

8. Cultural heritage

8.1. Introduction

This chapter considers the effects of the Proposed Scheme on cultural heritage.

A heritage asset is defined as a building, monument, site, place or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest, and that heritage interest may be archaeological, architectural, artistic or historic’.

Heritage assets include designated assets (World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Parks and Gardens, Registered Battlefields and Registered Historic Wrecks) and non-designated assets identified by the Local Planning Authority (for example: locally listed buildings, archaeological sites and monuments and historic landscapes).

8.2. Regulation and policy background

8.2.1. The Ancient Monuments and Archaeological Areas Act 1979

This Act (as amended) provides for the protection of Scheduled Monuments, which are by definition of national importance, but does not afford any protection to their settings. It is a criminal offence to damage a Scheduled Monument, and Scheduled Monument Consent (SMC) is required for any works within a scheduled area in accordance with Section 1 of the Act.

8.2.2. The Planning (Listed Buildings and Conservation Areas) Act 1990

This Act details the statutory protection afforded to Listed Buildings. Under Section 66 (1) of the Act, planning authorities are instructed to have special regard to the desirability of preserving a Listed Building, its setting, or any features of special architectural or historic interest that it possesses.

8.3. Methodology

8.3.1. Scope

The scoping assessment carried out at the formal scoping stage was documented in the PEIR (Jacobs, 2020). Aspects scoped into assessment in the ES are set out below in Table 8.1.

Table 8.1 Scope of assessment

Scoped in	Scoped out
Impacts from construction groundworks to designated archaeological assets (prehistoric trackways (NHLE 1014430) located 670m to the south-east of Parchey Bridge)	Impacts to historic buildings (all assets)
Impacts from construction groundworks to non-designated archaeological assets	Impacts to historic landscape (all assets)

Scoped in	Scoped out
recorded within the footprint of the Proposed Scheme	
Impacts from construction groundworks to unknown archaeological assets	
Impacts from construction groundworks to deposits of paleoenvironmental and geoarchaeological interest. To include as a result of compression and dewatering.	

8.3.2. Study area

The study area for this assessment comprised a 500m radius corridor along the length of the Proposed Scheme, plus two extended areas which covered King's Sedgemoor to the east and Lang Moor in the north-west respectively (see Figures 8.1 and 8.2, Appendix A).

The study area was agreed with the Archaeological Advisor to Sedgemoor District Council.

8.3.3. Establishing the baseline

Data sources

The cultural heritage baseline was established using the following sources of information:

- National Heritage List for England (NHLE) for information on designated heritage assets
- Somerset Historic Environment Record (HER) for information on non-designated archaeological sites, findspots, and archaeological events (updated 2019)
- Portable Antiquities Scheme (PAS) for information on finds of archaeological interest within the study area
- LiDAR data held by the Environment Agency
- Ground Investigation reports and geological information held by the British Geological Survey
- Published and unpublished archaeological reports relating to excavations and observations in the vicinity of the Proposed Scheme
- The South West Research Framework (Webster, 2007) and associated Research Strategy for 2012-2017 (Grove and Croft, 2012)

Supporting studies and investigations

This chapter is also informed by the results of the following studies undertaken in support of the Proposed Scheme:

- A Cultural Heritage Desk-Based Assessment (DBA) included at Appendix O
- A geoarchaeological assessment, including the results of a hand augur survey undertaken along the length of the Proposed Scheme (Appendix O).

Consultation

In order to inform this assessment, consultation has taken place with the following consultees:

- Historic England
- South West Heritage Trust

Further detailed information on consultation is provided in Chapter 4 of this ES.

8.3.4. Determination of significance

Assessment of value

The value of heritage assets was assessed using the criteria shown in Table 8.2 below. The criteria are based on the guidance provided in the Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and LA 106 Cultural Heritage Assessment (Highways England, 2019).

The term value has been employed here rather than significance, as used in the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG, 2019) and local planning policy, or importance, to avoid confusion when describing effects that are significant or not later on in this chapter.

