



Environment Agency Shonks Mill Project

Heritage Appraisal Report

25 October 2019

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Executive summary

The Environment Agency has commissioned Mott MacDonald to produce a heritage appraisal report in connection with the proposed Shonks Mill Flood Storage Area Project (FSA) (NGR TQ533995 approximate centre of Project). The heritage appraisal report identifies historic environment constraints from a study area surrounding the proposed FSA and constitutes an update to the preliminary historic environment Assessment carried out in 2016, following consultation with the local authority heritage advisor. As such the report will not comprise a full desk-based assessment as set out in the Environment Agency's Cultural Heritage Minimum Technical Requirements and Product Descriptions. This approach was agreed with the Environment Agency. Later consultations with the local authority heritage advisor have led to further investigations. This was in the form of an aerial survey of the area carried out in 2019 by Place Services. As such, a revised rendition of the report—which includes the additional baseline dataset—has been produced by Mott MacDonald.

The proposed FSA is located on land either side of the River Roding within the county of Essex, upstream from Shonks Mill and extending 1.5km northeast to the Stanford Rivers Waste Water Treatment Works (WWTW). There are cropmarks identified on the flood plain next to the River Roding within and adjacent to the Project area which provide evidence of buried prehistoric and later archaeology. There are also several post-medieval mill related structures identified from historic mapping to the north of Shonks Mills Road bridge, which are likely to survive as archaeological remains.

There is potential for there to be impacts upon the above mentioned archaeological remains from the construction of the proposed works, namely:

- Earth embankment and concrete control structure to the north of Shonks Mill Road bridge;
- Diversion of water channel upstream of Shonks Mill along the historic mill leat;
- Construction of a flood wall around the parameter of Stanford Rivers WWTW;
- Excavation and construction of a new manhole chamber for the proposed installation of pumps within the area of Stanford Rivers WWTW;
- Construction compounds which would provide office and welfare facilities along with secure parking for vehicles (including heavy plant); and
- Material borrow pit to the north of the Shonks Mill Road adjacent to the River Roding.

There are 14 Grade II listed buildings located within the assessment study area. It is however considered unlikely that there would be any impact upon the settings of designated heritage assets as a result of the construction and operation of the above project elements.

It is recommended that in advance of construction (and prior to planning submission), that consultation is undertaken with the local authority archaeological advisor. It is likely that the archaeological advisor will require archaeological evaluation in the form of non-intrusive geophysical survey and intrusive trial trenching on the land required for the construction of the proposed Project. The results of the evaluation will be used to inform the likely archaeological mitigation requirements which may take the form of design changes and/or further archaeological investigation.

It is also recommended that a Level 1 photographic record is made of the straightened mill leat water channel upstream (north) of Shonks Mill Road bridge prior to the proposed diversion works.

Introduction

Project context

Mott MacDonald (MM) was commissioned by the Environment Agency (EA) to produce a heritage appraisal in connection with the proposed Shonks Mill Flood Storage Area (FSA) Project (hereafter “the Proposed Project”). The Proposed Project aims to alleviate the risk of flooding along the River Roding in Essex and is currently at an early stage of development. The proposal of works to form the Shonks Mill FSA will comprise:

- Construction of an earth embankment with a concrete control structure across the Roding valley upstream (north) of Shonks Mill Road bridge;
- Diversion of the straightened River Roding water channel upstream of Shonks Mill along the historic mill leat to facilitate construction of the control structure and to align the control structure with the main road bridge downstream;
- Excavation and subsequent reinstatement of a borrow area to win fill material located north of Shonks Mill Road, east of the River Roding, west of Lady’s Pond;
- A low wall at Stanford Rivers WWTW;
- Various temporary site compounds and temporary access tracks used during construction.

The earth embankment upstream of Shonks Mill Road bridge will be 470m in length and 4.5m high at its highest point. The slopes of the embankment will be at 1:4. The crest will be 5m wide and have an access track on it. The central section of the crest of the embankment, 150m in length, will be 0.5m lower than the rest of the embankment to act as the main spillway. The embankment will be designed to be overtopped in an extreme flood event. This helps to minimise the height of the embankment required. The surface of the main spillway will be cellular concrete blocks with the cells in the concrete planted with grass – “Grasscrete”. There will be a reinforced concrete control structure passing through the embankment which will control the rate of filling of the flood storage area. The control structure will be around 15m total width and formed of six bays of 2.1m width. It will be located around 50m west of the existing river channel and a new channel will be cut to connect the structure with the river upstream and downstream of the earth embankment.

The proposed borrow area will be located on an area of agricultural land east of the River Roding, north of Shonks Mill Road, between the River Roding and Lady’s Pond. The topsoil over an area of about 3.5ha will be stripped and the underlying clay excavated and transported by on-site haulage tracks to the site of the earth embankment location. The area excavated will be shaped with gentle gradients and the topsoil re-placed over the excavation so that it can be returned to agricultural use.

As part of the original proposals—but which were later amended—were plans to construct a reinforced concrete wall along three sides of Thames Water’s Stanford Rivers WWTW (the north-east, south-east and south-west sides).

The now revised proposals, also had planned to install a set of pumps within a new below-ground manhole chamber at the southern end of the Stanford Rivers WWTW site for pumping treated effluent during periods when river levels are too high to discharge by gravity.

