

Cambridge Waste Water Treatment Plant Relocation Project



Preliminary Environmental Information
February 2022

Historic Environment

Version	Date	Author(s)	Check	Approve	Comment
Draft	20/12/2021	L Gray I Gray-Davies	C Hewitson	C Squires	Working draft
P01	21/01/2022	Lucy Gray I Gray-Davies	C Hewitson	M Hopper	WIP Address comments
P02	08/02/2022	I Gray-Davies	M Hopper	C Squires	Final

Document reference: 100102041-MML-XX-00-RP-HE-0204010

Information class: Standard

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

Summary

The project will likely result in a significant effect on archaeological remains. Where the ground will be excavated or disturbed as part of the Proposed Development there is high potential that archaeological remains will either be removed or truncated. This is particularly relevant to the land required for the construction of the proposed Waste Water Treatment Plant (WWTP) and its associated infrastructure, the access routes and shafts sites for the waste water transfer tunnel, the treated effluent discharge outfall which would run from the proposed WWTP to the River Cam, and the Waterbeach pipeline corridor. Archaeological remains thus far identified by survey have been of low to moderate value. However, the loss of the irreplaceable resource cannot be mitigated and therefore will likely result in a significant effect. An archaeological investigation strategy will be developed, to ensure that affected archaeological remains will be appropriately recorded in accordance with the relevant guidance and policy.

The project is also likely to result in temporary and permanent significant effects to built heritage assets due to the construction and operation of the Proposed Development. This includes a temporary and permanent significant effect to the Grade II* listed Biggin Abbey and Baits Bite Lock Conservation Area and a temporary significant effect to the Grade II listed Poplar Hall and Fen Ditton Conservation Area. This is due to changes in their setting caused by the construction of the Proposed Development. At present, setting makes a positive contribution to these assets' value.

The project is unlikely to result in any significant effects to historic landscapes. There will be temporary and permanent effects to historic landscape character areas (HLCAs) within the land required and to historic landscape assets as a result of change within their settings. The post-medieval and modern fields within the land required will be permanently lost. The setting of the non-designated parkland to the Grade II* listed Quy Hall will likely be altered by the presence of the proposed WWTP and light from its operation. Any effect on the grade II* registered Anglesey Abbey Park and Garden will likely be minimal. The proposed WWTP is expected to be screened from almost the entirety of the parkland. Landscaping works such as earthwork banks and hedgerow planting will reduce change within assets' settings as far as possible.

Document purpose

The historic environment information paper describes the preliminary assessment of the construction and operation of the proposed WWTP. The paper sets out the preliminary findings of the historic environment assessment, including emerging information from archaeological investigation, and identifies the potential impacts. It sets out how we intend to develop our proposals to avoid and reduce impacts to the historic environment.

This information paper should be read in conjunction with the **Landscape and Visual, Water Resources, Traffic and Transport, Noise and Vibration and Odour** environmental information papers.

This information paper includes figures illustrating:

- Designated and Non-designated Assets within the study area, including preliminary archaeological survey results.
- Comparison of predicted odour levels to the setting of heritage assets near the proposed WWTP.

Historic environment overview

The historic environment comprises all aspects of the environment resulting from the interaction between people and places through time. For the purposes of this paper, the historic environment has been divided into:

- Archaeology;
- Built Heritage; and
- Historic Landscape.

Archaeology relates primarily to buried remains but may also encompass earthworks and other remains relating to past human activity. Built heritage comprises buildings and structures with heritage value. Historic landscape refers to past human activity on a broader scale, and how this activity has shaped landscapes. Each of these includes designated and non-designated assets¹. Heritage assets, with the exception of buried remains, also have a setting. Setting is the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the value of an asset, may affect the ability to appreciate that value or may be neutral.

The study areas used in this paper are:

- All heritage assets within Draft Scheme Order Limits;
- Designated heritage assets within 1km of the Draft Scheme Order Limits and those identified within a 10km Zone of Theoretical Visibility (ZTV). This ZTV is further explained in the **Environmental Information Paper: Landscape and Visual**.
- Non-designated heritage assets within 500m of the Draft Scheme Order Limits.
- Historic landscape character areas (HLCAs) within 1km of the Draft Scheme Order Limits.

The Environmental Statement (ES) will be prepared in accordance with the relevant national legislation, the National Policy Statement (NPS) for Wastewater, the National Planning Policy Framework (NPPF) and local planning policy documents. The NPS and NPPF both require the significance (value) of heritage assets to be explained to a proportional level which allows impacts to be understood. These documents include additional requirements to design to avoid harm where possible and record any assets whose loss is unavoidable. The NPS also requires that historic environment record (HER) data has been consulted. This has been purchased for the CWWTPR project. In addition, there are two relevant local planning policy documents, the adopted South Cambridgeshire District Council Local Plan 2018 and the adopted Cambridge City Council Local Plan 2018. In addition to aligning with the above documents, the Local Plan documents seek specifically to reduce harm to

¹ Designated assets are World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation. Non-designated assets are not identified or protected in the same way but still hold value and merit consideration in any planning process.

heritage assets and their settings within their authority areas, especially through the design of any development.

Within this paper the significance of the most relevant assets is summarised, to enable an understanding of the likely significant effects of the CWWTPR project. Within the ES a proportional assessment of significance will be included for every asset within the above described study areas. Similarly, this paper focusses on the potentially significant effects of the project. The ES will describe and assess all effects.

Archaeology

Geophysical survey has been undertaken within the Proposed Development areas within the Draft Scheme Order Limits. Whilst intrusive archaeological evaluation of these areas is ongoing, preliminary results have been incorporated into this paper. These surveys, along with desk-based research, have informed the following understanding of how human activity within the study area² has changed over time.

The study area was inhabited in the Prehistoric period (before AD 43), with most evidence dating from the Neolithic to Iron Age periods. Bronze Age and Neolithic worked flints were found during fieldwalking undertaken for the improvements to the A45 (now the A14) in 1993. Trial trenching within the Draft Scheme Order Limits, undertaken for this project, has identified possible Iron Age occupation areas within the proposed WWTP area, as well as Prehistoric cremations. These are shown below on **Figures 3 and 4**.

There is considerable evidence of Roman (AD 43-410) activity within the study area. The River Cam has been navigated since at least the Roman period and Car Dyke (See **Figure 1** below) may also have been used as a waterway for shipping goods. There is evidence of commercial and industrial activity, such as pottery and tile production near Horningsea. There is also some evidence of isolated farmsteads and surrounding agricultural activity, mostly on the periphery of the Fens. Archaeological investigation undertaken for the project has found some evidence of Roman activity within the Draft Scheme Order Limits. A Roman settlement was previously recorded within the Draft Scheme Order Limits; however investigation shows this has been removed by a borrow pit associated with the construction of the former A45 (now A14). A trackway south of the A14, identified by geophysical survey undertaken for the project, may be of Roman date and may relate to this former settlement. These are shown below on **Figures 3 and 4**.

Archaeological remains from the Early Medieval period (AD 410-1066) are rare nationally, and there is less evidence from this period in the study area than for prior periods. However, Fleam Dyke runs alongside High Ditch Road south of the Draft Scheme Order Limits and is likely Early Medieval. There is also evidence that some of the settlements in the study area emerged from the 10th century AD or earlier, especially Fen Ditton. Although no

² When discussed here the study area includes all designated archaeological assets within 1km and designated archaeological assets within the 10km ZTV. Non-designated archaeological remains are considered within 500m.

specific evidence of isolated farmsteads has been identified in the Early Medieval period, it is likely this sporadic agricultural activity continued on the periphery of the Fens.

Throughout the Medieval period (AD 1066-1485) agricultural activity within the study area intensified, isolated farmsteads continued but there was also growth in several of the settlements. Horningsea, Stow-cum-Quy and Waterbeach all emerged in the medieval periods. There was some enclosure of land into private ownership on a small scale. This generally led to the improvement of the land for agriculture.

