation orientated north-west south-east were recorded. These foundations were part of a building as shown on the Ordnance Survey map of 1970. The site is labelled as 'The Elms' on this map.

2 INTRODUCTION

- 2.1 An archaeological evaluation commissioned by Keepmoat was undertaken on land at Treetops, Dell Road, Grays, Essex between 31st May and 3rd June 2016. The site comprised an irregular area of land, c. 3.1ha in extent, centred at TQ 61597 78816. About half the area of the site comprised wooded, steeply sloping quarried areas, leaving just two land parcels for the proposed development, in the north and in the south-east of the site.
- 2.2 PCA carried out a desk based assessment for the site (Jones and Hogan 2015) which highlighted that although there had been considerable quarrying in the area there was the potential for surviving multi-period archaeological deposits from the Palaeolithic period onwards.
- 2.3 The site had a planning condition requiring archaeological trial trenching to be carried out.
"No development or preliminary groundworks of any kind shall take place until the applicant has secured the implementation of a programme of archaeological work and recording in accordance with a written scheme of investigation which has been submitted by the applicant, and approved by the planning authority."
- 2.4 The Written Scheme of investigation (Hawkins 2016) detailed the methodology by which the archaeological evaluation was undertaken. The WSI was conducted in accordance with the Chartered Institute for Archaeologists' Code of Conduct, the Standard and Guidance for Archaeological Excavation (ClfA 2014), and Standards for Field Archaeology in the East of England (EAA Occasional Paper 14, 2003). The Written Scheme of Investigation was approved by the archaeological adviser to Thurrock Council before the fieldwork commenced.
- 2.5 The site of the proposed development is bordered to the west by Dell Road and by 20th century residential development in all other directions.
- 2.6 The site was given the site code ETDG16. The complete archive comprising written, drawn and photographic records will be deposited within the Thurrock Museum.

3 PLANNING BACKGROUND

3.1 National Planning Policy Framework (NPPF)

3.1.1 The National Planning Policy Framework (NPPF) was adopted on 27 March 2012, and now supersedes the Planning Policy Statements (PPSs). The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications (Department for Communities and Local Government, 2012).

3.1.2 Chapter 12 of the NPPF concerns the conservation and enhancement of the historic environment, with the following statements being particularly relevant to the proposed development:

128. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

129. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

3.1.3 Additionally:

141. Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

3.1.4 In considering any planning application for development, the local planning authority will now be guided by the policy framework set by the NPPF.

3.1.5 The NPPF also states that:

214. For 12 months from the day of publication, decision-takers may continue to give full weight to relevant policies adopted since 2004 even if there is a limited degree of conflict with this Framework.

215. In other cases and following this 12-month period, due weight should be given to relevant policies in existing plans according to their degree of consistency with this framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given).

3.1.6 As such the Local Planning Authority will continue to also be guided by the existent Development Plan policy and by other material considerations

3.2 The Thurrock Borough Council Core Strategy and Policies for Management of Development was adopted in 2011. The relevant policy to archaeology is PMD 4: Historic Environment:

PMD4 - HISTORIC ENVIRONMENT
Introduction

6.18 Thurrock's architectural, archaeological and historic heritage is made up of both statutorily and non-statutorily protected assets. The Council is committed to preserving or enhancing those assets for the benefit of current and future generations, by controlling development affecting their fabric or setting.

6.19 Statutorily protected heritage assets include Listed Buildings, Scheduled Ancient Monuments and Archaeological sites, Conservation Areas, and Historic Parks and Gardens. The Council also recognises the importance of non-statutorily protected heritage assets, such as ancient woodlands, landscapes and hedgerows, as well as those assets on the Thurrock Heritage at Risk Register and the Local Listing.

Thurrock Plans and Strategies

6.20 The Council has produced a Character Appraisal for each of its seven Conservation Areas which evaluates the special interest and significance of these areas and sets out how they will be preserved and enhanced. The Council's Thurrock Heritage at Risk Register identifies the Borough's Listed Buildings in need of repair and/or maintenance which will be reviewed annually.

PMD4 - HISTORIC ENVIRONMENT

The Council will ensure that the fabric and setting of heritage assets, including Listed Buildings, Conservation Areas, Scheduled Ancient Monuments and other important archaeological sites, and historic landscape features are appropriately protected and enhanced.

1. The Council will also require new development to take all reasonable steps to retain and incorporate non-statutorily protected heritage assets contributing to the quality of Thurrock's broader historic environment.

2. Applications must demonstrate that they contribute positively to the special qualities and local distinctiveness of Thurrock, through compliance with local heritage guidance including:

- i. Conservation Area Character Appraisals;
- ii. Conservation Area Management Proposals;
- iii. Other relevant Thurrock-based studies, including the Landscape Capacity Study (2005), the Thurrock Urban Character Study(2007) and the Thurrock Unitary Historic Environment Characterisation Project (2009).
- v. Further local guidance as it is developed.

3. The Council will follow the approach set out in 'PPS 5: Planning for the Historic Environment' in the determination of applications affecting consideration of alterations, extensions or demolition of Listed Buildings or the demolition of unlisted buildings within Conservation Areas, and requirements for pre-determination archaeological evaluations and for preservation of archaeology in situ or by recording.

Key Diagram and Maps

Map 4: Location of Landscape Character Areas

Map 6: Location of Listed Buildings, Scheduled Ancient Monuments and Conservation Areas

4 GEOLOGY AND TOPOGRAPHY

4.1 Introduction

- 4.1.1 Unless referenced otherwise, the geological and topographical background cited below was obtained from the Desk-Based Assessment prepared by Pre-Construct Archaeology (Jones and Hogan 2015).

4.2 Geology

- 4.2.1 The underlying bedrock of this area comprised the Seaford Chalk and Newhaven Chalk Formations, formed between 71 and 89 million years ago, with areas of Thanet Formations sand sedimentary bedrock formed 56 to 59 million years ago also recorded. This is overlain by superficial river terrace deposits of sand and gravel of the Boyn Hill Gravel Member formed up to 2 million years ago in the Quaternary period (British Geographical Survey Website). The soils in the general area are recorded as free draining slightly acidic loamy soils.

4.3 Topography

- 4.3.1 The site occupies a gently undulating area of ground which ranges from approximately 17.5m in the north, rising to 24m at the midpoint of the area and sloping to approximately 19m at its southern extremity. The ground level has been affected by post-medieval quarrying and also by made ground, which has established a false ground level (toward the centre of the site) on which the school was built. The geotechnical survey found that pockets of land within the site remained undisturbed suggesting the whole site had not been affected by quarrying.
- 4.3.2 In general, the site was located on the higher chalklands overlooking the Thames Valley and the landscape slopes downwards to the west and southwest towards the Thames River.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Introduction

- 5.1.1 The archaeological background detailed below has been taken from the Desk-Based Assessment (Jones and Hogan 2015) completed for the proposed development area (PDA).