Scope

The Environment Agency had initially requested a heritage desk-based assessment be produced to establish any potential constraints or benefits that the Shonks Mill FSA Project might have upon historic environment assets, in order to supplement a preliminary environmental information report (PEIR). Due to the Project being at an early stage of development it was considered prudent to produce a more concise initial heritage appraisal of the possible risks, constraints and opportunities of undertaking the work at this location. This approach was determined following the Preliminary Historic Environment Assessment Scope, produced at the outset of this commission which was agreed with the Environment Agency. At the recommendation of the local authority heritage advisor, additional data relating to the historic environment has been collected in 2019, in the form of an aerial survey of the study area. Its findings have duly been included within the baseline dataset found within this document.

This report will also identify the main constraints and benefits of the Proposed Project in relation to the historic environment and will suggest recommendations for mitigation and further work, if necessary. During the detailed design phase further assessment, along with archaeological evaluation may be required for submission at the next stage with the planning application.

Methodology

The heritage appraisal report will consider all heritage assets within 500m of the centreline of the Proposed Project (Appendix B) along the River Roding at Shonks Mill and will cover potential impacts to assets during the construction and operation of the Proposed Project. This assessment area will be thereafter referred to as the study area.

The following abbreviations have been used to prefix the unique asset reference numbers attributed for each heritage asset:

- **LB** - Listed building, designated heritage asset
- **NDHA** - Non-designated heritage asset

All heritage assets with corresponding unique asset reference numbers are listed in Appendix A, and locations are shown in Appendix B.

The following sources have been consulted in order to establish the baseline condition for the heritage appraisal report:

- Historic England National Heritage List for England (designated assets);
- Essex County Council Historic Environment Record (non-designated assets and crop mark);
- Archaeology Data Service, Historic Mapping and British Geological Survey data
- A site walkover survey has been undertaken across the entire study area including the proposed FSA.

This proposed heritage appraisal report has been carried out in line with the basic principles of the following guidance documents:

- Environment Agency Cultural Heritage Minimum Technical Requirements and Product Descriptions;
- Historic England guidance
 - Conservation Principles (2008)

- Historic Environment Good Practice Advice in Planning Note 2: Managing decision taking in the historic environment (2015)
- Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets (2015)
- Standard and Guidance from the Chartered Institute of Archaeologists (CIfA, 2014).

Legislation and Policy

Overarching Legislation

The overarching legislation in relation to archaeology in Britain is provided by:

- The Ancient Monuments and Archaeological Areas Act 1979; and
- The Planning (Listed Buildings and Conservation Areas) Act 1990.

National Planning Context (NPPF)

The updated National Planning Policy Framework (NPPF) was published on 19th February 2019. The NPPF sets out guidelines for Local Planning Authorities and developers alike, stating that the local authority should require the developer to record and advance understanding of the asset to be lost (wholly or in part) in a manner 'proportionate to their importance and the impact' and to ensure this evidence is publicly accessible.

Local Planning Policy

The study area falls within the remit of both Epping District Council and that of Brentwood Borough Council.

Epping District Council

The local planning policies relevant for the historic environment within the jurisdiction of Epping District Council (to the north and west of the Proposed Project) are contained in Combined Policies of Epping Forest District Local Plan (1998) and Alterations (2006) document, published by Epping Forest District Council in February 2008. This document provides interim local planning guidance during the preparation of a new Local Plan.

The relevant policies identified below have been saved from the 1998 Local Plan which will be replaced by a new Local Plan in the near future.

Policy HC1 – Scheduled Monuments and other archaeological sites

On sites of known or potential archaeological interest, planning permission will only be granted for development which would not adversely affect nationally important remains, whether scheduled or not, or their settings. The Council will also require:

- The results of an archaeological evaluation to be submitted as part of an application;
- The preservation in situ, and provision for appropriate management, of those remains and their settings considered to be of particular importance;
- Provision for recording and/or excavation by a competent archaeological organisation prior to the commencement of development, where in situ preservation is not justified.

Policy HC12 – Development affecting the setting of listed buildings

The Council will not grant planning permission for development which could adversely affect the setting of a listed building.

Brentwood Borough Council

The local planning policies relevant for the historic environment within the jurisdiction of Brentwood Borough Council (to the south and east of the Proposed Project) are contained in

Brentwood Replacement Local Plan (2005) with saved policies (2008) document, published by Brentwood Borough Council in August 2008. This document provides interim local planning guidance during the preparation of an emerging Local Development Plan. It also must be noted that a Draft Local Plan was published in 2016

The relevant saved policies from the (2008) saved policies document are:

Policy C16 – Development within the vicinity of a listed building

Proposals for development in the vicinity of a listed building will not be permitted where the proposals would be likely to detract from its character or setting.

Policy C18 – Ancient monuments and archaeological sites

Where important archaeological sites and monuments, whether scheduled or not, and their settings are affected by a proposed development, there will be a presumption in favour of their preservation in site. In situations where there are grounds for believing that the proposed development would affect important archaeological sites and monuments development will be required to arrange for an archaeological field assessment to be carried out before the application can be determined thus enabling an informed and reasonable planning decision to be made. In circumstances where preservation is not possible or feasible, then development will not be permitted until satisfactory provision has been made for a programme of archaeological investigation and recording prior to the commencement of the development.

Existing Baseline

Site Location

The Proposed Project is located on land either side of the River Roding within the county of Essex, upstream from Shonks Mill Road bridge (NGR TQ528982), to the Stanford River Waste Water Treatment Works (NGR TQ546998) located 1.5km northeast.

Site Geology

The underlying geology across the Proposed Project is London Clay. This sedimentary Bedrock formed approximately 34 to 56 million years ago when the local environment was dominated by deep seas.