The villages continued to exist as small agricultural settlements through the Post-medieval period (AD 1485-1900), despite numerous new transport links, especially railways, towards the end of the period. A former railway, constructed as the Barnwell to Fordham line in 1884 and decommissioned in 1965, crosses within the Draft Scheme Order Limits south-west to north-east. Local industry was dominated by open-cast quarrying activities such as clay and coprolite extraction. Coprolite (fossilised dinosaur faeces) was dug out of the ground in large pits for use in fertiliser. There was also extensive enclosure of land into private ownership and improvement for agriculture. The fenland was crossed with a series of man-made waterways which drained the land to make it more suitable for farming. In some instances this draining was assisted or maintained by windpumps. This draining of the fens commenced on a large, organised scale in the 17th century, but management of the formerly waterlogged land has necessarily continued into the modern period.

In the modern period (AD 1901-present) the rural agricultural settlements have expanded with new residential development. To the north-east of Cambridge former agricultural land has been gradually infilled by residential, commercial, industrial and educational development. A water treatment works is first shown at the location of the existing Cambridge WWTP on historic mapping from 1901. Initially this was a sewage farm owned by the Cambridge Corporation in former farmland. It has developed gradually over time into the current facility. The Cambridge Northern Bypass section of what was then the A45 was constructed in 1977, in the 1990s the route was improved and incorporated into the new A14. This severed the villages of Horningsea and Milton to the north from Fen Ditton and Cambridgeshire to the south. It also severed the areas now captured by Fen Ditton Conservation Area and Baites Bite Lock Conservation Area from one another, altering and urbanising the setting of Biggin Abbey.