Table 8.2 Criteria for assessing the value of heritage assets

Value	Criteria
High	<ul style="list-style-type: none">• Scheduled Monuments• Listed Buildings• Designated historic landscapes of outstanding interest• Non-designated assets of schedulable quality and importance• Assets that can contribute materially to national research objectives• Conservation Areas• Non-designated structures of clear national importance• Non-designated landscapes of outstanding interest, high quality or importance and of demonstrable national value• Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factors
Medium	<ul style="list-style-type: none">• Designated or non-designated assets that contribute to regional research objectives

Value	Criteria
	<ul style="list-style-type: none"> • Non-designated historic landscapes that will justify special historic landscape designations, or landscapes of regional value • Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor • Historic Townscape or built-up areas with important historic integrity in their buildings, settings or built settings.
Low	<ul style="list-style-type: none"> • 'Locally Listed' buildings • Designated and non-designated assets of local importance • Robust non-designated historic landscapes and historic landscapes with importance to local interest groups • Historic landscapes whose value is limited by poor preservation and / or poor survival of contextual associations • Assets compromised by poor preservation and/or poor survival of contextual associations • Assets of limited value, but with potential to contribute to local research objectives • Historic (unlisted) buildings of modest quality in their fabric or historical association • Historic Townscape or built-up areas of limited historic integrity in their buildings or built settings
Negligible	<ul style="list-style-type: none"> • Heritage assets with very little or no surviving archaeological interest • Buildings of no archaeological or historical note, or buildings of an intrusive character • Landscapes with little or no significant historical interest
Unknown	<ul style="list-style-type: none"> • The value of the resource has not been ascertained, for example unknown archaeological assets, or buildings with some (hidden) potential for historical significance.

Magnitude of impact

The magnitude of impact is the degree of change that will be experienced by a heritage asset if the Proposed Scheme were completed, as compared with a 'do nothing' scenario. This change to a heritage asset may include physical impacts upon the asset or impacts upon its setting or amenity value. The criteria used for assessing magnitude of impact are shown in Table 8.3 below.

Unless otherwise stated, all identified impacts are adverse.

Table 8.3 Criteria for the assessment of the magnitude of impact

Magnitude of impact	Criteria
High	<ul style="list-style-type: none"> • Change to most or all key archaeological materials, such that the resource is totally altered • Change to key historic building elements, such that the resource is totally altered • Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit • Comprehensive changes to setting
Medium	<ul style="list-style-type: none"> • Changes to many key archaeological materials, such that the resource is clearly modified • Change to many key historic building elements, such that the resource is materially modified • Changes to the setting of a cultural heritage asset, such that it is materially modified • Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character
Low	<ul style="list-style-type: none"> • Changes to key archaeological materials, such that the asset is slightly altered • Change to key historic building elements, such that the asset is slightly different • Change to setting of a cultural heritage asset, such that it is noticeably changed • Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in limited changes to historic landscape character
Negligible	<ul style="list-style-type: none"> • Very minor changes to archaeological materials, or setting • Slight changes to historic buildings elements or setting that hardly affect it • Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very

Magnitude of impact	Criteria
	slight changes to use or access; resulting in a very small change to historic landscape character
No Change	<ul style="list-style-type: none"> • This is where there is no change, loss or alteration to a heritage asset's physical characteristics, features or elements • This is where there is no change to the setting of the heritage asset (visual and/or audible), so it remains unaltered

Significance of effect

The significance of effect is determined as a combination of the assessment of the value of the heritage asset and the magnitude of the impact based on the significance matrix provided at Figure 5.1 (p44) in Chapter 5 of this ES.

For the purpose of this assessment, effects of moderate significance or greater are considered to be significant.