The superficial geology is more complex given the sites position following a river system which sits atop an Alluvium deposit of Clay, Silt, Sand and Gravel which was formed up to 2 million years ago. Surrounding this alluvium deposit is a mixture of River Terrace Deposits and Taplow Formation, both formed of Sand and Gravel detrital material deposits from rivers in the Quaternary period (up to 2-3 million years ago). On the periphery of these deposits are deposits of Head made up of Clay, Silt and Gravel, formed again in the Quaternary period, reflecting a previous local environment dominated by subaerial slopes. The wider landscape has deposits of Lowestoft Diamicton formation which reflects a previous environment dominated by ice age conditions in the Quaternary period.

Site Topography and Character

The elevation of the River Roding as it enters the study area is approx. 37m AOD, dropping to an elevation of 32m AOD as it exits to the south. The river channel sits in a shallow valley surrounding by arable fields and areas of woodland.

The landscape of the Proposed Project can be characterised as rural in-land river valley. The site follows the flow of the River Roding as it winds its way from northeast to southwest. Historic mapping suggests the landscape has historically been used as arable land, with Shonks Mill utilising the power of the channelled river flow. The historic mapping also identifies that the land surrounding the river is liable to flooding.

Walkover Survey

A walkover survey of the study area and Proposed Project was conducted on 29th February 2016. Observation was carried out across the study area in relation to direct and indirect effects, as appropriate to the level of importance of each affected heritage asset and likely change to the asset's settings.

During the walkover survey a fragment of post-medieval pottery was found within the plough soil north of the River Roding to the west of the Stanford River WWTW (**NDHA 29**).

Historic Map Regression

The table below lists the relevant historic mapping along with a summary of highlighted features and changes relevant to the historic environment assessment for the Proposed Project.

Title	Date	Description	Reference
County Series 1:2,500	1873	Map shows a rural landscape; fields are divided up into irregular shaped land parcels along with a river lined with trees. Two areas of woodland are shown to the south of the Proposed Project – Ireland Grove and Colliers Spring. The original meander of the River Roding marks the parish boundary. All of the land adjacent to the river is identified as liable to flood. A footpath runs along the eastern and southern banks of the river. Shonks Mill (Flour) is an L-shaped structure straddling the mill race/canalised section of the Roding. A gravel pit is located to the north-west of Shonks Mill at the north-eastern edge of an area of woodland. A small number of groups and individual buildings are situated at a bend in the road to the south of Shonks Mill and what appear to be farm buildings are situated to the north-east.	Ordnance Survey
County Series 1:10,560	1880-81	The Union Workhouse is shown to the north-west of the sewage treatment works.	Ordnance Survey
County Series 1:2,500	1896	This map does not show trees lining the river or field boundaries. Many of the fields within and surrounding the Proposed Project have merged to create much larger fields, indicative of the use of modern agricultural machinery perhaps. Two of the farm buildings to the north-east of the mill have been demolished. Shonks Mill is now shown as disused. The Gravel Pit is no longer annotated though the depression is still depicted.	Ordnance Survey
County Series 1:2,500	1920	Shonks Mill has been demolished. The land to the north of the former mill is labelled 'liable to flood'. The farm buildings to the north-east of the former mill have been demolished and the number of buildings situated at the bend in the road to the south of the mill has been reduced; there is now what appears to be two semi-detached residential properties. There is no longer a depression shown in the location of the gravel pit to the north-west of the mill. Several ponds are shown in the fields.	Ordnance Survey
OS Plan 1:2,500	1971	Shonks Mill Road and Mill Lane are now annotated. Very little change is identifiable on this map. A property called 'Riverside' is depicted on the mill island between the mill race and the original river meander. A large rectangular structure is present on the western side of Mill Lane. Shonks Mill House has replaced the semi-detached properties on the eastern side of Mill Lane. The mill pond has considerably reduced in size. Some of the fields have merged to create larger fields more suitable for modern agricultural farming methods. The sewage treatment works is now shown and the surrounding field layout has been altered accordingly.	Ordnance Survey

Archaeological Background

All heritage assets within the study area are listed in Appendix A, and locations are shown in Appendix B. The following provides a narrative of the archaeological and historic background to the study area:

Prehistoric (700,000 – AD 43)

The early prehistoric period is not well represented in the surrounding landscape with only a few flint fragments found within the 500m study area, located 300m north of the WWTW, which date mostly from the Neolithic, though with some possibly from the Mesolithic period (**NDHA 1**). This assemblage also included bone and a potential burnt clay loom-weight which suggests a site of possible refuse from a nearby contemporary settlement.

A small number of Bronze Age records highlight activity within the landscape from the later prehistoric periods, such as bracelets and charcoal (**NDHA 5**) found 400m to the northeast of the WWTW along with charred flint fragments and pit features found during archaeological evaluation 300m southwest of the proposed earth embankment flood barrier (**NDHA 17**).

Crop mark features identified within the Proposed Project are indicative of possible Bronze Age activity within the landscape (**NDHA 6-9,11-12**); however, dating these features remains uncertain and based on local topographic analysis. Some of these features are described within the local Historic Environment Record tentatively as ring ditches, ploughed out round barrows and enclosures. It is possible that these are contemporary to the middle Bronze Age ring ditch discovered within the flood plain of the River Roding approximately 1.5km southwest of the study area at Passingford Bridge, Stapleford Tawney (Biddulph & Brady, 2016). The cropmarks of asset **NDHA 6** were partially removed during the excavation of the now present reservoir at NGR TQ 54414 99887. No detailed record of this excavation is held by the Essex HER or Archaeological Data Service.