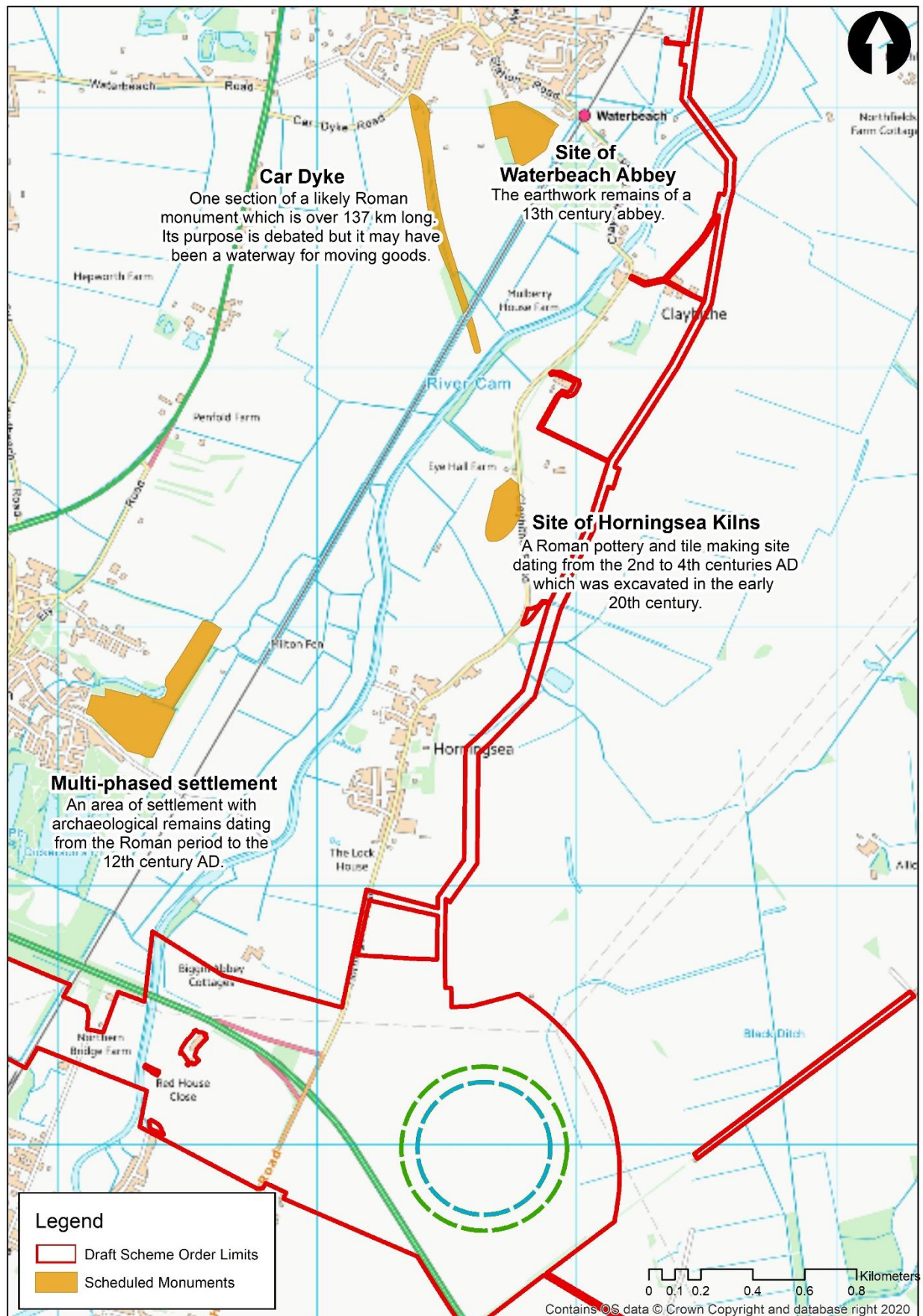


Figure 1: Designated Archaeological Assets within the study area

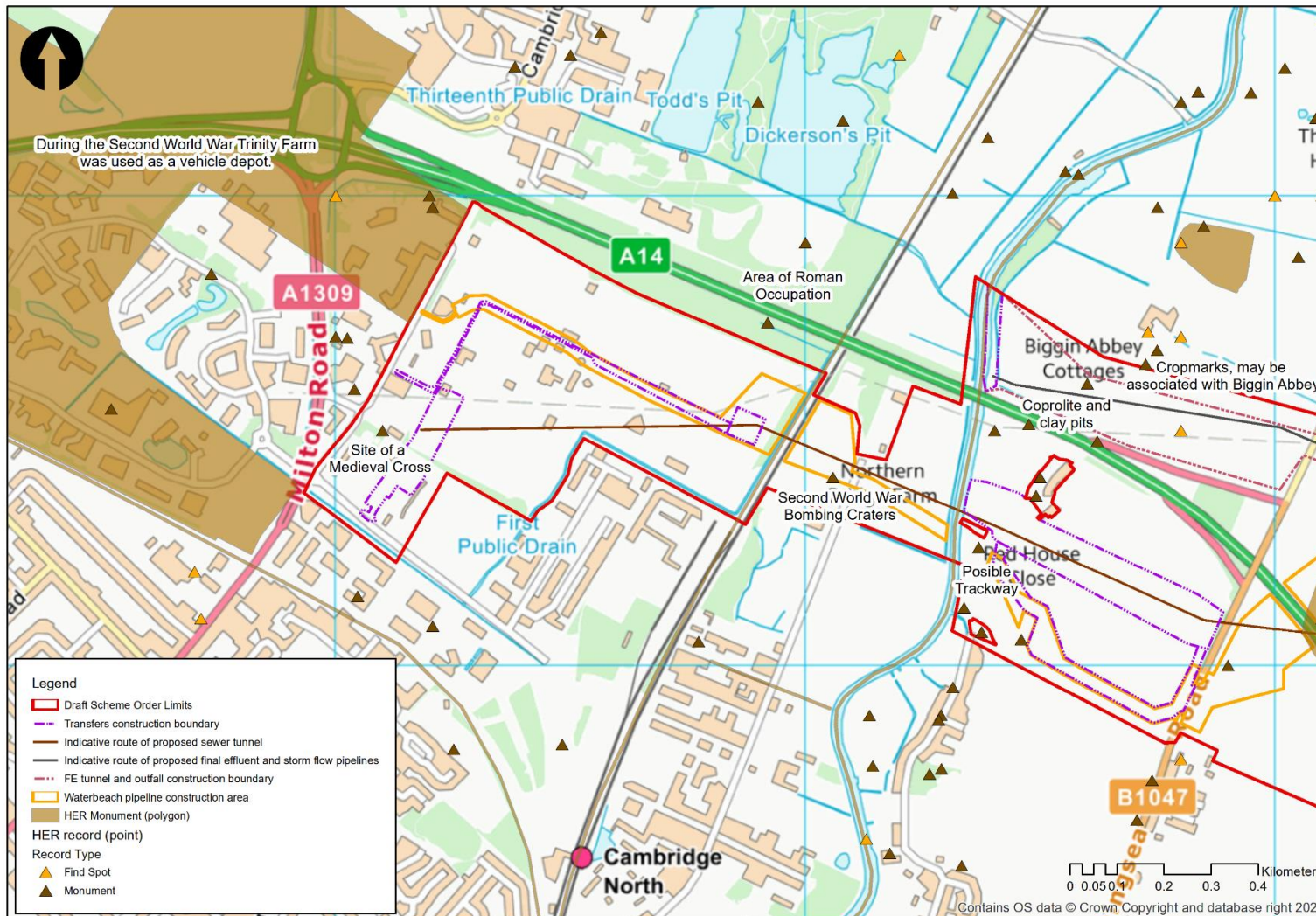


Figure 2: Non-Designated Archaeological Assets (A) within the study area and provisional results of archaeological surveys

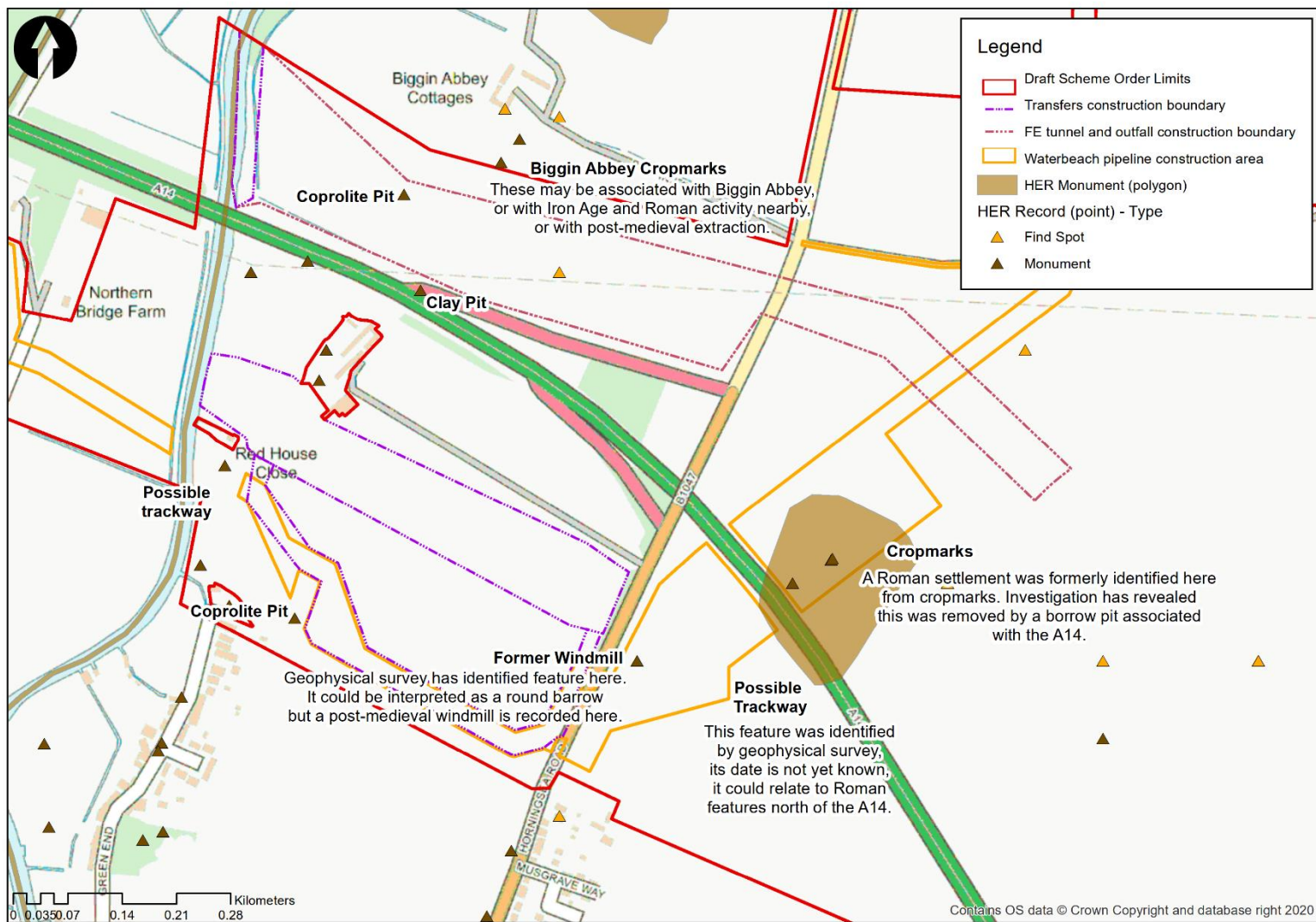


Figure 3: Non-Designated Archaeological Assets (B) within the study area and provisional results of archaeological surveys