8.3.5. Limitations

The limitations and assumptions for the purposes of this assessment include the following:

- The HER data includes record entries compiled from a range of sources of varying quality and detail and therefore are not seen as definitive. Therefore we do not accept responsibility for the accuracy of the HER data
- Where third party information has been relied upon, DBA and geoarchaeological assessment, it is assumed this is accurate
- The potential for currently unknown archaeological remains to be present within the Proposed Scheme has been assessed, however such an assessment has a degree of uncertainty. In addition, as the extent or sensitivity of any such remains is unknown, further assessment cannot be made.

8.4. Existing environment

For the purposes of this chapter, and to maintain consistency with the PEIR for the Proposed Scheme (Jacobs, 2020), the heritage asset referencing previously used in the PEIR has also been applied in this assessment. Heritage assets are referred to below by their unique NHLE or HER reference numbers.

The locations of the designated heritage assets and non-designated heritage assets are summarised in this chapter and are shown on Figures 8.1 and 8.2 (Appendix A) respectively.

8.4.1. Prehistoric (c. 750,000 BC to AD 42)

There are five heritage assets recorded within the footprint of the Proposed Scheme which date to the prehistoric period, one of which is designated.

There is one Scheduled Monument within the footprint of the Proposed Scheme, this comprises the remains of at least seven prehistoric wooden trackways/structures located approximately 670m to the south-east of Parchey Bridge (NHLE 1014430) on the eastern bank of the KSD.

The monument includes the remains of at least seven well-preserved prehistoric timber trackways/structures, which are located at the base of a spur of higher land at Sutton Hams. The tracks all radiated westwards from the spur of Sutton Hams and were first noted during improvement work to the King's Sedgemoor Back Ditch in the spring of 1979 when they were partly excavated (Norman and Clements, 1979). The scheduled area has more recently been subject to geophysical survey, which due to the ground conditions did not definitively reveal any features associated with the trackway (Davies, 2016). These structures are currently undated; however, evidence has shown they comprise a variety of wood types such as hazel, alder and oak. The construction technique used comprised roundwood and brushwood which in some cases was pegged to spaced transverses and longitudinals. Evidence of axe marks has been identified and a number of flint and bone artefacts have been recovered. The monument is included on the Heritage At Risk Register (Historic England, 2020a) due to the threat of drainage/ dewatering.

These prehistoric wooden trackways/structures were constructed between the Neolithic and Iron Age period and were used as communication and trading routes across wetland areas. In addition, these structure may have functioned as hunting/fishing platforms. These structures were constructed of natural sources, such as brushwood, although some include other features like piles and planks. Trackways provide information not only about the communication and trading routes that were used, but also on the construction techniques that were being practiced and the tools that were used from the woodworking markings on the wood. Furthermore, the waterlogged ground conditions provide ideal conditions for the preservation of organic matter such as pollen, plant remains and beetle, which also provide information on the types of animals and plant species that were present at that time of their use. The NHLE listing states that 'approximately 75 examples of either trackways or groups of trackways have been recorded in England' and 'over half' are located within the Somerset Moors (Historic England, 2020b). Given this heritage asset's legal definition as a designated Scheduled Monument, its rarity as a prehistoric trackway/structure and its contribution to Regional Research Aims such as 3, 18, 20 and 39 (Webster, 2007) associated with prehistoric activity and environmental information for the region, this heritage asset has been assessed to be of high value.

It is believed that the structures associated with NHLE 1014430 extend outside the scheduled area (Wessex Archaeology, 2015) and cross the Proposed Scheme in a westerly direction. Timber posts have been identified in the west bank of the KSD (HER 11319) opposite the scheduled area which comprise vertically driven roundwood posts which are 7cm in diameter and may be of prehistoric origin. Due to their location, being opposite the scheduled area, these features may be an extension of the scheduled prehistoric trackways. Given that this heritage asset may

be associated with the Scheduled Monument which is of national importance, this non-designated asset has been assessed to be of high value.