Romano-British (AD 42 – AD 410)

There are very few records across the surrounding landscape which date from the Romano-British period. Within the study area there is only one record from this period which relates to building material (**NDHA 16**) found during archaeological works for the pipeline associated with assets **NDHA 17, 20** and **21**, located 300m west of the proposed earth embankment flood barrier.

Medieval (AD 410 – 1550)

The Domesday Book records Stanford [Rivers] to the north as being a large settlement with 66 households with 24 villagers, 17 smallholders, 16 slaves, one free man, with extensive land for ploughing, as well as woodland and meadow (Open Domesday, 2016). Navestock is also recorded to the south as being similarly large in size with a diverse audit of livestock and extensive amount of land for ploughing, as well as woodland and meadow.

The Domesday Book of 1086 records Stanford [Rivers] as having one Mill (**NDHA 4**), however no location is given with which to identify this medieval structure. It is unlikely to be the same mill location as Shonks Mill on account of Littlebury Mill (NGR TL550010) being situated closer to Stanford Rivers. The original route of the River Roding denotes the boundary between the parish of Stanford Rivers (northwest) and the parish of Navestock (southeast). It has been suggested that Shonks Mill may have been the site of a mill dating back to the 13th century associated with Navestock, and which at one point was called Navestock Mill (Sier, 2016, p. 9).

Evidence of medieval activity from within the study area comes through built heritage, document records of sites and pottery remains. Murrells Farmhouse (**LB7**) and Hare Cottage (**LB5**) are two designated built heritage assets which date from the medieval period. There are also a number of records of medieval pottery sherds previously found during archaeological works within the study area (**NDHA 3,10,21,24**); this further confirms the extent of medieval activity from across the wider landscape. The area of the Proposed Project was historically arable and liable to flooding and therefore most likely used for agriculture and/or water meadows during the medieval period. None of the above-mentioned medieval assets fall within the Proposed Project.

Post-medieval (AD 1550 – 1900)

The majority of designated heritage assets within the study area date from the post-medieval period and have been listed grade II. These reflect groups of structures which largely share the same grouped heritage settings, reflecting their status as rural homes within an arable

landscape (**LB1,3-4,6,8,10-12**) as well as being associated with older properties (**LB2,9**), or for being public houses serving the local contemporary communities (**LB13-14**).

The outbuildings of Waylett House (**NDHA 13**), previously listed by curtilage, are no longer designated and have had their settings negatively affected significantly through the destruction of the original house which pre-dated it (**NDHA 14**). A windmill (**NDHA 19**) located 50m southwest of the proposed earth embankment flood barrier is also no longer extant, with only a record of its previous location and existence remaining. This windmill is identifiable on both Bland et al 'A New and Correct Map of Middlesex, Essex' of 1724 and Enfield's map of 1799. Fragments of post-medieval material found during archaeological works further evidences the extent of activity within the study area from this period.

The name Shonks Mill is recorded in 1566 in connection with the bridge adjacent to the mill being in need of repair (Sier, 2016, p. 9). A map of 1835 which was based on an early map of 1785 marks the parish boundary as being the original route of the river prior to its rechanneling in connection with the rebuilt Shonks Mill (**NDHA 27**) and its ancillary farm buildings (**NDHA 30**). The straightened water channel (**NDHA 28**) which runs to the location of the historic Shonks Mill within the Proposed Project is an artificial water course which would have been used at a mill head race (leat) as part of the mills water management system. This is not recorded within the HER and is not a designated heritage asset. It does however hold low heritage significance.

Cropmark evidence for the post-medieval period is located across the study area, with multiple records containing likely post-medieval field boundaries and possible extraction pits (**NDHA 2,6-9,11-12,22-23**). A small fragment of window glass (**NDHA 25**) was recovered during a watching brief to the north east of the study area. A piece of pottery (**NDHA 29**) was found during the walkover survey for this assessment to the south west of the WWTW.

The 18th century, Navestock Hall (**NDHA 26**) can be found to the South-East of the study area and although it is outside the boundaries of the study area, it is nonetheless a noteworthy asset as it gives context to the broader landscape.

Modern (AD 1900 – to present)

The local HER records the presence of a cast iron guide post (**NDHA 15**) 350m to the west of the proposed earth embankment flood barrier which dates from the modern period. This is a non-designated asset of low heritage significance. A large area of circular maculae soil marks (**NDHA 18**), 400m to the west of the proposed earth embankment are of low potential as they can likely be interpreted as bomb craters.

Summary of Archaeological Potential

The potential for archaeological remains within the study area is high on account of the known presence of buried archaeology as seen from a study of the local HER. The above background narrative identifies evidence of activity from the prehistoric period up to the post-medieval period. The discovery of likely settlement material following previous investigative works from within the study area highlights the increased potential for further archaeological finds.

The non-designated archaeological remains identified within the proposed extent of the Proposed Project relates predominantly to the existence of possible Bronze Age and post-medieval crop mark features adjacent to the River Roding, indicative of ring ditches, potential round barrows and later field boundaries (**NDHA 2,6-9,11-12,22,23**). The observed cropmarks suggest the presence of remaining below ground archaeology which, given their location upon or within close proximity to geological deposits of alluvium in respect of their proximity to a river system, is likely to have benefited from high levels of preservation. As a result, there is

moderate potential for the remains of previously undiscovered associated archaeological remains in the area of the proposed FSA.

Immediately adjacent (west) to the WWTW is an area of additional crop mark features which likely extends south and remains extent (**NDHA 6-8**). Within these areas there are the cropmarks of a ploughed-out ring ditch, field boundaries, a rectangular enclosure and several pits.