5.2 Prehistoric

- 5.2.1 The geology and topography of the area are favourable for prehistoric activity and settlement, although few sites have been revealed through archaeological investigations within the immediate area. The Thames River Valley has been an important source of archaeological remains dating from the earliest human activity in Britain (Lower Palaeolithic) throughout the Middle and Upper Palaeolithic periods and the following Mesolithic periods. Both the River Valley gravel terraces and the chalkland ridges overlooking the valley are significant landscapes during the later Neolithic and Bronze Age periods.
- 5.2.2 The earliest recorded evidence within the search radius comes from Palaeolithic flints including hand axes and other implements found within a 0.5km radius of the site.
- 5.2.3 Evidence of later prehistoric activity is also present within this radius. Three Neolithic axes including one polished stone axe was found on land off Langthorne Crescent and a third was discovered at Thurloe Walk. The occurrences of polished stone axes in particular, which are considered non-utilitarian or 'special' implements, suggest the likelihood of ceremonial activity in the landscape.
- 5.2.4 Bronze Age material has also been recovered from the immediate area. A number of late Bronze Age spearheads were found to the southwest of the site and a large number of metal artefacts were recovered from an area to the northwest. These artefacts included 14 complete socketed axes, various socketed axe fragments, one ring of sheet bronze, a bar with remains of a lateral loop, along with other bronze fragments and copper ingot fragments. Both of these assemblages indicate buried hoards and a third hoard was recorded to the west of the PDA. These metal hoards, as with the preceding Neolithic material, imply a sense of ceremonial activity in the immediate landscape.

5.3 Roman

- 5.3.1 The location of Grays along the Thames River makes it a suitable place for settlement and as a trading port, for which it became known in the late post-medieval period. A Roman settlement at Grays has been suggested by Roman finds and burials discovered throughout the parish. The lack of Roman finds and sites within the search radius of the DBA is possibly attributable to the narrow range of the search and distance of the site from the main town of Grays, in conjunction with the lack of archaeological investigation from later post-medieval quarry pitting.

5.4 Saxon

- 5.4.1 As with the preceding Roman period, there are no Saxon sites or records within the search radius. However, a rural manor and population of 28 was recorded at Grays in 1086 (British History Online) suggesting earlier origins. Grays Hall, reportedly on the site of the ancient manor house, is located to the southeast of the PDA. Grays Parish, formerly Grays Thurrock is within the borough of Thurrock, whose name is of Saxon origins meaning "bottom of a ship". Again, the lack of records is likely in part due to the aforementioned restrictions. A full summary of the medieval history of Grays is outlined in the DBA.

5.5 Post-Medieval

- 5.5.1 The PDA is located beyond the town of Grays and therefore medieval remains are unlikely to be found within the immediacy of the site boundary. The port of Grays was established during the post-medieval period, with regular boat services running to London from as early as the 1630. In spite of the port, Grays remained relatively remote until the 19th century when the road network was improved and extended.
- 5.5.2 The development in communication links were undoubtedly driven by the mineral extraction industry, which has substantially altered the natural topography of the northern part of the parish, in which area the site is located. The majority of HER entries within the search radius

- relate to this extensive quarrying. To the southwest of the PDA a large hole appeared in a garden and was interpreted as being the top of a denehole, a natural sinkhole or quarry shaft.
- 5.5.3 The site of a former brickworks is located to the west of the PDA, which was first operated in 1789 by James Burn and Son. The brickwork then passed into the Messon family and was finally taken over by Grays Chalk Quarries Co. Limited in 1863 until it closed in 1954.
- 5.5.4 In 1777, Grays Hall, originally sited between Orsett Road and Bridge Road, was superseded as the principal house in the parish by Sherfield House, situated east of the High Street (British History Online). The original Grays Hall is thought to have been built on the site of the ancient manor (ibid.). By 1876, Grays Hall was rebuilt to the north of Orsett Road, to the southeast of the PDA and the former Grays hall was redeveloped as Grays Hall Farm, which was subsequently demolished and developed as part of 20th century housing expansion.
- 5.5.5 There were three large houses built to the north of Grays town in the latter half of the 19th century; The Elms built in 1850 within the centre of the current PDA, The Dell immediately southeast and the new Grays Hall southeast of the PDA, built by 1876. The Elms was demolished 1979 and is now the site of Treetops School and Grays Hall has been rebuilt as Grays Hall medical centre. The Dell, built in 1872, is a listed house located immediately southeast of the PDA. The original house, which was damaged during World War Two bombing raids, was constructed by Thomas Wonnacott and is now part of Grays Convent.
- 5.5.6 The earliest available map of this area is Chapman and André Map of Essex dated 1777. The wooded area now known as 'The Dell' which comprised the study area is not marked on this map. The location of various chalk and gravel pits are shown on Chapman and André's map indicating that mineral extraction was already well-established by this period. A short section of track, located approximately where the present Dell Road is situated, is depicted on this map, which suggest access track appears to be extended by 1841 as visible on the tithe map which also shown quarry activity across the area comprising the PDA.
- 5.5.7 The available 1843 first edition OS map depicts an access track leading to the PDA (part of this track was visible on the 1777 map) coupled with an outlined strip of land within the PDA confirms that the site was subjected to mineral extraction. This map also indicates some potential woodland existed at this time and the whole PDA is marked as a wooded area from the 1870s mapping onwards. The name 'The Dell' only appears from the 1898 edition OS map onwards. Extensive quarrying is indicated throughout the 19th century mapping in the area surrounding the PDA.
- 5.5.8 The 1870s OS map shows The Elms within the boundary of the PDA along with various out-buildings including a summer house on the southeast edge of the PDA. The setting of The Elms "in a fairy land, with its deep and picturesque ravine" (British History Online) appears to comprised the entire PDA, although by 1898 at least some of this land belonged to The Dell (built in 1872) as indicated by the later 1898 OS map. The description of the setting of the Elms as a deep ravine and the name 'dell' itself which means a wooded valley or vale supports the suggestion of quarrying activity. Whilst the construction of the Elms will have impacted upon the PDA, the extent of disturbance caused by an associated landscaping and out buildings cannot be ascertain from the mapping.
- 5.5.9 Beyond the quarry activity, there are few changes to the general landscape surrounding the PDA during the 19th century. During the early 20th century, development began to extend north of Grays town although the area immediately surrounding the PDA remained undeveloped at this time. The post-war years saw significant development across the north of Grays town, with extensive housing estates to the west, north and east of the PDA and new road layouts to supports these estates. Within the PDA itself, The Elms appears to have undergone various alterations during the 20th century until it was eventually demolished in 1979 and redeveloped into the present school.
- 5.5.10 The name 'The Dell' does not appear on the mapping or in the historical sources until the late 19th century confirming that the woodland is not ancient, but possibly the result of re-landscaping following significant ground disturbance during quarrying.
- 5.5.11 It is absolutely clear from the mapping how extensively the PDA has been quarried although there appears to be areas towards the southern and eastern edges that may have fallen outside of the quarry activities. The geotechnical survey also suggests that, in spite of significant ground alteration across much of the site, pockets of undisturbed ground are likely

to have survived in the very north of the PDA and the south-eastern area. Much of the northern area has been quarried, as all of the south-west area.