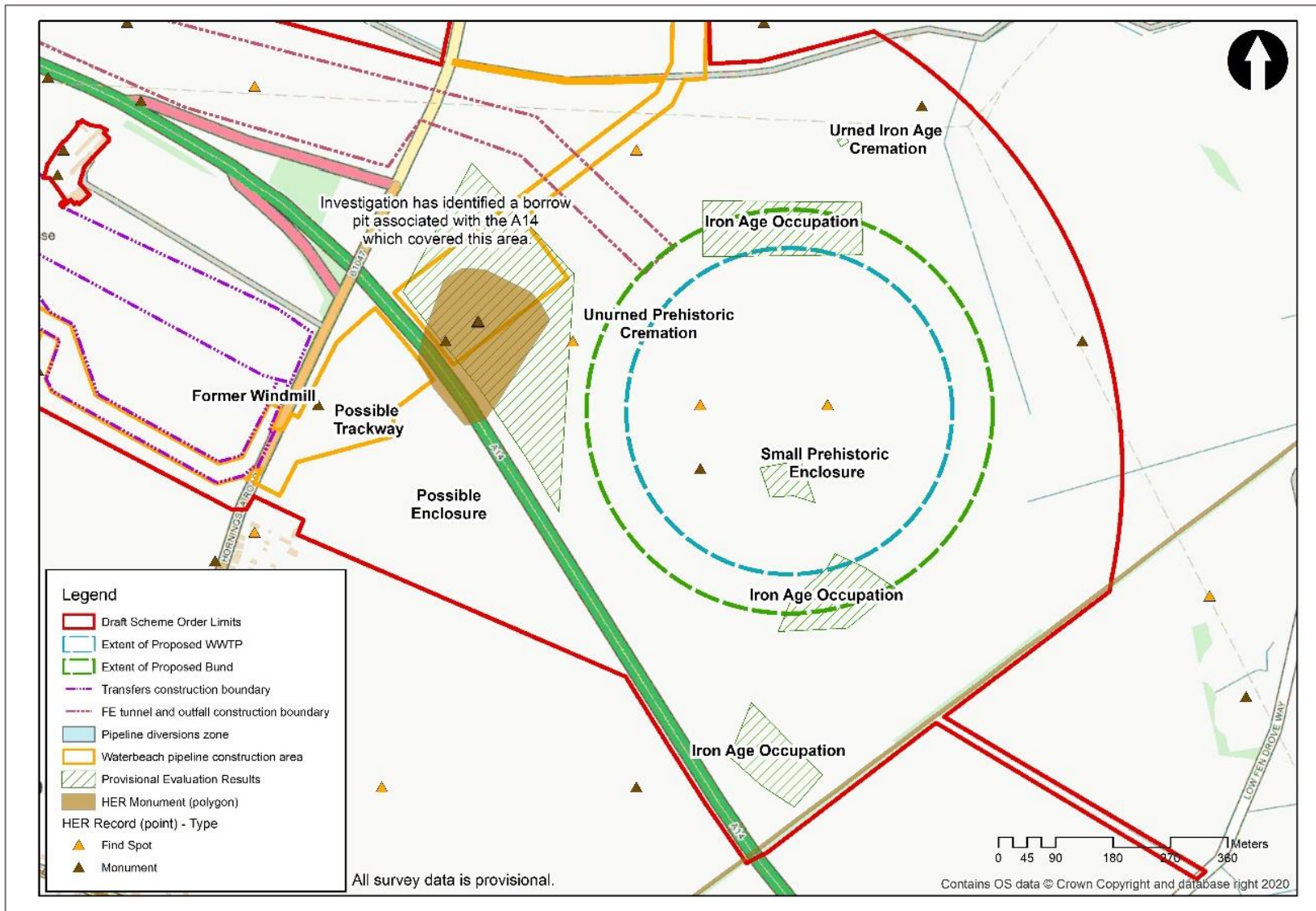


Figure 4: Non-Designated Archaeological Assets (C) within the study area and provisional results of archaeological surveys

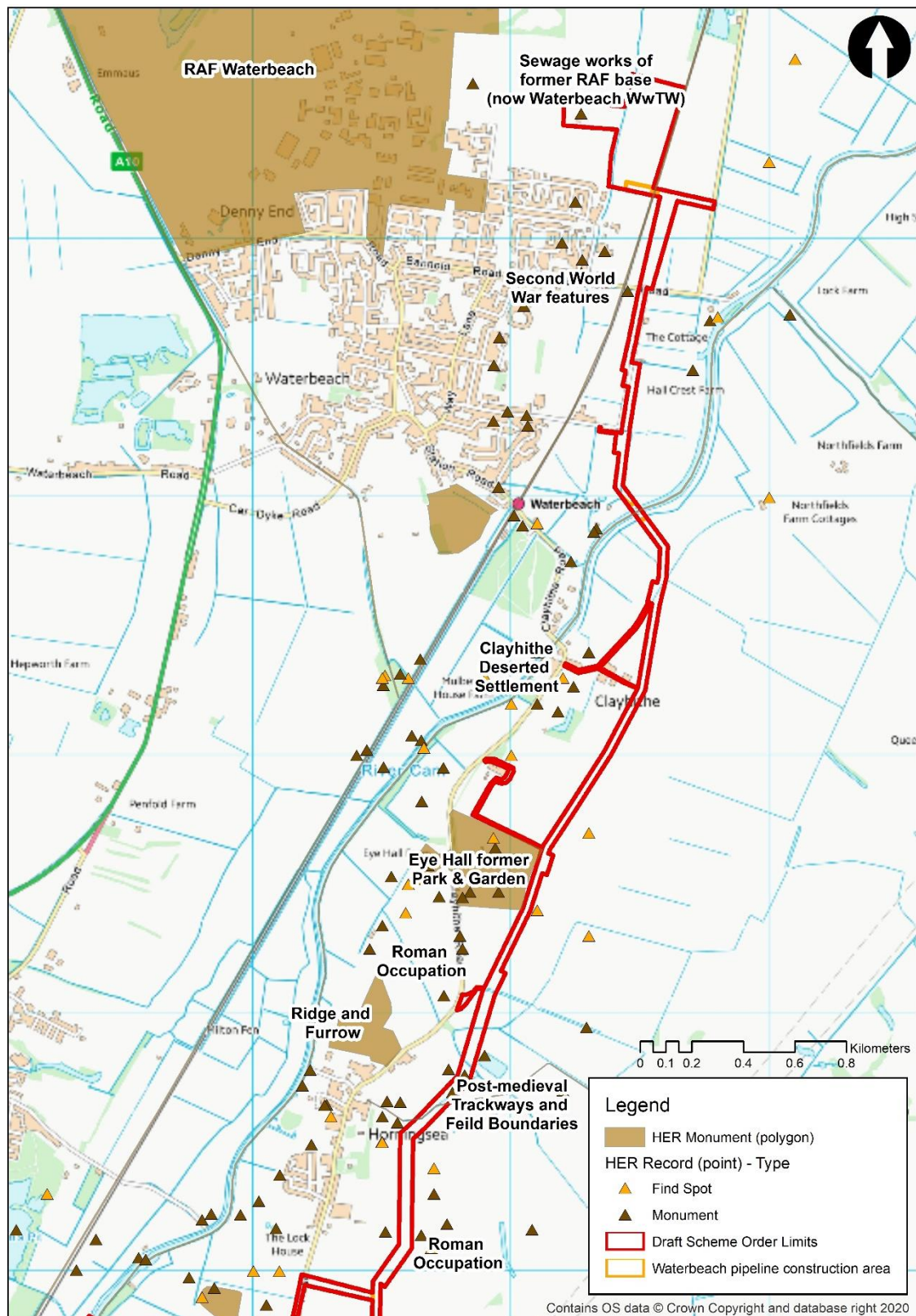


Figure 5: Non-Designated Archaeological Assets (D) within the study area for the Waterbeach pipeline corridor

Built Heritage

The oldest surviving built heritage assets within the study area date to the Medieval period. During this period, the study area was sparsely populated, occupied by hamlets and small villages surrounded by farmland associated with the local estate or manor. These estates were owned by lords, the clergy or monastic houses. For example, Biggin Abbey (Grade II* listed, high value) was the residential manor house of the Bishops of Ely, despite being known as an Abbey. It was subsequently converted into a farmhouse and is presently subdivided into cottages. Anglesey Abbey (Grade I listed, high value) was an Augustinian priory, converted into a house during the post-medieval period. See below within the historic landscapes section for further information about the grounds of Anglesey Abbey.

The rural setting of the heritage assets discussed above makes a substantial contribution to their value. For example, the agricultural landscape around Biggin Abbey (Photo 1) including views towards the agricultural land within the Draft Scheme Order Limits contributes to its value. The exception to this is where the route of the A14 passes to the south and separates it from farmland and other early farmsteads such as the Grade II listed Poplar Hall. As such, the A14 forms part of Biggin Abbey's setting, but does not contribute to its value. The churches in Horningsea (Grade I listed, high value), Stow-cum-Quy and Fen Ditton (all Grade II* listed and high value) date to the 12-14th centuries and are important aspects of the conservation areas they are situated within. However, Horningsea and Fen Ditton churches in particular are not prominent within the surrounding flat, fen landscape.



Photo 1: Biggin Abbey visible between trees showing the surrounding setting of agricultural land, facing west at the B1047 Horningsea Road.

The built environment within the study area is predominantly Post-medieval in age and character. Agriculture remained dominant in the surrounding landscape. Farmhouses such as Poplar Hall (Grade II listed) were constructed during this period. The agricultural setting of Poplar Hall (Photo 2) is important to understanding its history and function as a farmhouse. The A14 forms part of this setting, but negatively contributes to the heritage value of the hall because it has removed and severed its relationship with farmland to the north. Consequently, the setting of Poplar Hall only makes a moderate contribution to the heritage value of the asset.



Photo 2: The setting of Poplar Hall facing north, showing the prominence of electricity pylons and the A14. Poplar Hall is situated immediately to the right of this photograph, screened by mature trees.