The remaining heritage assets located within the FSA consist of the remains of the water mill (**NDHA 27**), former farm structures (**NDHA 30**), the straightened water channel (**NDHA 28**) of the historic Shonks Mill Leat (which remains extent and is still in use as a watercourse) along with any remains of the post windmill (**NDHA 19**) located 300m west of Shonks Mill.

Designated Heritage Assets

Within the study area there are 14 designated heritage assets (Appendix B, Figure 1). These are all grade II listed buildings and date predominately from the post-medieval period, with two dating from the medieval period. The assets reflect the rural character of the landscape and nature of built heritage within it. The assets comprise farmhouses and associated service and outbuildings along with rural cottages and public houses which serve the local rural communities. The location of these assets form small groups with shared settings, usually reflecting an agricultural complex or position on a main route such as Hare Street (London Road). None of the designated heritage assets are within the proposed extent of the FSA.

The following is a summary of designated heritage assets which are located within the study area:

- Assets **LB1**, **LB11** and **LB9** have a shared rural setting derived from the context of Murrells Farm located 300m to the northwest of the River Roding. These assets are situated within arable land to the north of London Road, and this makes a positive contribution to the value of the heritage assets.
- Assets **LB5** and **LB12** have the same rural setting which is derived from their position adjacent to Hare Street (London Road) which shares its name with Hare Cottage (**LB5**) and proximity to Stanford Rivers 500m to the north (**LB12**). This location and settings makes a positive contribution to the value of the heritage assets. These assets do have some views toward the River Roding; however, these are not principal views and do not contribute to the heritage value of the assets.
- Assets **LB3**, **LB8**, **LB10** and **LB11** have a shared rural setting derived from the context of Rose Hall Farmhouse located 350m southeast of the River Roding. These assets are situated to the south of Shonks Mill Road within an arable landscape reflecting the agricultural character of the asset, and this makes a positive contribution to the value of these heritage assets.
- Assets **LB1**, **LB4** and **LB6** have a shared rural setting derived from the context of Lawns (formally Lawns House), located 300m northwest of the River Roding. These assets are situated adjacent to London Road, within an arable landscape that reflects the agricultural character of the assets, and this makes a positive contribution to the value of these heritage assets.
- Assets **LB13** and **LB14** have the same rural setting which is derived from their position adjacent to London Road. Both are Public Houses which are understood within the context of their position along a main route across the local landscape. Both of the property grounds extend south with the River Roding; however, neither include principal views toward the

river. The location and settings make a positive contribution to the value of the heritage assets.

- None of the designated heritage assets within the study area derive their heritage value from or are understood within the context of their proximity to the River Roding or views toward the embankment fill borrow area.

All heritage assets within the study area are listed in Appendix A, and locations are shown in Appendix B.

Impact of development proposals

Identification of Assets Impacted by Project

The following is a summary of non-designated heritage assets which are likely to be impacted as a result of the proposed Project:

- Temporary flood storage: Assets **NDHA 2,6-9,11-12** remain as crop mark features within the landscape and have potential for being directly impacted by the proposed Project on account of their location within the FSA extent. The value of any unknown buried archaeology is likely to be of low-moderate. The nature of temporary flooding of the land adjacent to the River Roding would have an impact upon buried archaeology of which has been identified through crop mark features, as a result of water saturation and drainage and erosion of the ground. However, this impact is considered to be low on account of the area having historically been a flood plain and as such the impact from flood is not new. There would not be any requirements for further archaeological evaluation in relation to these features as a result of the proposed flood storage Project.
- Earth embankment and control structure: The proposed construction of an earth embankment with a concrete control structure across the Roding valley upstream (north) of Shonks Mill Road bridge would have a direct impact on the known archaeological remains of the Shonks Mill and associated infrastructure (**NDHA 27**) the water channel mill leat (**NDHA 28**), remains of the site of a windmill (**NDHA 19**), and site of farm buildings (**NDHA 30**). This would include the foundations and remains of buildings, mill pond, sluice gates and leat channels. The significance of these assets are of low heritage value; however, the level impact would be high and would require archaeological evaluation prior to construction works.
- Diversion of water channel: The proposal for diverting the water channel from the straightened historic mill leat toward the water management concrete control structure, along with works to enhance the ecological benefits of the water channel, would have a high impact upon this low heritage value asset and would as such require archaeological evaluation.
- Borrow area / wetland habitat: The proposal for excavating a shallow borrow area to win fill material which will subsequently act as wet land habitat within the flood plain north of Shonks Mill Road Bridge has the potential to impact any buried archaeology at this location. Assets **NDHA 22-23** extended in and around this location and suggests the potential for buried archaeology. Any archaeology in this area is likely to be of low heritage value; however, the level of impact would be high and would require archaeological evaluation.
- Borrow area to west of Lady's Pond: Excavation and subsequent reinstatement of a borrow area to win fill material would have a direct impact upon any archaeological remains that are represented by the cropmarks of **NDHA 23**. The visible feature within found within the 2019 aerial survey, of a field boundary, pit and extractive pit are likely to be of low heritage value.
- Main construction compound: There is a moderate-high potential that the construction of the main compound located north of Shonks Mill Road will directly impact the archaeological remains of the known site of a windmill (**NDHA 19**). This archaeological site has low heritage value.
- Secondary construction compounds: There is potential that the construction of smaller compounds further east along Shonks Mill Road might have an impact upon buried

archaeological remains. There is varying potential for archaeology in these locations. Any archaeology in these areas is likely to be of low heritage value.