6 ARCHAEOLOGICAL METHODOLOGY

6.1 Methodology

- 6.2 All aspects of the investigation were conducted in accordance with the Chartered Institute for Archaeologist Code of Conduct, the Standard and Guidance for Archaeological Excavation (ClfA 2014), and Standard for Field Archaeology in the East of England (EAA Occasional Paper 14, 2003).
- 6.3 An ecologist (Shaun Baker from Torc Ecology) was present on site during the clearance of Trenches 1, 2, 3, 4 and 9. Trenches 6, 7 and 8 were located in areas where modern tarmac and concrete formed the existing ground level and was clear from ecological constraint.
- 6.4 Machinery and spoil heaps were placed at a safe distance from the root protection zone. Roots larger than 25cm diameter were not observed during the opening of the trenches.
- 6.5 Eight of the nine proposed evaluation trenches were excavated. Due to site access and live service constraints the excavation of Trench 5 was not carried out. All trenches were excavated under constant supervision. Sondages to assess the Palaeolithic potential of the site in Trenches 7, 8 and 9 to in the southern part of the site by Quest, the palaeo-environmental specialist sub-contractors. Trenches 2 and 3, in the north of the site, were sondaged to check the depth of the made ground deposits. The table below details all trenches and sondage dimensions including orientation:

Trench No.	Dimension of Trench	Dimension of sondage	Maximum depth	Depth (OD level)	Trench orientation
1	41.5m by 1.75m	NA	0.15m	15.67m OD	NW-SE
2	47.3m by 1.65m	1m by 1.50m	0.92m	13.79m OD	N-S
3	20.35m by 1.75m	1m by 1.60m	1m	15.15m OD	SW-NE
4	22.20m by 1.60m	NA	0.25m	13.64m OD	N-S
6	11.25m by 1.80m	NA	0.92m	25.51m OD	NE-SW
7	19.05m by 1.75m	1.75 by 1.85m	3.15m	24.20m OD	E-W
8	30m by 2m	2.20m by 2m	2.5m	24.07m OD	N-S
9	14.15m by 2m	2.25m by 2.15m	3.90m	23.33m OD	N-S

- 6.6 The excavation of all trenches was undertaken using a 13 ton JCB type mechanical excavator. The mechanical excavator used a toothless ditching bucket to remove modern overburden under the constant supervision of an archaeologist and of a geoarchaeologist (when required). Spoil was mounded a safe distance from the edges of trench.
- 6.7 Machine excavation continued in spits of 100mm at a time until either significant archaeological strata were found or natural ground exposed.
- 6.8 Following machine excavation, relevant faces of the trench that required examination or recording were cleared using appropriate hand tools. The majority of the investigation of archaeological levels was carried out by hand, with cleaning, examination and recording both in plan and section.
- 6.9 The strategy for sampling archaeological and environmental deposits was developed by PCA (Hawkins 2016) and Peter Allen, geoarchaeologist from Quest. The sondages were undertaken at the end or near the end of the most suitable trenches where potential Palaeolithic/Pleistocene deposits were exposed (only in the southern part of the site). The depth and extent of the sondages was determined by the need to sufficiently characterise the sediments and stratigraphy. Sampling of Pleistocene gravels for recovery of lithic and ecofactual remains was undertaken. A WSI for the test pitting work was produced by PCA geo-archaeologist sub-contractor, QUEST, based at the University of Reading (Quest 2016) and the results are reported separately (Quest, forthcoming).
- 6.10 All archaeological features (stratigraphic layers, cuts, fills, structures) were evaluated by hand tools and recorded in plan at 1:20 or in section at 1:10 using standard single context recording system. Features were evaluated so as to characterise their form, function and date. Fabric samples were taken from brickwork structures and environmental samples from the southern part of the site were tested on site.

- 6.11 The recording system adopted during the investigation was fully compatible with those widely used elsewhere in Essex. The site was organised to be compatible with the archaeological archives produced in the Thurrock area.
- 6.12 A full photographic record was made during the archaeological investigation consisting of a digital photographic archive that was maintained during the course of the archaeological investigation.
- 6.13 The complete archive produced during the evaluation, comprising written, drawn and photographic records, will be deposited with the Thurrock museum under the site code ETDG16.
- 6.14 Four temporary benchmarks (TBM1 to 4) were established across the site with a GPS. The list below detail their OD levels and positions:

TBM	OD level	Location
1	27.17	Positioned to north of Trench 9
2	26.42	Positioned to the east of Trench 8
3	27.22	Positioned to the northwest of Trench 7
4	16.27	Positioned to the north of Trench 3

7 ARCHAEOLOGICAL SEQUENCE

7.1 Phase 1: Gravel Terrace

- 7.1.1 The earliest deposit encountered on site during the archaeological evaluation was moderately loose mid brownish yellow sandy gravel. This deposit was exposed at the bases of Trenches 6, 7, 8 and 9, all located in the southern part of the site. The table below details all contexts interpreted as terrace gravel:

Evaluation Trench	Context No.	Highest level	Thickness	Section No.
6	15	25.88m OD	0.24m	8
7	13	26.48m OD	2.29m	7
8	6, 7	25.63m OD	1.56m	2
9	2	26.53m OD	3.26m	1

- 7.1.2 The terrace gravel was excavated by machine in sondages located within Trenches 7, 8 and 9. The gravel was dry sieved on site in an attempt to recover lithics and the result of this exercise is detailed in the geoarchaeological assessment (Quest forthcoming). The sondage in Trench 7 was excavated to a maximum depth of 24.20m OD, in Trench 8 to 24.07m OD and in Trench to 23.33m OD. None of the test pits were deep enough to expose the natural chalk deposit and no evidence of prehistoric occupation was recorded on site during the evaluation.



Plate 1: Sondage in Trench 9, looking southeast



Plate 2: Sondage in Trench 7, looking southwest

7.2 Phase 2: Undated Mixed Sandy Gravel

7.2.1 In the southern part of the site, the terrace gravel was overlaid by dark greyish brown silty sandy gravel. This deposit, observed in Trenches 6, 7, 8 and 9 did not produced dating evidence. The mixed nature of this deposit was probably the result of bioturbation caused by the substantial vegetation which covered this part of the site before the late post-medieval development of the site. Moreover it is possible that the southern part of the site underwent extensive truncation from the second half of the 19th century consisting of landscaping in preparation for the construction of The Elms as shown on the Ordnance Survey map of 1870s. The table below details all deposits ascribed to this Phase 2:

Evaluation Trench	Context No.	Highest Level	Thickness	Section No.
6	14	26.08m OD	0.22m	8
7	12	27m OD	0.52m	7
8	5	26.02m OD	0.40m	2
9	1	26.89m OD	0.31m	1

7.3 Phase 3: Post-Medieval Occupation

7.3.1 In the north half of Trench 9, Phase 2 deposit [1] was truncated by a series of sub-rectangular and parallel cut features recorded as [25], [23], [3] and [21]. Their orientation was approximately north-west south-east and their size varied between 1.75m long by 0.75m width and 1.60m long by 0.60 wide. Fill [4] of cut feature [3] was partially excavated in order to characterise its form, function and date. Only a small fragment of CBM together with a possible residual lithic was recovered from this feature, which was dated to the post-medieval period. These features were interpreted as possible garden features associated with the 19th century development of the site (Figure 4).