There are three other heritage assets recorded within the Proposed Scheme footprint which date to the prehistoric period and comprise timber features:

- Asset HER 12833 comprises a row of timber piles known as Strangway's Causeway that were identified in the early 20th century crossing the River Sowy to the north-east of Greylake. The HER suggests the orientation of these piles aligns with other timber finds at Langacre Rhyne (Asset HER 12834) which is within the study area
- A late Bronze Age brushwood trackway identified within the Langacre Rhyne (HER 10580) to the east of Greylake
- Asset HER 16137 comprises an alignment of timber piles which were identified in the north bank of the River Sowy and within the river bed 100m east of Church Drove Bridge, Oath. The alignment comprises 13 roundwood piles measuring between 5cm to 12cm in diameter and radiocarbon dating suggest the heritage asset is from the Bronze Age period

Given the above evidence and that these heritage assets likely form part of prehistoric trackways and their potential to contribute to Regional Research Aim 3 (Webster, 2007) associated with prehistoric trackways, Assets HER 12833 and 16137 have been assessed to be of medium value.

Another prehistoric heritage asset found within the footprint of the Proposed Scheme comprises the findspot of a human skull (HER 39230) which was recovered by a dog walker in 2017 from the south bank of the River Sowy downstream from Monk's Leaze Clyce at the southern limit of the Proposed Scheme. The skull was dated to the Iron Age period and has been removed. No other human remains were found at the location although a post structure was also discovered (Brunning *pers. comm*). Given the poor contextual associations of this heritage asset and the limited contribution it can provide to prehistoric burial practices within the area, Asset HER 39230 is considered to be of local importance and has been assessed to be of low value.

There is widespread evidence of prehistoric activity in the study area including both surviving physical remains of prehistoric trackways, field systems and finds. Particular clusters of prehistoric assets of note within the vicinity of the Proposed Scheme include:

- Another scheduled area, comprising two prehistoric timber trackways, is present to the south of Moor Drove (NHLE 1014872) approximately 900m to the south-west of the Proposed Scheme. The two trackways, Moor Drove 1 and 2, were recorded from a drain section when the water level was lowered in the spring of 1980. They were located 45m-50m from the north-west corner of the monument along the south facing section of the ditch to the south of Moor Drove. It is believed that the tracks are contemporary, and that they converge beneath Moor Drove, and extend southwards from the sand island of Chedzoy, across the low lying peat of Lang Moor to the Burtle Sands at Westonzoyland, a distance of approximately 1km

- A number of prehistoric finds (HER 11727, 11734, 11902 and 15025) dating from the Mesolithic through to the Bronze Age found to the south of Parchey Bridge to the east and west of the Proposed Scheme
- A possible prehistoric field system (HER 11861); two possible enclosures (HER 28129); the findspot of a Bronze Age axe (HER 10933); a flint scatter (HER 12109) and the findspot of an Iron Age sword recorded by the PAS to the north-west and west of Westonzoyland approximately 1km to the south-west of the Proposed Scheme
- A cluster of Bronze Age metalwork recorded by the PAS to the north-west of Greylake approximately 300m to the south of the Proposed Scheme
- A group of assets to the east of Greylake including: prehistoric wood finds (HER 11760 and 12132); prehistoric burials and finds recovered during sand quarrying during the early 20th century (HER 10568); and an unstratified chert flake (HER 11761) located either side of the Proposed Scheme. The island at Greylake was also investigated as part of an episode of Time Team in 1998 (HER 24511 and 57102) when Bronze Age human remains and artefacts were recovered. Subsequent dating of the prehistoric burials found in the early 20th century showed them to date to the Mesolithic period (Brunning 2013)
- A group of prehistoric assets including finds and cropmarks (HER 53493, 55012, 55025, 55026 and 55027) on Aller Moor approximately 1.25km to the east of the Proposed Scheme. This area has been subject to geophysical survey (HER 31711) and archaeological evaluation

These assets are reviewed here to highlight the archaeological potential of the Proposed Scheme and are not ascribed a value.

8.4.2. Roman (AD 43 to AD 410)

There are no heritage assets dating to the Roman period recorded within the footprint of the Proposed Scheme.