Conclusions and Recommendations

Conclusions

This report has discussed the potential for archaeological remains which might be impacted upon by the construction of the Proposed Project. There has also been an assessment of any impact upon the settings of designated heritage assets within a 500m study area. None of the designated heritage assets are considered likely to be affected as a result of the proposed works. There is potential for impact upon the following known areas of buried archaeology:

- **NDHA 2, 6-9, 11 and 12**, Crop Marks (Bronze Age and Post-medieval)
- **NDHA 19**, Site of windmill. No remains of building or mill mound visible (Post-medieval)
- **NDHA 27**, Site of Shonks Mill and associated structures (Post-medieval)
- **NDHA 28**, Water channel, constructed upstream of Shonks Mill as mill race / leat (Post-medieval)
- **NDHA 30**, Site of possible farm buildings to E of water channel NE of Shonks Mill (Post-medieval)
- **NDHA 23**, There is also the potential to impact on the buried archaeology at the location of the proposed borrow land to the west of Lady's Pond.

Future Recommendations

It is recommended that in advance of construction (and prior to planning submission), that consultation is undertaken with the local authority archaeological advisor. It is likely that the archaeological advisor will require archaeological evaluation prior to the determination of the planning application.

Geophysical Survey and Trial Trenching

Archaeological evaluation consisting of geophysical surveying followed by focused trial trenching is likely to be required. The geophysical survey should be focused on areas where there are not deep alluvial deposits. In areas of deep alluvium trial trenching/intrusive geoarchaeological investigation without geophysical survey may be required. The results of the evaluations will provide further details on the archaeological potential and likely impacts of the Project and will be used to inform the likely archaeological mitigation requirements which may take the form of design changes and/or further archaeological investigation.

Level 1 Photographic Record

It is also recommended that a Level 1 photographic record of the Mill Leat (**NDHA 28**) prior to the construction of the concrete control structure north of Shonks Mill Road bridge and the proposed re-directing of the water channel is undertaken, as per Historic England guidelines.

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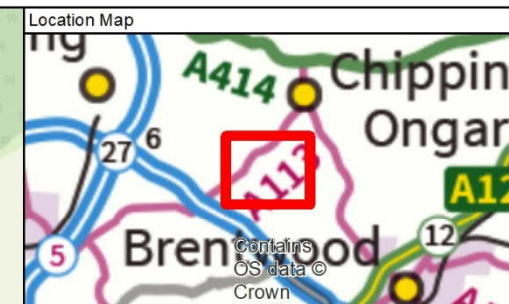
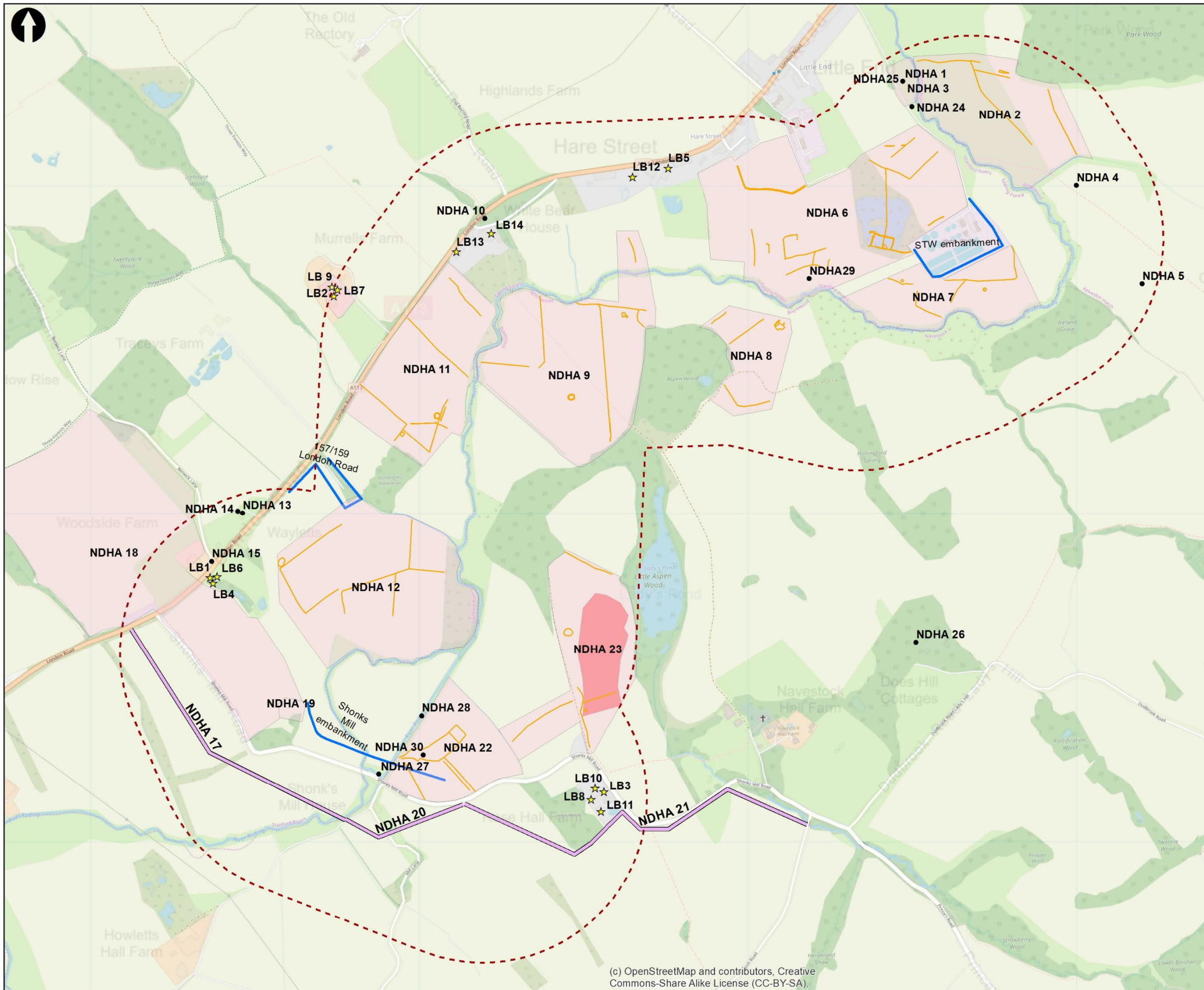
MM No.	List Entry	HER No.	Status	Description	Period	Easting	Northing
LB1	1337531		Listed, grade II	Barn to SW of Lawns	Post-medieval	552364	198805
LB2	1306724		Listed, grade II	Cottage at rear of Murrells Farmhouse	Post-medieval	552739	199663
LB3	1297176		Listed, grade II	Cow sheds 15m SE of Rose Hall Farmhouse	Post-medieval	553565	198143
LB4	1123997		Listed, grade II	Granary to SW of Lawns	Post-medieval	552373	198786
LB5	1168974		Listed, grade II	Hare Cottage	Medieval	553754	200051
LB6	1123996		Listed, grade II	Lawns	Post-medieval	552382	198807
LB7	1169003		Listed, grade II	Murrells Farmhouse	Medieval	552749	199683
LB8	1197344		Listed, grade II	North barn 18m SW of Rose Hall Farmhouse	Post-medieval	553521	198129
LB9	1337510		Listed, grade II	Granary to West of Murrells Farmhouse	Post-medieval	552735	199692
LB10	1208656		Listed, grade II	Rose Hall Farmhouse	Post-medieval	553530	198162
LB11	1208658		Listed, grade II	South barn 60m S of Rose Hall Farmhouse	Post-medieval	553550	198092
LB12	1337509		Listed, grade II	Stanford Rivers House	Post-medieval	553646	200028
LB13	1124032		Listed, grade II	The Woodman Public House	Post-medieval	553114	199798
LB14	1169000		Listed, grade II	White Bear	Post-medieval	553218	199856
NDHA1		MEX28828	Non Designated Heritage Asset, HER	Prehistoric features uncovered during sewerage works in near Little End. Finds mainly flint. Assemblage thought to be Neolithic, though some possibly Mesolithic. Bone and burnt clay loom-weight also found, suggestive of site being rubbish dump from nearby contemporary settlements.	Neolithic	554472	200317
NDHA2		MEX1050046	Non Designated Heritage Asset, HER	Cropmark evidence of Post-medieval field system comprised of field boundaries, ditches and a possible extraction pit (MEX10500)	Post Medieval	554774	200198
NDHA3		MEX28831	Non Designated Heritage Asset, HER	Watching brief during Ongar Sewerage Scheme mains replacement. Site A produced mainly prehistoric finds (See MEX28828). Finds also included 1 sherd of Harlow Ware (?C13 - C14): small pale green fragment thought to be slightly blue-tinted post medieval window glass	Medieval	554472	200317