7.3.2 In Trench 7 evidence of late post-medieval occupation was observed in the form of a series of masonry foundations all north-west south-east orientated. These masonries, which extended beyond north and south limit of excavation of Trench 7, were recorded as context [8], [9], [10] and [11]. Masonries [8] and [9], which seemed to join together beyond the south limit of excavation of Trench 7, consisted of a substantial concrete foundation upon which the brick element of the masonry was built, at a level of between 26.86m OD and 26.65m OD. Masonry [9] measured 1.65m north-west south-east and was, 1.30m wide with the brick work about 0.22m high whilst masonry [8] measured 1.75m north-south with a maximum width in the north of 1.35m. Masonries [8] and [9] seem to form a north-west south-east orientated structure with a curvilinear southern wall. This structure, together with the other north-west south-east orientated masonry [10] and [11] is very likely to belong to a building located in an area labelled as The Elms on the Ordnance Survey map of 1870 (see Figure 6).



Plate 3: Trench 7 showing masonries [8] and [9], looking southwest

- 7.3.3 In the north part of the site, Trenches 1 to 4 revealed late post-medieval deposits directly sealed by the turf and top soil. Sondages excavated in Trenches 2 and 3 revealed that this deposit extended at depths of between at least 0.90m below ground level (BGL) and 1m BGL. The approximate OD level in the north part of the site was recorded at 16m which represents a 10-11m drop from the south part of the site downwards to the north. Moreover the late post-medieval deposits recorded in Trenches 1 to 4 consisted of a mixed sandy silt matrix with moderate chalk flakes and small fragment and moderate CBM fleck and fragment inclusions. No evidence of terrace gravel or in situ chalk was observed in this part of the site which was interpreted as part of the extensive sand and chalk 19th century quarry as depicted in the historical maps.



Plate 4: Sondage in Trench 2 showing 19th century deposits, looking east.

- 7.3.4 Finally the post-medieval activity described in Trenches 6, 7, 8 and 9 was sealed by modern mixed ground levelling/consolidation layers associated with the 20th century development of the site when The Elms underwent various alterations (Jones and Hogan 2015).

8 INTERPRETATION AND CONCLUSIONS

8.1 Aims and Objectives of the Archaeological Evaluation

- 8.1.1 The purpose of the archaeological evaluation was to identify, excavate and record the location, extent, date and character and state of preservation of any archaeological remains on the site which are likely to be threatened by the proposed development, and to identify their significance in a local, regional, and national context, as appropriate, with reference to the East Anglian regional research agendas.
- 8.1.2 The evaluation aimed to provide sufficient information to enable the formulation of a suitable management/investigation strategy for the site's heritage assets, in light of the current redevelopment proposals (Havis 2016).
- 8.1.3 The evaluation provided a predictive model of the archaeological remains present and likely to be present on the site also including an appraisal of their significance. In order to achieve this the evaluation trenching were combined with data obtained from geotechnical trial pits (TP 1 to 15, Figure 2) carried out on site in 2015 (Soiltechnics 2015)

8.2 Borehole Data

- 8.2.1 Data from the logs of sixteen trial pits was use in combination with the evaluation trenching (Evaluation Trenches 1 to 9) to provide a predictive model for the archaeological potential of the site. The table below details the description of the deposits observed during the geotechnical test pitting in 2015 (ibid.):

Trial Pit (TP)	Thickness of Modern Deposits	Terrace Gravel/Thickness	Chalk Deposit
TP1	3.40m	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP2	3.50m	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP3	3.60m	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP4	2.80m	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP5 (N)	1.10m	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP5 (S)	3.10m	N/A	NA
TP6	0.20	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP7	0.20m	N/A	Seaford Chalk Formation and Newhaven Chalk Formation
TP8	4.20m	N/A	NA
TP9	0.80m	Boyn Hill Gravel (2.40m)	Not reached
TP10	1.20m	Boyn Hill Gravel (2.50m)	Not reached
TP11	0.80m	Boyn Hill Gravel (2.40m)	Not reached
TP12	0.70m	Boyn Hill Grave (3.10m)	Not reached
TP13	0.70m	Boyn Hill Gravel (1.80m)	Not reached
TP14	0.60m	Boyn Hill Gravel (3m)	Not reached
TP15	1.20m	Boyn Hill Gravel (2.20m)	Not reached

- 8.2.2 The trial pits excavated in 2015 were distributed across the site in the northern and southern part of the site. The table clearly shows that TP 1 to 8, all located in the north part of the site, recorded late post-medieval/modern deposits varying in thickness between 0.20m (TP6 and

- 7) and 3.50 (TP2). The thickness of the post-medieval/modern deposits increased in thickness from the very north part of the site (TP6 and 7) to the south as recorded in the locations of TP1 to 5. Here, Seaford Chalk and Newhaven Chalk Formations were sealed by the late post-medieval/modern deposits. No evidence of terrace gravel was recorded in the north part of the site. As a result it is clear that this part of the site underwent significant truncation during the post-medieval/modern periods, associated with the quarrying of sand and chalk, as attested by documentary evidence (see archaeological background). The OD level in the north part of the site was recorded at 16.24m (TBM4). This was approximately 11m below the level recorded in the very south part of the site where the OD level was recorded at 27.17m (TBM1).
- 8.2.3 The trial pits excavated in the southern part of the site (TP9-15) all recorded substantially thick deposits of terrace gravel varying between a maximum thickness of 3.10m in TP12 and a minimum thickness of 1.80m in TP14. However, none of the trial pits in the southern part of the site was deep enough to reach the base of the terrace gravel and underlying Seaford Chalk and Newhaven Chalk Formations. The southern part of the site sloped gradually from a highest level of 27.17m OD (TBM1) in the south-east corner of the site downwards to the north in the central part of the site to a level of 26.42m OD (TBM2).
- 8.2.4 The archaeological evaluation confirmed the results from the geotechnical test pits carried out in 2015. Trenches 6 to 9 all located in the south part of the site recorded terrace gravel between 26.53m OD in Trench 9 and 25.63m OD in Trench 8. Sondages were excavated in Trenches 7, 8 and 9 in an attempt to reach the top of the underlying chalk formation without success.
- 8.2.5 Trenches 6 to 9 were potentially positioned in a part of the site which was deemed to have the highest potential for the preservation of archaeological early prehistoric deposits. However the archaeological evaluation did not record any evidence of in situ deposits dating to the early prehistoric period.
- 8.2.6 The archaeological evidence from the southern part of the site also shows that this area underwent extensive re-landscaping during the post-medieval period with a significant impact upon the archaeological resource.
- 8.2.7 Archaeological evidence for post- medieval occupation was recorded across the site. In Trench 7 a number of north-west south-east orientated masonry features were recorded (see Phase 3). These masonries are part of a north-west south-east orientated building as shown on the Ordnance Survey map of 1870 where the area occupied by the site is labelled as 'The Elms' (see Figure 6).