The villages in the study area feature heritage assets dating to the 17th and 18th centuries. These are typically one-and-a-half or two storey dwellings. They are timber-framed, infilled in brick or plaster; thatch and plain tile are both common roofing materials. From the mid-18th century onwards, dwellings were more commonly constructed in brick and were of a larger scale. During the 20th century, settlements in the study area developed into commuter villages for Cambridge and led to modern infill development. Despite this, the villages in the study area, with the exception of Milton, have largely retained their historic character. Photo 3 shows Fen Ditton Conservation Area and Photo 4 shows Horningsea conservation area.



Photo 3: Fen Ditton Conservation Area from the western end of the High Street at the junction with Church Street, facing eastwards.



Photo 4: Horningsea Conservation area from the High Street in the centre of the village, facing north-west.

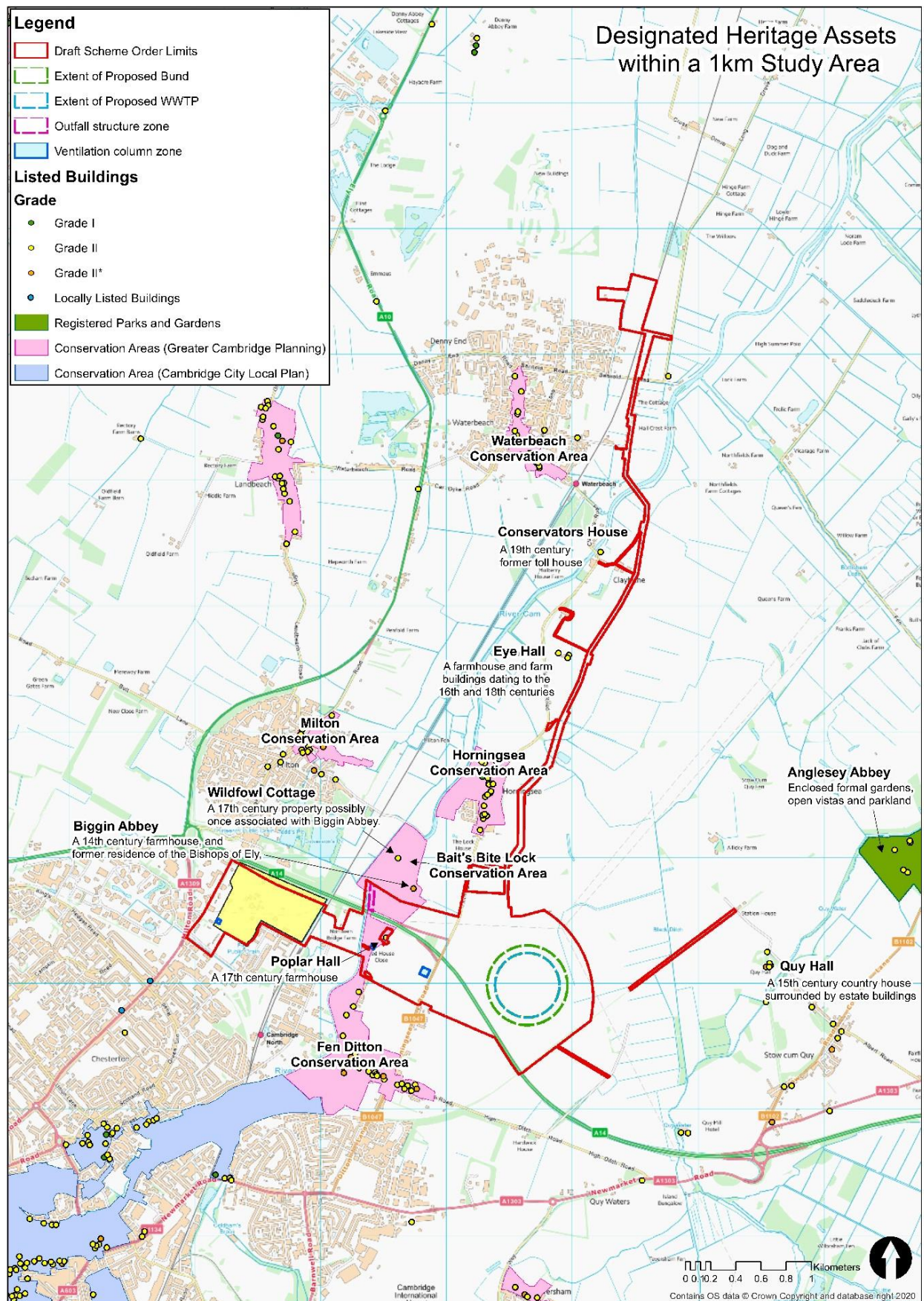


Figure 6: Designated Heritage Assets within the study area

Historic Landscape

A characterisation exercise is being undertaken to better understand the nature of the historic landscape within the study area. This exercise assesses a range of sources, such as aerial photographs and historic maps, National Historic Landscape Characterisation and Wicken Fen Vision Paper, to understand how past human activity has shaped the landscape. This assessment will set out to understand the time depth of the landscape and its sensitivity to change. This differs from the assessment explained in the **Environmental Information Paper: Landscape and Visual**, which is focussed on the present form of the landscape.

The dominant character of the study area is a rural agricultural landscape, most of which was originally formed when the Fens were formally drained in early post-medieval period. Honey Hill was likely in use as agricultural land prior to this due to its slightly raised topography and proximity to medieval settlement. However, the present field patterns throughout the study area are mostly 19th and 20th century. As agricultural improvements in this period encouraged larger field sizes hedgerows were removed and fields replanned. Therefore, the present field pattern has straight line boundaries and large, amalgamated or planned fields. The study area also includes several small settlements, the historic cores of which are mostly recognised as conservation areas, such as Horningsea, Waterbeach and Fen Ditton. In addition, there are several landscaped parks and gardens throughout the study area associated with post-medieval estates. In the south and south-west of the study area the character is more suburban and urban with much more recent housing industrial and commercial estates.

The non-designated parkland for the Grade II* listed Quy Hall is of particular relevance owing to proximity to, and potential lines of sight towards, the proposed WWTP. The parkland, although degraded, retains some of its layout and key features. It also forms an essential part of the setting of the hall, with a surviving avenue framing views to the house on arrival from the south. Throughout the park some elements of the layout have degraded over time, especially from the loss of parkland trees and overgrowth of wooded copses. Therefore, although non-designated, the parkland is judged to be of moderate value.

The Grade II* registered park and garden of Anglesey Abbey was redesigned from the former grounds of the medieval Augustinian Abbey when the principal building was adapted into a county home. The formal garden and pleasure grounds still include the earthwork remains of the medieval fishponds, drains and buildings. The asset does not fall within the 1km study area for designated assets nor the 1km area in which landscape characterisation is being undertaken. However, the ZTV indicates the potential for broken lines of sight from the very western edge of the park and garden towards the proposed WWTP site. Due to this and the very high value of the asset it is of particular relevance.

How will the proposed relocation of Cambridge Waste Water Treatment Plant change the historic environment during construction?

Archaeology

Permanent construction impacts due to the Proposed Development will occur where groundworks are required and in areas where there is potential for ground disturbance. These works have the potential to permanently remove or damage archaeological remains. These remains include sites identified by prior surveys or research, and unknown archaeological remains. In some areas previous development will have already damaged or removed any archaeological remains. This includes: the existing Cambridge WWTP; and areas within the former pits of post-medieval coprolite and clay mining. Archaeological investigation undertaken for the CWWTPR has demonstrated that this mining has occurred within the treated effluent discharge corridor and in areas along the Waterbeach pipeline corridor. In addition, a borrow pit north of the A14 has removed a previously recorded Roman site. South of the A14 there has been less previous disturbance of archaeological remains and therefore these are predicted to survive better.