Recorded non-designated heritage assets of Roman date are less prevalent within the study area, notable groups include:

- A number of possible sunken tracks to the north-west of Westonzoyland (HER 12105) and a cluster of Roman coins recorded by the PAS approximately 750m to the south-west of the Proposed Scheme
- Two cluster of Roman coins recorded by the PAS to the north-west of Greylake approximately 300m to the south of the Proposed Scheme
- Roman finds (HER 4500) recovered from the south-west of Stathe approximately 350m to the west of the Proposed Scheme
- It is noted that there was extensive Roman activity within the Somerset Levels including drainage and land reclamation. Undated field systems recorded by the HER may date to this period.

8.4.3. Early medieval (AD 411 to AD 1065)

There are no heritage assets dating to the early medieval period recorded within the footprint of the Proposed Scheme.

The only early medieval/Saxon heritage asset recorded within the study area comprises the findspot of a strap fitting identified by the PAS to the west of Parchey Bridge approximately 250m to the west of the Proposed Scheme.

8.4.4. Medieval (AD 1066 to AD 1550)

There are three non-designated heritage assets which date to the medieval period within the footprint of the Proposed Scheme. These are summarised below.

One heritage asset comprises a group of linear ditch cropmarks, thought to be field systems and are possibly medieval or prehistoric in date (HER 11278). This heritage asset has been identified on the north-east side of the Langacre Rhyne, east of Greylake and measures over 300m in length in total. The HER suggests the features may have formed part of a more extensive system of land division, however the survival of other associated features is currently unknown. As a result of the frequency of this type of heritage assets and lack of rarity and its non-designated nature this asset has been assessed to be of low value.

Another heritage asset comprises the earthworks of three probable medieval or post medieval stack stands which are visible on aerial photographs (HER 18899) located to the north-east of Othery on King's Sedgemoor. These features sub-square and sub-rectangular in shape and measure between 22m by 9m and 9m by 9m. It is believed stack stands were used to temporarily store harvest hay or corn and *'in wetland areas such as King's Sedgemoor, they include the basic elements of a small platform surrounded by a drainage ditch'* (HER). Given the lack of archaeological contextual evidence of this asset and its local importance to the King's Sedgemoor area this asset has been assessed to be of low value.

Asset HER 54919 comprises the site of a deserted medieval farmstead, comprising an area of extant complex earthworks on a low promontory located on the west bank of the River Sow to the south of Othery. The features were defined by flooding in the 1940s and is visible on aerial photographs comprising sub-rectangular enclosures defined by banks and ditches. Very few medieval farmsteads have been examined in the South West (Webster 2007, 196) therefore this asset has the potential to provide further information on deserted medieval farmsteads within the Somerset area and contribute to the Regional Research Aims 42 and 47 (Webster, 2007) for the region. Thus, Asset HER 54919 has been assessed to be of medium value.

Medieval assets recorded within the study area most reflect landscape elements such as flood banks, field systems, drains and stack stands. A former farmstead is identified at Othery (HER 11276) to the immediate west of the Proposed Scheme. Deserted medieval villages are also recorded at Oath (HER 53487) approximately 250m to the south of the Proposed Scheme; and east of Aller Court Farm (HER 53488) approximately 700m to the north. The PAS also record 18 finds of medieval date within the study area. The only clear cluster of finds is located to the north-west of Westonzoyland, approximately 1km to the south-west of the Proposed Scheme, where pottery, a spindle whorl and various metal finds have been recovered.

8.4.5. Post medieval (AD 1551 to Present)

The designated Battle of Sedgemoor Registered Battlefield (NHLE 1000032) lies on the left bank of the KSD immediately to the north of Westonzoyland. The designation abuts the drain for approximately 1.1km of its length. The Battle of Sedgemoor dated to 6th July 1685 and was the final engagement of the Monmouth Rebellion against

the Monarchy of James II. It was also the last pitched battle to be fought on English soil. Given its regional and historic importance as a battlefield site and its potential to contribute to the Regional Research Aim 63 (Webster, 2007) on medieval and later conflict sites through the discovery of material remains, this designated asset has been assessed to be of medium value.