9 ACKNOWLEDGEMENTS

- 9.1 Pre-Construct Archaeology Ltd would like to thank Keepmoat for commissioning the archaeological work. Thanks also to Richard Havis, Historic Environmental Advisor for Essex County Council for his brief and advice on the trial trenching at Treetops; Shaun Baker of Torc Ecology for his advice and support on site for the mitigation of the impact of the archaeological work on the protected fauna and flora within the site; special thanks also to Peter Allen, geoarchaeologist from QUEST for his sampling on site, his report and his advice and support during the evaluation.
- 9.2 Furthermore the author would also like to thank: Chris Mayo and Helen Hawkins for project managing and editing this report; Jennifer Simonson for the illustrations; John Joyce and Tiberius Nica for the logistic support; James Webb and Leonardo Penades for their work on site and Jimmy from O'Connell for opening the trenches by machine.

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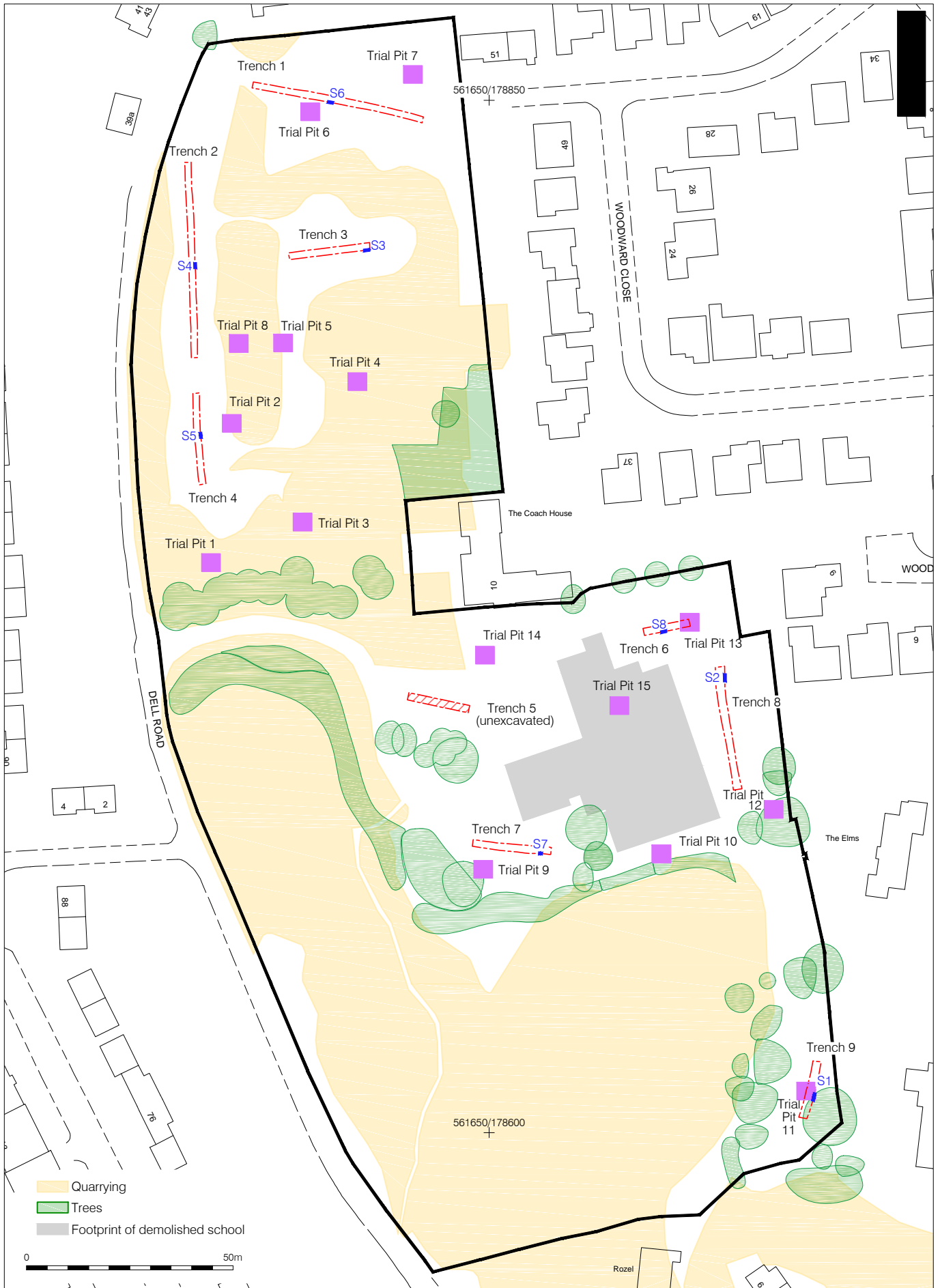
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Figure 1
 Site Location
 1:2,000,000 and 1:20,000 at A4



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Figure 2
Trench Locations
1:1,250 at A4