MM No.	List Entry	HER No.	Status	Description	Period	Easting	Northing
NDHA4		MEX1032771	Non Designated Heritage Asset, HER	Unlocated Mill, as identified from The Domesday Book, in Kelvedon Hatch	Medieval	555000	200000
NDHA5		MEX2345	Non Designated Heritage Asset, HER	Bronze Age bracelets and charcoal found.	Bronze Age	555200	199700
NDHA6		MEX2460	Non Designated Heritage Asset, HER	Cropmark South of Hare Street cropmarks of linear features, field boundaries a rectangular enclosures and two large pits.	Bronze Age / Post-medieval	554400	199900
NDHA7		MEX1050047	Non Designated Heritage Asset, HER	Cropmarks of former field boundaries and a small ring ditch that may represent a ploughed out round barrow	Bronze Age / Post-medieval	554583	199689
NDHA8		MEX1050048	Non Designated Heritage Asset, HER	Cropmarks of former field boundaries that are visible on the 1st edition OS mapping and an extractive pit. The extraction pit has 3 short ditches associated with it	Bronze Age / Post-medieval	553992	199466
NDHA9		MEX1041323	Non Designated Heritage Asset, HER	Cropmarks of a ring ditch which may represent a ploughed-out Bronze Age round barrow. The ring ditch is 19m in diameter and is located to the south of the River Roding just above the 35m contour. Other cropmark features in the area include former field boundaries that are visible on the 1st edition OS mapping and an area of extraction	Bronze Age / Post-medieval	553400	199300
NDHA10		MEX2413	Non Designated Heritage Asset, HER	Scatter of Medieval pottery	Medieval	553200	199900
NDHA11		MEX1036507	Non Designated Heritage Asset, HER	Cropmarks of a ring ditch which may represent a ploughed-out Bronze age barrow. The ring ditch has several former field boundaries surrounding it, including some extensive former boundaries that are visible in the 1st edition OS mapping. A small pit is visible to the south of the ring ditch. A cropmark of a second circular feature 12m in diameter is visible to the south-west of the ring-ditch. This feature maybe a former pond.	Bronze Age / Post-medieval	553050	199350
NDHA12		MEX1036513	Non Designated Heritage Asset, HER	Cropmarks, Stanford Rivers. Additional field boundaries were recorded during an aerial investigation and mapping project carried out in October 2019	Bronze Age / Post-medieval	553000	198800