Not all works will impact archaeological remains. For example:

- The connection to the existing Cambridge WWTP will be tunnelled rather than dug from the top down. This tunnel is deep enough to avoid archaeological remains, except at access shafts (see below).
- There will be no further effect on any archaeology surviving within the existing Cambridge WWTP, as the physical works to decommission this below ground are not part of the scope of the Proposed Development.
- Only minor, temporary groundwater level changes are predicted; this will not affect the survival of archaeology.

The potential to adversely impact archaeological remains is most relevant in the following locations:

- The proposed WWTP, associated access roads, parking and other hardstanding, which includes areas of identified Iron Age occupation identified by intrusive evaluation, undertake for the Proposed Development.
- Areas to be used for construction activities (such as compounds and haul roads) which may remove or compress archaeological remains, which include areas of prehistoric activity, a curvilinear trackway and areas of ridge and furrow.
- The route of the Waterbeach pipeline corridor, which passes near areas of known Roman and Post-medieval activity and which may damage the identified trackway and the remains of the windmill, south of the A14.
- The route of the treated effluent discharge outfall to the River Cam, which includes potential remains identified south of Biggin Abbey which may be associated with the farmhouse but has also been subject to coprolite and clay mining.

- An access shaft south of Poplar Hall, in an area which is likely to have been affected by a recorded coprolite mine.
- An access shaft west of the B1047 Horningsea Road, which may also damage the identified trackway and windmill mound south of the A14.
- A tunnel entry within the existing Cambridge WWTP, which is located at the former site of a medieval cross. Archaeological remains associated with this are not anticipated.
- Landscaping which will require earthworks, planting or soil improvement works, which include areas of prehistoric occupation and medieval and post-medieval agricultural activity.

It is unlikely impact to the heritage value of known archaeological sites (including scheduled monuments) will occur due to temporary or permanent changes to their setting from the Proposed Development.

Built Heritage

The Proposed Development will be located in the flat landscape to the north-east of Cambridge. Its construction has the potential to impact the heritage value of assets due to temporary or permanent changes to their setting.

Temporary impacts to the heritage value of assets may result from: the noise and presence of construction machinery; the presence of construction compounds including lighting; and increased traffic. This is due to the alteration of their setting. The following assets will see temporary impacts to their heritage value:

- Biggin Abbey (Grade II* listed, high value) is located approximately 50m north of the Draft Scheme Order Limits. There will be a temporary construction impact on its heritage value due to the presence of a construction compound in proximity, creating additional noise, movement and light in the asset's setting. This is likely to be considered a minor adverse impact, contributing to a temporary moderate adverse significant effect.
- Poplar Hall (Grade II listed, high value) is located outside of but surrounded by the Draft Scheme Order Limits. There will be a temporary construction impact on its heritage value due to its proximity to a site compound, the noise, light and movement from which will alter the rural character of Poplar Hall's setting. This is likely to be considered a moderate adverse impact, causing a temporary moderate adverse significant effect.
- Eye Hall, Barn to East South East of Eye Hall and Granary to East of Eye Hall (all Grade II listed and high value) are located approximately 100m south of the Draft Scheme Order Limits. There will be a temporary impact on their heritage value due to the use of farm tracks for site access routes. This will temporarily alter the rural, tranquil setting of these assets. This is likely to be considered a minor adverse impact, contributing to a temporary slight adverse non-significant effect.

- Baits Bite Lock Conservation Area (high value) is partially within the Draft Scheme Order Limits. There will be a temporary change in the character of the conservation area due to the construction compound situated within the conservation area, treated effluent discharge outfall structure and changes to the PRow on the eastern side of the river. In addition, a footpath through the conservation area is likely to be temporarily diverted during the construction phase, altering the way people engage with and appreciate the heritage asset. This is likely to be considered a minor adverse impact, contributing to a temporary moderate adverse significant effect.
- Fen Ditton Conservation Area (high value) is located south-west of the Draft Scheme Order Limits. There will be a temporary construction impact on its heritage value due to the presence and noise of construction works in the north of the conservation area and in the countryside in the vicinity of the village. This is likely to be considered a minor adverse impact, contributing to a temporary moderate adverse significant effect.
- Horningsea Conservation Area (high value) is located to the north-west of the Draft Scheme Order Limits. There will be a temporary construction impact on its heritage value due to the presence and noise of construction works in the countryside to the east of the village. This is likely to be considered a negligible adverse impact, contributing to a temporary slight non-significant effect.
- Waterbeach Conservation Area (medium value), to the north-west of the Draft Scheme Order Limits, will be a temporary construction impact on its heritage value due to the presence of construction traffic driving through the village. This is likely to be considered a negligible adverse impact, contributing to a temporary slight non-significant effect.

Permanent impacts to the heritage value of assets may result from the presence of the Proposed Development in the setting of the heritage asset. The following assets will see permanent impacts to their heritage value:

- Biggin Abbey, as described above, will see a permanent construction impact on its heritage value. The Proposed Development, including landscaping, substantial tree planting and new street lighting along the B1047 Horningsea Road, will be visible in the landscape. This will alter the flat, agricultural fenland that currently surrounds and characterises the setting of Biggin Abbey, diminishing the contribution of setting to the heritage value of Biggin Abbey. This is likely to be considered a minor adverse impact, contributing to a permanent moderate adverse significant effect.
- Poplar Hall, as described above, will see a permanent construction impact on its heritage value, in particular due to the ventilation shaft situated adjacently to the asset. The construction of the proposed WWTP will alter the setting of the asset. The A14 and associated screening has severed the hall from farmland to the north and east, which separates the asset from the site, reducing the severity of the impact from the proposed WWTP. This is likely to be considered a minor impact, contributing to a permanent slight adverse non-significant effect.

- Baits Bite Lock Conservation Area is partially within the Draft Scheme Order Limits. There will be a permanent, physical impact due to the construction of river bank protection works and outfall structure. Additionally, the Conservation Area Appraisal notes that Biggin Abbey is particularly prominent in views east from the river. These views (see viewpoint 11, **Environmental Information Paper: Landscape and visual**) will be altered by the introduction of the Proposed Development into the landscape beyond Biggin Abbey, altering the character of the conservation area's setting. This is likely to be considered a moderate impact, contributing to a permanent moderate adverse significant effect.
- Fen Ditton Conservation Area is located partially within the Draft Scheme Order Limits. The construction of the ventilation column in the north of the conservation area will alter the character of this part of the heritage asset. There will also be a permanent construction impact caused by the land access route to Ventilation Shaft 4. The presence of the A14 and associated screening, which has severed the conservation area from farmland to the north and east, reduces the extent of the impact from the main site on the setting of the conservation area. However, the scheme will be visible from the eastern end of the Conservation Area. Overall, this is likely to be considered to be a minor impact, contributing to a permanent slight adverse non-significant effect.
- Horningsea Conservation Area is located to the north-west of the Draft Scheme Order Limits. The Proposed Development is not located within key views identified from the conservation area. However, the Proposed Development will result in a change to the farmland setting of the conservation area to its south-east. This is likely to be considered to be a negligible impact, contributing to a permanent slight adverse non-significant effect. There may be additional temporary and/or permanent adverse effects from change to the setting of heritage assets identified during the EIA process, and especially through site surveys.

Historic Landscape

During construction the presence of plant, traffic, noise and light will temporarily alter the character of HLCA within the Draft Scheme Order Limits. These activities will likely be urbanising in areas dominated by post-medieval fieldscapes and rural settlements. The value of the post-medieval agricultural landscape character areas, which is anticipated to be low but will be confirmed by the characterisation exercise and these changes will be temporary.

The HLCAs within the site boundary, currently predominantly modern agricultural land, will also be permanently altered. The character of these areas will be greatly changed within the proposed WWTP, however in other areas within the DCO boundary there will be no permanent change to the character of the areas. The alteration of the historic landscape due to the construction of the proposed WWTP will have a permanent construction effect.