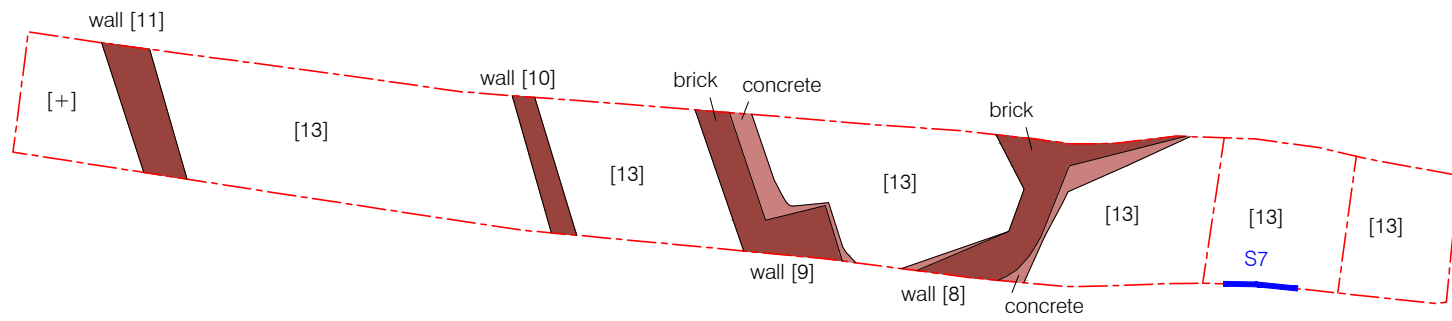
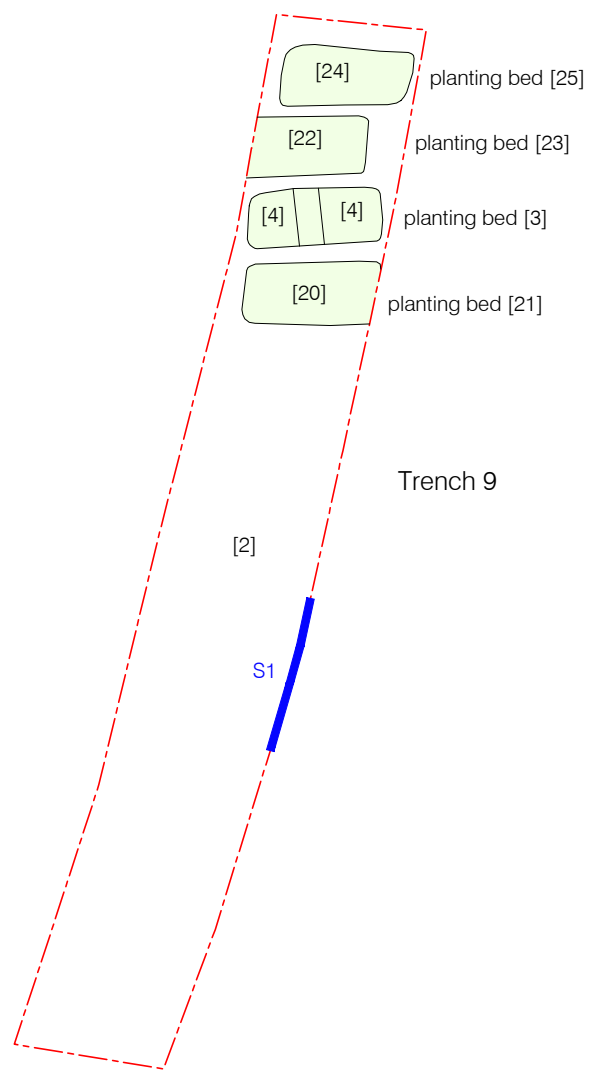
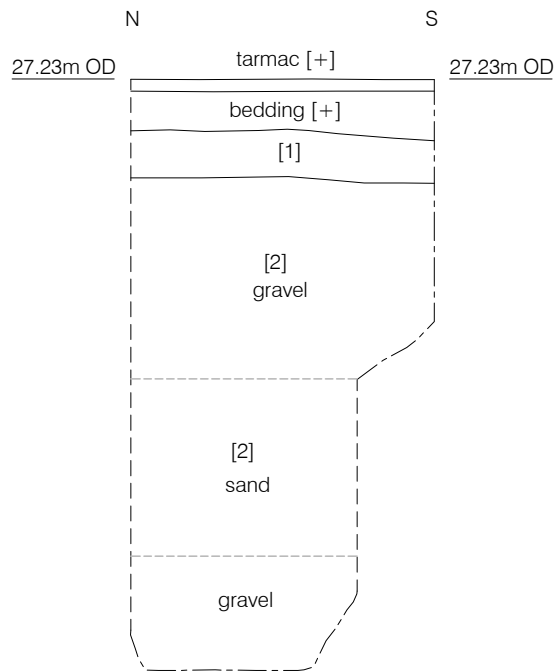


Figure 3
Plan of Trench 7
1:100 at A4

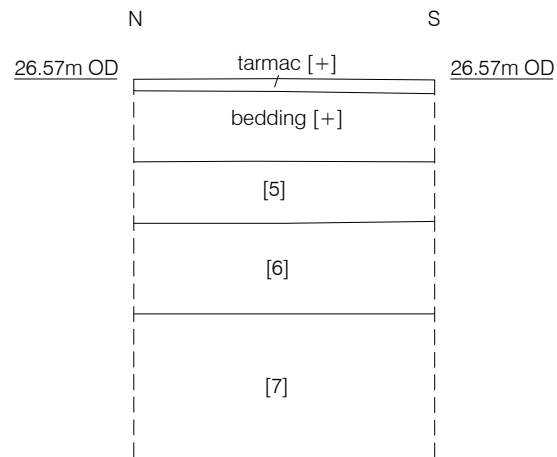


0 5m
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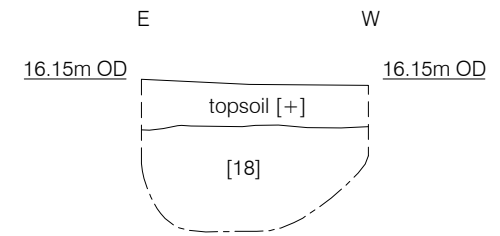
Figure 4
Plan of Trench 9
1:100 at A4



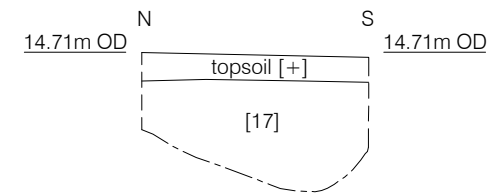
Section 1
Trench 9
West Facing



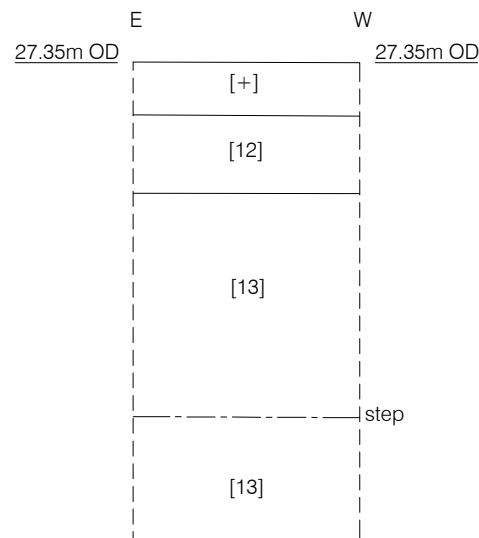
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Trench 8
West Facing