Three non-designated post medieval heritage assets relating to roads are recorded within the footprint of the Proposed Scheme including:

- A stone causeway referred to as Greylake Fosse (HER 10567) which is thought to have medieval origins, although this is not proven. This asset is mentioned in the 17th century measuring eight miles long and was named after an Abbot of Glastonbury (HER). The alignment of Asset HER 10567 is now occupied by the modern road, the A361, and crosses the River Sowy to the north-east of Greylake
- Asset HER 10567 coincides with the course of an 18th century turnpike road (HER 26224) which also follows the alignment of the A361, but then deviates south from Greylake
- Another 18th century turnpike road (HER 24693) which crosses the Proposed Scheme at Beer Wall

In consideration of their poor state of preservation, their lack of rarity and limited potential to contribute to Regional Research Aim 48, Assets HER 10567, HER 26224 and HER 24693 are considered to be of local importance and have therefore been assessed to be of low value.

The Proposed Scheme footprint includes part of an area the HER identifies a battle site located to the south-east of Pathe (HER 19451). This battle site is associated with the Battle of Aller Drove, which is thought to have happened after the Battle of Langport (1645) as the Royalists retreated towards Bridgewater (HER), they were stopped by the Parliamentarian army, made a brief stand at Aller Great Drove, before being defeated (Baggs *et al.*, 1974). This is not a designated as a Registered Battlefield. Given its regional and historic importance as a battlefield site and its potential to contribute to the Regional Research Aim 63 (Webster, 2007) on medieval and later conflict sites through the discovery of material remains, Asset HER 19451 has been assessed to be of medium value.

The PEIR (Jacobs 2020) acknowledges that the KSD (HER 41612) is a historic feature in its own right. The channel drains the peat moors of King's Sedgemoor and the main channel was constructed between 1791 and 1795. Despite defects, the drain brought some flood relief. It was widened in 1939 and 1944, which led to some of the archaeological data detailed above being generated. In 1972 it was connected with the newly-created River Sowy flood relief channel. Given this asset provides insight into the construction of post-medieval flood relief for the local area, it is considered to be of local importance and has been assessed to be of low value.

Post medieval assets recorded within the study area include the sites of various buildings shown on historic mapping; former sand quarries; withy boilers; roads and Second World War defensive features. The PAS also records 33 post medieval finds within the study area. Of particular note are a cluster of finds within the Registered Battlefield of the Battle of Sedgemoor (NHLE 1000032) which lies on the left bank of

the KSD immediately to the north of Westonzoyland. Finds from this area include shot, buttons, buckles, mounts and coins.

A scheduled duck decoy (NHLE 1014451) is present on Middle Moor at the southern end of the Proposed Scheme. The designation lies 150m north of the Proposed Scheme and dates from the late 17th century.

8.4.6. Undated

There are four heritage assets recorded within the footprint of the Proposed Scheme which are undated including:

- A mound (HER 12086) identified at Cossington Right Drove, Stawell
- Trackways to the north of Westonzoyland Airfield (HER 18916), the north-eastern extent of which partly intersect with the Proposed Scheme close to the River Sow and KSD confluence
- A cropmark enclosure (HER 29970) through which the Proposed Scheme passes to the north-east of Stathe. This enclosure is visible on aerial photographs and includes an 'annular mark' within its boundary (HER). The feature is different to the other field boundaries and surface drainage systems around it (HER)
- Two groups of similarly oriented ditches (HER 54926) of which the southern ditch is crossed by the Proposed Scheme to the north of Monk's Leaze Clyce. This asset is visible on aerial photographs and may relate to remains of a field system or enclosure (HER)

Given the uncertainty of the origins of Assets HER 22970 and HER 54926 and their lack of secure archaeological context they have been considered to be of local importance and have been assessed to be of low value.