An adverse effect is anticipated on the non-designated parkland of the Grade II* listed Quy Hall. There will likely be a small amount of change in the experience of the setting of this

asset, as the proposed WWTP may be visible in some views from the parkland, as indicated by the ZTV. This will likely alter the rural character of the parkland. This will likely be reduced by existing vegetation at the parkland boundary and proposed landscaping and design mitigation measures. There is also existing development, notably the A14, within the setting however there is little existing infrastructure between the asset and proposed WWTP site.

Any effect on the grade II* registered Anglesey Abbey Park and Garden will likely be minimal. The ZTV demonstrates the proposed WWTP will be screened from almost the entirety of the parkland. The exception to this is at the westernmost edge, at the end of a designed avenue. Here the tallest parts of the proposed WWTP may be visible between vegetation. This is discussed as representative viewpoint 16 in the **Environmental Information Paper: Landscape and visual**. However, due to distance and direction if any structures are visible these will likely be experienced as an extension of the existing development around Cambridge.

How will the proposed relocation of Cambridge Waste Water Treatment Plant change the historic environment during operation?

Archaeology

There will be no further impact to archaeology from the operation of the Proposed Development as any impact will have occurred during construction.

Built Heritage

The operation of the Proposed Development will require new lighting along the B1047 Horningsea Road and within car parks, as well as sensor-activated lighting area lighting. It will also introduce the movement of vehicles throughout the site (for further information refer to the **Environmental Information Paper: Traffic and Transport**). Although the lighting will seek to reduce any offsite effects and use specifically designed lighting equipment that reduces the upward spread of light and reduces glare, it has the potential to alter the rural setting and/or character and impact the heritage value of heritage assets in the vicinity. This is due to the presently low level of light in this area, due to the limited amount of street lighting on the nearby roads. The following assets are identified as likely to be affected:

- Biggin Abbey;
- Poplar Hall;
- Horningsea Conservation Area;
- Fen Ditton Conservation Area; and
- Baits Bite Lock Conservation Area.

Odour is not formally considered as an element of the setting of these assets as described in the listed building's NHLE descriptions or character appraisals of the conservation areas. These focus on history and architectural character. However, the absence of strong smells forms part of their current setting due to their separation from Cambridge with its urban, polluted odours. Consequently, the introduction of a new odour into these areas has the

potential to alter the ability to appreciate and understand their rural village setting. However, due to the mitigation being undertaken, including the commitment to only have "negligible" levels of odour, it is predicted that odour will not affect the identified heritage assets, as shown below. For a full assessment of the likely impacts caused by odour produced by the proposed site and the planned mitigation, refer to the **Environmental Information Paper: Odour**.

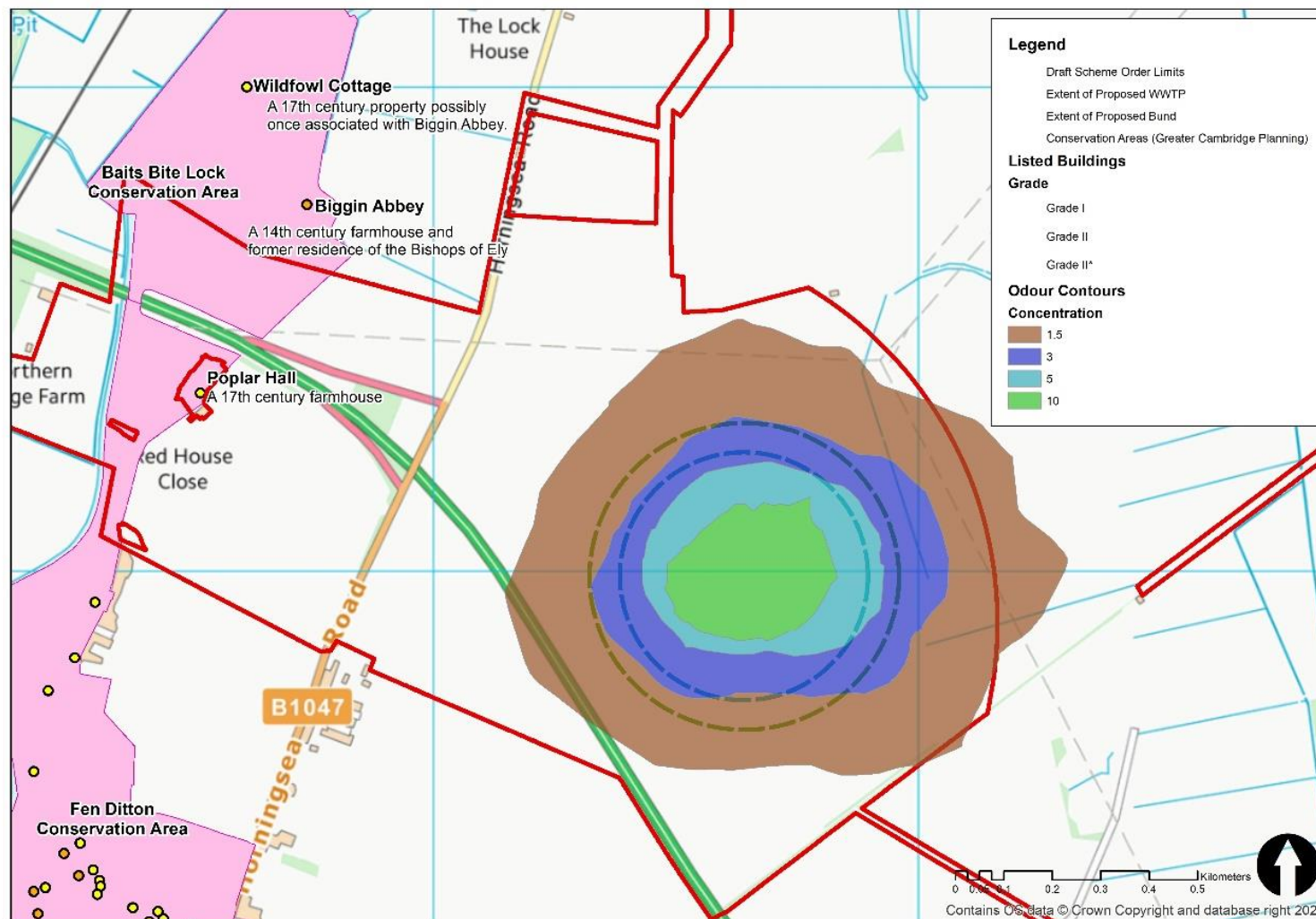


Figure 7: Predicted Odour within the setting of heritage assets near to the Proposed WWTP.

Historic Landscape

Significant effects on historic landscape assets are unlikely during operation, as most effects will result from construction. The operation of the proposed WWTP including lighting, odour, noise and vehicle movements, will not significantly alter the surrounding historic landscape.

The historic landscapes around Quay Hall and Anglesey Abbey already experience the influence of traffic noise and movement from the A14. Further changes are unlikely to additionally impact their heritage value. There will be no notable change in odour within the setting of these assets, as explained above for built heritage assets, due to their distance from the proposed WWTP. However, road and area lighting associated with the proposed WWTP may be visible within the setting of Quay Hall Parkland. Existing streetlighting associated with the A14 and with Stow Road is effectively screened from within the park by topography and vegetation. At the top of the entrance avenue there is a break in vegetation which may allow light from the proposed WWTP to be viewed within the park, this would detract from key views towards the Quay Hall. However, the area lighting will be sensor operated and road lighting is located further from the asset, therefore this effect will likely be minor.

How will we manage our Proposed Development to avoid, reduce or offset adverse changes to the historic environments?

We have progressed our Proposed Development to identify features of value to the Historic Environment including through a programme of intrusive surveys. The protection of the historic environment has taken into account the siting and design of the proposed WWTP and also to how we will manage our activities in construction.

The **PEI introductory section** explains how the Development Consent Order (DCO) will obligate us to deliver mitigation. Mitigation will be secured through the requirements of the DCO which grants permission of the Proposed Development to be built. Furthermore, our activities would be subject to specific regulations for some activities in construction as well as the Environmental Permits required for us to be able to operate.