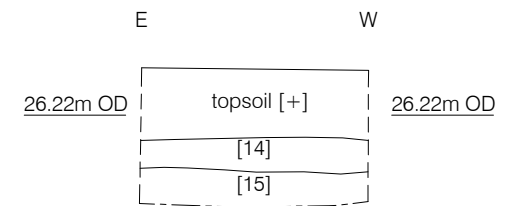
Section 3
Trench 3
North Facing



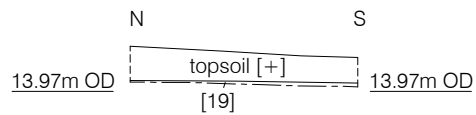
Section 4
Trench 2
West Facing



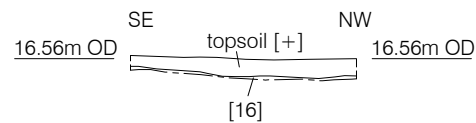
Section 7
Trench 7
North Facing



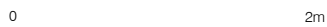
Section 8
Trench 6
North Facing

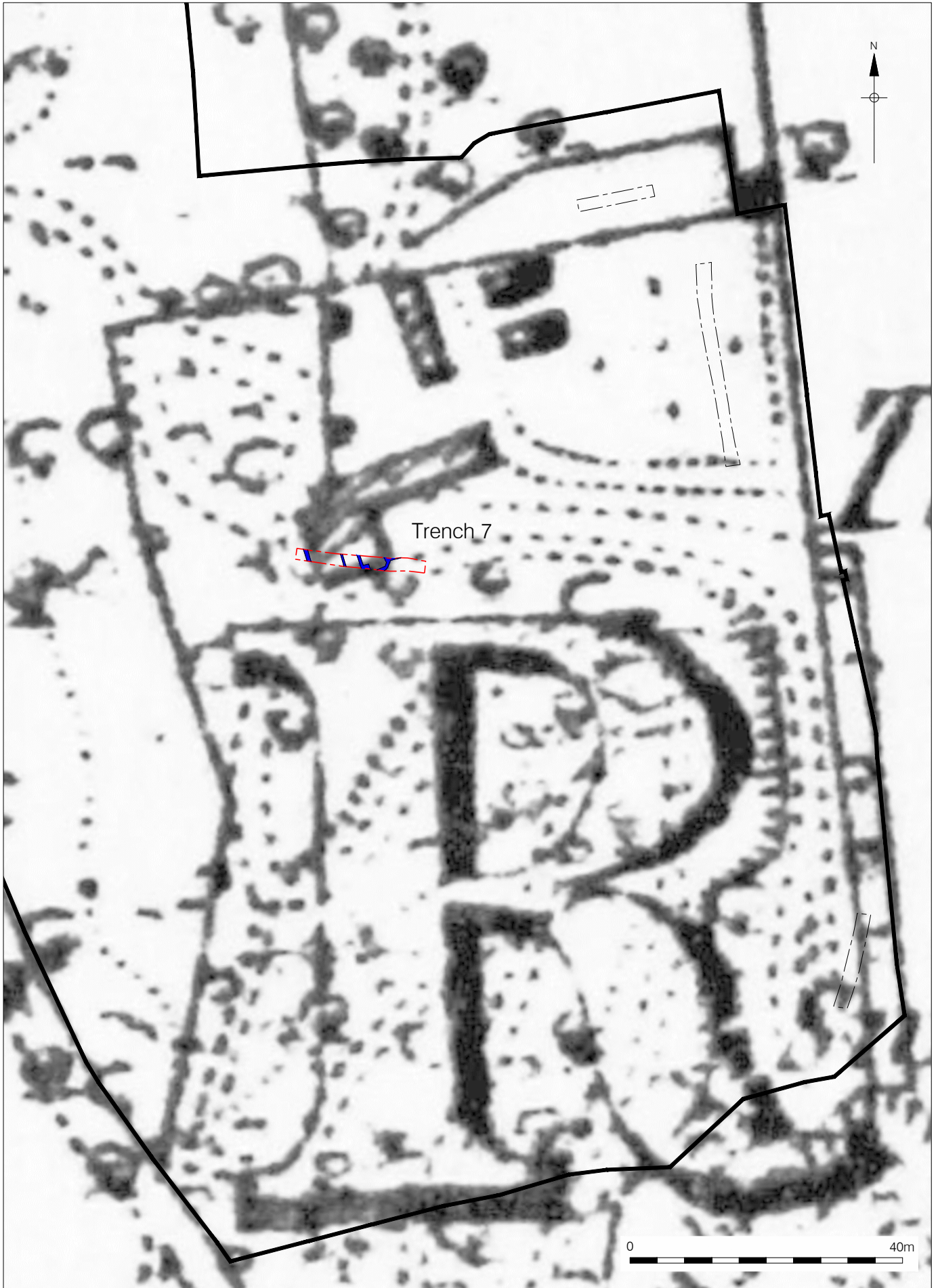


Section 5
Trench 4
West Facing



Section 6
Trench 1
Northeast Facing

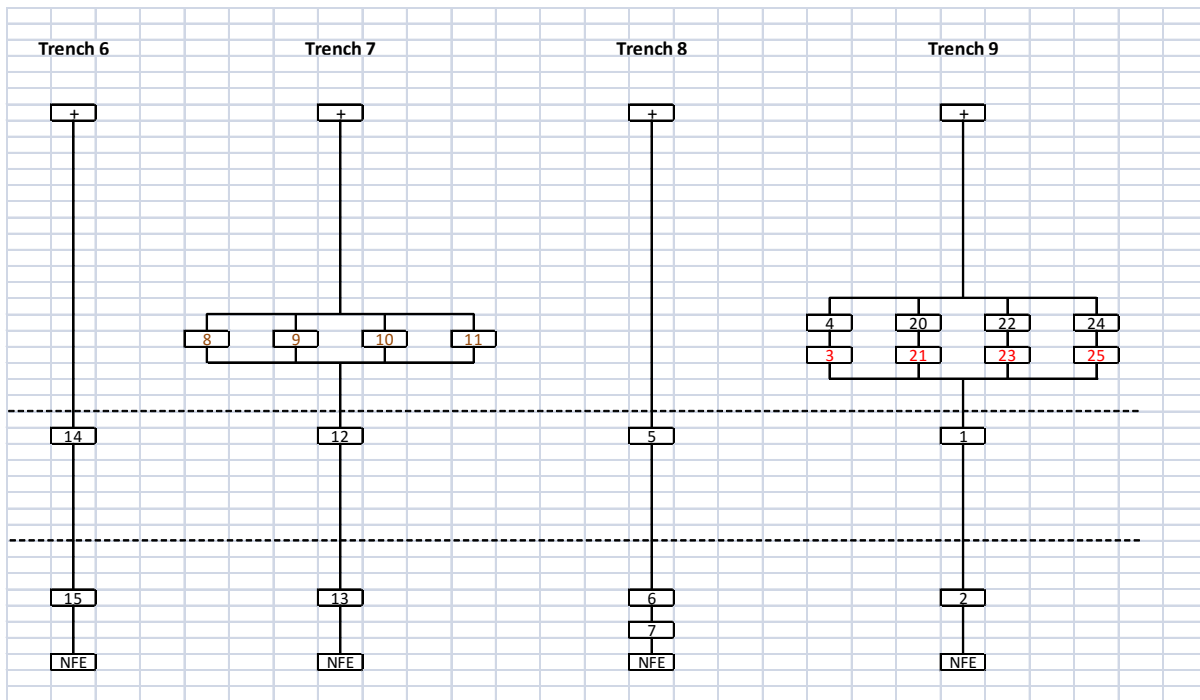
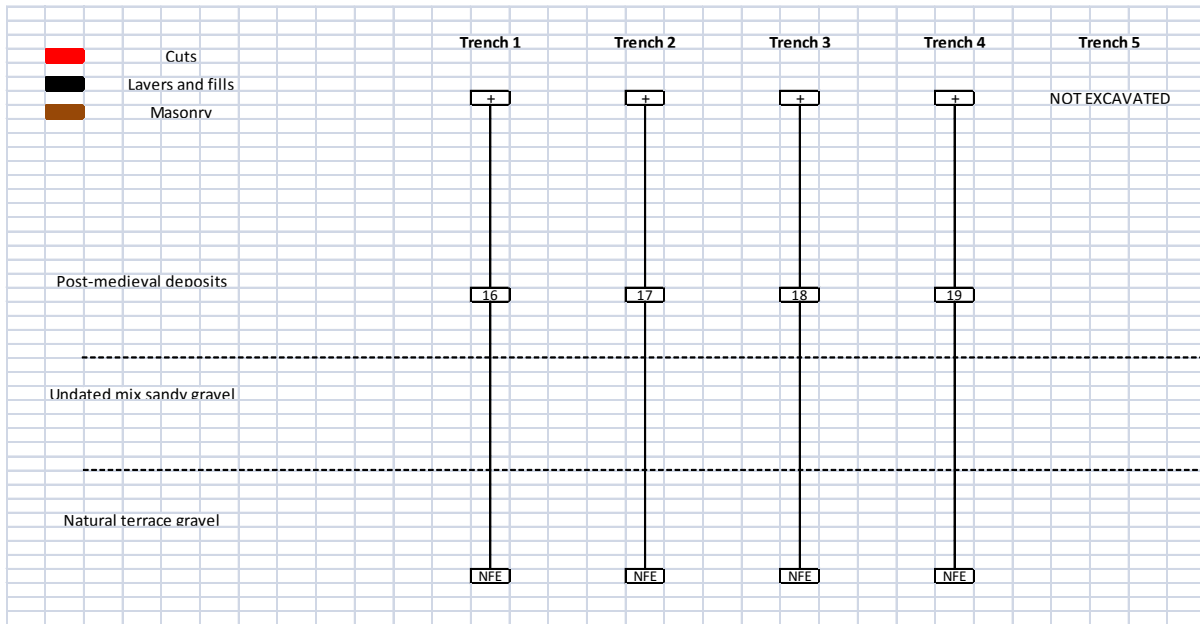