MM No.	List Entry	HER No.	Status	Description	Period	Easting	Northing
NDHA13		MEX1008761	Non Designated Heritage Asset, HER	Wayletts. Former listed building prior to significant fire damage (c. 2004) which resulted in rebuild with very little of original fabric retained. Part of stacks and some frame retained. A programme of building recording was undertaken by Essex County Council Field Archaeology Unit (ECC FAU) on the house and outbuildings at 'Wayletts', Stanford Rivers. The work was carried out in advance of demolition to the house and conversion of farm outbuildings to single residential usage	Medieval	552463	199000
NDHA14		MEX1008762	Non Designated Heritage Asset, HER	Outbuilding at rear of Wayletts. Delisted following delisting of Wayletts.	Post-medieval	552449	199006
NDHA15		MEX1034228	Non Designated Heritage Asset, HER	Cast iron guide post at corner of Berwick Lane and Romford Road.	Modern	552369	198853
NDHA16		MEX1035092	Non Designated Heritage Asset, HER	Romano-British building material found during archaeological watching brief (associated with MEX1035103 Post-medieval, MEX1035092 Medieval and MEX1035098 Bronze Age)	Roman	552150	198650
NDHA17		MEX1035098	Non Designated Heritage Asset, HER	Bronze Age pit on the Stanford Rivers, found during archaeological watching brief (associated with MEX1035103 Post-medieval, MEX1035092 Medieval and MEX1035092 Roman)	Bronze Age	552300	198450
NDHA18		MEX1034447	Non Designated Heritage Asset, HER	Soilmarks of circular maculae c. 10-15m in diameter. One has slight earthwork around it. Most probably bomb craters.	Modern	552133	198869
NDHA19		MEX2425	Non Designated Heritage Asset, HER	Site of windmill. No remains of building or mill mound visible.	Post-medieval	552600	198400
NDHA20		MEX1035103	Non Designated Heritage Asset, HER	Three Post-medieval pottery sherds found during archaeological watching brief (associated with MEX1035092 Medieval, MEX1035092 Roman and MEX1035098 Bronze Age)	Post-medieval	552850	198050
NDHA21		MEX1035102	Non Designated Heritage Asset, HER	Medieval pottery spread on Stanford Rivers, Shonks Mill to Navestock water pipeline	Medieval	553659	198060

MM No.	List Entry	HER No.	Status	Description	Period	Easting	Northing
NDHA22		MEX1049637	Non Designated Heritage Asset, HER	Cropmarks of former field boundaries associated with the site of the former Shonks flour mill. The field boundaries surround the area where there were a number of buildings, which are not visible on the aerial photographs, but are marked on the 1st edition OS mapping	Post Medieval	553101	198312
NDHA23		MEX1050049	Non Designated Heritage Asset, HER	Cropmarks of former field boundaries that are visible on the 1st edition OS mapping and an extractive pit. An extraction pit 27m in diameter is also visible. A possible small pit with an associated ditch of unknown date has been mapped.	Post Medieval	553449	198568
NDHA24		MEX28842	Non Designated Heritage Asset, HER	Watching Brief during Ongar Sewerage Scheme mains replacement. Finds include 2 sherds of slip painted pottery dated from C14-C16 at TL 54500024.	Medieval	554500	200240
NDHA25		MEX28859	Non Designated Heritage Asset, HER	Small pale green fragment of post medieval window glass	Post-medieval	554472	200317
NDHA26		MEX2449	Non Designated Heritage Asset, HER	Site of 18th century Navestock Hall. Demolished in 1811.	Post-medieval	554511	198606
NDHA27		-	Non Designated Heritage Asset, Historic Mapping	Site of Shonks Mill	Post-medieval	552870	198204
NDHA28		-	Non Designated Heritage Asset, Historic Mapping	Mill Leat Water Channel	Post-medieval	553010	198385
NDHA29		-	Non Designated Heritage Asset, Walkover Survey	Post-medieval jug handle	Post-medieval	554192	199721
NDHA30		-	Non Designated Heritage Asset, Historic Mapping	Site of Farm Buildings	Post-medieval	552995	198232

Location of Known Heritage Assets



Key to Symbols

- 500m Study Area
- Preferred Alignment CL
- Main likely borrow area

Heritage Assets

- Listed Building, Grade II
- Non Designated Heritage Asset Point
- Non Designated Heritage Asset Polygon
- Non Designated Heritage Asset Line
- Cropmark

Notes

This map includes the following sources

- The National Heritage List for England, managed by Historic England
- Historic Environment Record, managed by Essex County Council

Rev	Date	Drawn	Description	Ch'k'd	App'd
B	24/10/19	AM	For Information	BW	MH

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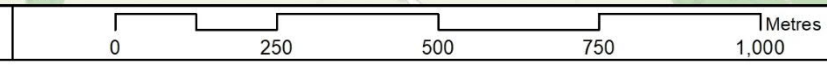
Client

Environment Agency

Title

EA Shonks Mill
Historic Environment Assessment
Location of Known Heritage Assets

Designed	A Michalopoulos	Eng Check	N/A
Drawn	A Michalopoulos	Coordination	B. Wajdner
GIS Check	B. Wajdner	Approved	M Hopper
Scale at A3	1:11,000	Status	PRE
Rev	P1	Security	STD



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