This section sets out our proposed mitigation proposals for the historic environment.

Archaeology

A programme of archaeological evaluation is currently being undertaken across all areas with the potential to be affected by the Proposed Development. This has been agreed through consultation with relevant stakeholders, especially the Cambridgeshire Historic Environment Team (CHET). So far, this has comprised a geophysical survey and trial trenching. Geophysical survey is non-intrusive and provides a better understanding of archaeological remains without disturbing them. In this instance, instruments were used which measures subtle changes in the magnetic field. These fluctuations can be interpreted to provide a 'picture' of possible archaeological features. Following these surveys, targeted

trial trenching has begun. This involves excavating linear trenches in areas identified by the geophysical survey. This allows better understanding of the archaeological potential in areas which will be impacted by the Proposed Development.

The results of this archaeological evaluation will provide a more comprehensive understanding of archaeology within the Draft Scheme Order Limits. No remains of national importance have been identified during the evaluation. In the unlikely event of the discovery of nationally important remains it may still be appropriate to preserve these in situ, if possible. Remains of local and regional importance have been identified through survey. Although archaeological investigation cannot mitigate the loss of these archaeological remains, it can ensure that the loss of knowledge is off-set by a programme of archaeological recording, publication and archiving. Where an adverse impact is unavoidable to archaeological remains, they will be recorded, in a manner proportionate to their value. This evidence (and any archive materials generated) will be made publicly accessible. The approach to these further steps will be agreed with key stakeholders such as CHET and an archaeological investigation mitigation strategy will be developed.

Built Heritage

Temporary Construction Impacts

The temporary construction compounds will utilise quiet and low vibration equipment; noise and vibration levels will be monitored throughout the works and construction working areas; and compounds will be screened by a solid site hoarding. This will be detailed in the CEMP. This will reduce adverse noise impacts and the potential impact additional noise will have on the setting of Biggin Abbey, Poplar Hall, Fen Ditton Conservation Area, Horningsea Conservation Area and Waterbeach Conservation Area. For further information, refer to the **Environmental Information Paper: Noise and Vibration**.

There will also be a temporary impact to the setting of heritage assets in the vicinity of the Proposed Development due to the lighting required for construction, and the barriers around compounds that will be erected. The rural character of the landscape will be altered, in turn altering the character of heritage assets where the setting is informed by the surrounding countryside. However, this will be reduced as far as possible. The lighting proposed will be mounted horizontally, minimising the spread of light in the surrounding area. This will help to preserve the rural character of the area, especially at night. Additionally, post and rope fences will be used to delineate construction working areas where there is no livestock, and livestock or horse fencing used in fields where there is. The small scale of post and rope fences will reduce their visual intrusion and fits in with the rural character of this area. This will therefore reduce the impact on the surrounding heritage assets' setting.

The changes to character caused by the temporary presence of construction traffic on Horningsea Conservation Areas will be mitigated by preventing construction traffic travelling through Horningsea.

[Permanent Construction Impacts](#)

The Proposed Development will be developed to reduce permanent change in the setting of heritage assets, through the design of landscaping and built elements. This includes the construction of a 5-7m high landscape earthwork bank, the top and outside slopes of which will be planted with grass, wildflowers and trees (refer to **Environmental Information Paper: Landscape and Visual** for further information on this). Additionally, the existing hedgerow along the B1047 Horningsea Road will be reinforced with additional planting. This will diminish the visual presence of the Proposed Development in the landscape, and therefore will reduce the impact on the setting of nearby heritage assets such as Biggin Abbey. Additionally, access through the landscape earthwork will be angled, to reduce views of the plant itself and the moving vehicles within it.

[Operational Impacts](#)

Where possible the planting design will reduce the visible movement of vehicles within and around the Proposed Development. This includes the construction of the earthwork bank, which will limit intervisibility between the site and the surrounding area, reducing the prominence of additional noise and movement within the landscape. This will reduce potential impacts on the setting of Biggin Abbey, Poplar Hall and Horningsea Conservation Area.

In addition, the lighting will be designed to reduce the upward spread of light and to minimise glare, reducing the impact on the surrounding heritage assets. It will also only be switched on when activated by a sensor, or where required for a specific task.

For information relating to the mitigation of odour during operation, refer to the **Environmental Information Paper: Odour**.

[Historic Landscape](#)

The landscape and design measures described above with regard to the setting of built heritage assets, and further described in the **Environmental Information Paper: Landscape and visual**, will also reduce change in the views from the parkland around the Grade II* listed Quay Hall. Those measures which screen the Proposed Development in particular, such as the earthwork bank and planting, will reduce the adverse effects of change within these views. Lighting will seek to reduce any offsite effects and area lighting will be activated by sensor, as above described.

Landscaping surrounding the Proposed Development will reduce change within this historic landscape character area, although some historic features will still be lost and there will still be an alteration in its character. Land required for the construction of the Transfer tunnel, the FE pipeline and the Waterbeach pipeline corridor, following the works, to its current character which will avoid any permanent adverse effect.

What might the likely significant effects to the historic environment be in relation to the proposed relocation of Cambridge Waste Water Treatment Plant?

Archaeology

Impacts on archaeological remains, especially any of national importance, will be avoided or reduced through the design of the Proposed Development, where possible. Where this is not possible, a programme of archaeological recording, through excavation or watching briefs will be undertaken. Making this evidence (and any archive materials generated) publicly accessible, will offset the loss of knowledge about these archaeological remains. However, the ability to record any archaeological remains should not be a factor in deciding whether such loss should be permitted. Therefore, a balanced judgement will be required to understand whether the total loss of any archaeological remains may still result in a significant effect, depending on the value of the heritage asset. There may be additional impacts to unknown archaeological remains identified through the evaluation process that result in significant effects.

Ongoing archaeological surveys have thus far covered most of the proposed WWTP and surrounding landscaping, waste water transfer corridor and treated effluent discharge outfall to the River Cam, as well as ongoing surveys of the Waterbeach pipeline route. Information from these surveys and desk-based research has informed an initial appraisal of the anticipated value of archaeological remains with the potential to be affected. This preliminary assessment of the resources identified considers the remains within the Draft Scheme Order Limits to be of local to regional importance and therefore likely low to medium value. Although the value of remains is likely low to medium, the project will likely result in a moderate adverse significant effect as the loss of the irreplaceable resource cannot be mitigated.

Built Heritage

There will likely be temporary and permanent moderate adverse construction effects on Biggin Abbey and Baits Bite Lock, and temporary moderate adverse construction effects on Poplar Hall and Fen Ditton Conservation Area, due to the presence of construction compounds, cranes and other activity within or within the setting of these assets. Additionally, the ventilation shaft close to Poplar Hall will likely detrimentally alter the character of the asset's surrounding landscape. At present, the rural, agricultural setting of these assets makes a positive contribution to its heritage value because it helps to explain that the area's agricultural history. These are therefore considered to be significant effects.

The setting of other heritage assets in the vicinity will likely experience temporary and permanent minor and negligible impacts due to the introduction of the Proposed Development into the surrounding agricultural landscape, though not to a significant extent.

Historic Landscape

No significant effect during operation is likely for any landscape asset within the 1km study area or identified by the ZTV. This is due to the distance between these assets and proposed WWTP, as well as landscaping which will reduce the effect of operational elements such as lighting on views from these assets towards the proposed WWTP. Due to the value of HLCAs within the study area and the measures to reduce adverse effects described above, no significant effect on the historic landscape is likely.

References

Historic England. *National Heritage List for England*. Data acquired 29th October 2021. Available online at: <https://historicengland.org.uk/listing/the-list/>.

Cambridgeshire County Council. *Cambridgeshire Historic Environment Record, Enquiry 4719*. Data acquired 5th November 2021.

Headland Archaeology (2021) *Cambridge Waste water Treatment Plant, Cambridgeshire: Geophysical Survey Report*.