APPENDIX 1: CONTEXT INDEX

Context No.	Trench No.	Phase	Plan	Section	Type	Description	Highest Level	Lowest Level	Test Pit
1	9	2	Tr. 9	1	Layer	Gravelly sub-soil	26.89m OD	26.83m OD	
2	9	1	Tr. 9	1	Layer	Natural sandy gravel	26.53m OD	26.53m OD	Yes
3	9	3	Tr. 9	NA	Cut	Post-med cut filled by [4]	26.49m OD	26.39m OD	
4	9	3	Tr. 9	NA	Fill	Fill of post-med cut [3]	26.49m OD	26.47m OD	
5	8	2	Tr. 8	2	Layer	Gravelly sub-soil	26.02m OD	26.02m OD	
6	8	1	Tr. 8	2	Layer	Natural sandy gravel	25.63m OD	25.63m OD	Yes
7	8	1	Tr. 8	2	Layer	Natural sand	25.02m OD	25.02m OD	Yes
8	7	3	Tr. 7	NA	Masonry	Cuvilinear masonry (19th c.)	26.86m OD	26.65m OD	
9	7	3	Tr. 7	NA	Masonry	NW-SE orientated masonry	26.65m OD	26.43m OD	
10	7	3	Tr. 7	NA	Masonry	NW-SE orientated masonry	26.95m OD	26.91m OD	
11	7	3	Tr. 7	NA	Masonry	NW-SE orientated masonry	26.93m OD	26.60m OD	
12	7	2	Tr. 7	7	Layer	Gravelly sub-soil	27.00m OD	26.99m OD	
13	7	1	Tr. 7	7	Layer	Natural sandy gravel	26.48m OD	26.46m OD	Yes
14	6	2	Tr. 6	8	Layer	Gravelly sub-soil	26.08m OD	25.88m OD	
15	6	1	Tr. 6	8	Layer	Natural sandy gravel	25.88m OD	25.84m OD	
16	1	3	Tr. 1	6	Layer	19th/20th century layer	17.48m OD	15.67m OD	Yes
17	2	3	Tr. 2	4	Layer	19th/20th century layer	15.28m OD	13.79m OD	Yes
18	3	3	Tr. 3	3	Layer	19th/20th century layer	15.88m OD	15.30m OD	Yes
19	4	3	Tr. 4	5	Layer	19th/20th century layer	13.74m OD	13.64m OD	Yes

APPENDIX 2: SITE MATRIX



APPENDIX 3: OASIS FORM

OASIS ID: preconst1-254643

Project details

Project name	Archaeological Evaluation on Land at Treetops, Dell Road, Grays, Essex
Short description of the project	This report details the result of an archaeological evaluation undertaken by Pre-Construct Archaeology on behalf of Keepmoat on land off Dell Road, Grays, Essex RM17 5RP. The archaeological work was conducted between 31st May and 3rd June 2016. Nine evaluation trenches (Trenches 1 to 9) were proposed across the site. Only Trench 5 was not excavated for logistic and health and safety reasons. No evidence of prehistoric occupation was observed during the evaluation of the north part of the site. This area was situated at approximately 16m OD and the natural geology comprised Seaford Chalk Formation and Newhaven Chalk Formation. The natural chalk was extensively overlain by late post-medieval/modern deposits associated with sand, gravel and chalk quarrying activity carried out at the site from the 19th century. No evidence of terrace gravel was observed in the north part of the site. It was clear, given the level of the northern part of the site compared to the southern part of the site, that the northern part had been extensively horizontally truncated by historic quarrying. Evaluation Trenches 6 to 9 were all located in the southern part of the site at a level of approximately 27m OD, and revealed thick deposits of terrace gravel. No archaeological evidence for prehistoric occupation of the site was observed during the evaluation. The terrace gravel in Trenches 7, 8 and 9 was tested by a geoarchaeologist for evidence of lithics. Evidence for late post-medieval occupation of the site was observed in Trench 7 where a number of masonry foundation orientated north-west south-east were recorded. These foundations were part of a building as shown on the Ordnance Survey map of 1970. The site is labelled as 'The Elms' on this map.
Project dates	Start: 31-05-2016 End: 03-06-2016
Previous/future work	No / Not known
Any associated project reference codes	ETDG16 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Vacant Land 1 - Vacant land previously developed
Monument type	WALL Post Medieval
Significant Finds	NONE None
Methods & techniques	"Sample Trenches"
Development type	Rural residential
Prompt	Planning condition
Position in the planning process	After full determination (eg. As a condition)
Project location	
Country	England
Site location	ESSEX THURROCK GRAYS Treetops, Dell Road, Grays, Essex
Postcode	RM17 5RP

Study area 3.4 Hectares
Site coordinates TQ 61597 78816 51.484655522769 0.327647637589 51 29 04 N 000 19
39 E Point
Height OD / Depth Min: 23.33m Max: 25.51m

Project creators

Name of Organisation Pre-Construct Archaeology Limited
Project brief originator Richard Havis
Project design originator Helen Hawkins
Project director/manager Helen Hawkins
Project supervisor Ireneo Grosso
Type of sponsor/funding body House builder
Name of sponsor/funding body Keepmoat

Project archives

Physical Archive Exists? No
Digital Archive recipient Thurrock Museum
Digital Archive ID ETDG16
Digital Contents "none"
Digital Media available "Database","Survey","Text"
Paper Archive recipient Thurrock Museum
Paper Archive ID ETDG16
Paper Contents "none"
Paper Media available "Photograph","Plan","Report","Section","Survey ","Unpublished Text","Context sheet"

Project bibliography 1

Publication type Grey literature (unpublished document/manuscript)
Title An Archaeological Evaluation on Land at Treetops, Dell Road, Grays, Essex
Author(s)/Editor(s) Grosso, I
Date 2016
Issuer or publisher PCA
Place of issue or publication London

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