There are also numerous undated non-designated assets recorded within the study area including wooden features and finds, cropmarks, mounds and earthworks. Particular clusters of undated assets of note within the vicinity of the Proposed Scheme include:

- Cropmark enclosures and field systems to the south of Parchey Bridge (HER 11846 and 11847) to the immediate west of the Proposed Scheme
- The findspot of a dugout canoe (HER 28400) at Chedzoy to the immediate west of the Proposed Scheme. The canoe is recorded to have been approximately 12ft in length and was discovered during rhyne widening in the 1950s on the site of the mound adjacent to the KSD
- Trackways (HER 18916) identified to the north of Westonzoyland Airfield at the junction between the KSD and River Sow
- Various wood and pile finds at Greylake (HER 11762, 11766, 12133, 12134 and 12834) located either side of the Proposed Scheme
- Various wood finds on North Moor (HER 55017, 55028 to 55031) to the east of the Proposed Scheme found during drain clearance works

8.4.7. Palaeoenvironment

Previous work

Previous archaeological intervention and eyewitness accounts of excavation and maintenance work along the Sowy and the KSD, in addition to observations during times of low water levels, have borne witness to the buried palaeoenvironment in certain sections of the Proposed Scheme. These interventions have shed light on the nature of the physical environment during the prehistoric period.

A deep band of peat was observed during an archaeological watching brief (HER 28226) to the immediate west of the Proposed Scheme to the south of Aller Drove.

At Beer Wall, Othery, to the east of the Proposed Scheme, an archaeological watching brief (HER 36188) identified peat deposits (6.15-6.22 m below Ordnance Datum (OD)) representing a terrestrial wetland environment dating to the Late Mesolithic period (5300-5070 cal BC). This was subsequently 'choked off' by estuarine alluvial sedimentation associated with rising sea levels. The pollen evidence from this layer showed an on-site mire vegetation of carr woodland (dominated by alder with willow), which may have fringed a wetter zone with sedges and other fen taxa.

At the southern end of the Proposed Scheme, a borehole survey along the River Parrett (HER 26107) was undertaken in 2006. Deposits of the Somerset Levels Formation underlie the entire study area at +5-4m OD. This formed in marsh and river marginal environments during the second half of the Holocene, while carbon dates from the uppermost beds suggest the accretion ceased in the Late Bronze Age/Early Iron Age. Alluvial sediments relating to floodplain processes operating in the River Parrett overlie and form part of the Somerset Levels Formation. These include levee deposits while the whole alluvial sediment bundle dates to the Iron Age. Subsequent embankments were built using silt, clay and sand dredged from the channel and floodplain material.

Part of a geoarchaeological borehole survey (HER 28465) was carried out to the west of Aller Drove, to the west of the Proposed Scheme. The survey identified Late Pleistocene head derived from Barrow Mump and fluvial sands and gravels of Late Glacial/Early Holocene age. A palaeochannel had cut through both these units suggesting that it is a Holocene feature. The fills of the palaeochannel and the intertidal/alluvial deposits that seal it are 10m thick. The earliest channel sediments were carbon dated to the Late Mesolithic period and formed in intertidal conditions, while sedimentological evidence from the upper palaeochannel fills suggests burning activity causing the spread of ash across the wider catchment at this time. A peat dating from the Early Neolithic to the Late Bronze Age/Early Iron Age caps the palaeochannel. The peat formed in an alder carr environment, although pollen studies data demonstrate that the adjacent drylands were occupied by oak, birch and hazel forest. Magnetic susceptibility data suggest human activity on the site during the time that the peat formed. The flood banks were constructed on the peat surface in the medieval period and were built of sediment scraped from the surrounding moor.

Geoarchaeological assessment

A detailed assessment of the geoarchaeological and palaeoenvironmental deposits present within the Proposed Scheme and their archaeological and palaeoenvironmental potential was undertaken by ARCA (University of Winchester)

using the available BGS records and the results of a hand auger transect. The full report on the geoarchaeological assessment is provided at Appendix O and is summarised below.

Augur holes identified in the review below are identified by prefix BH and their locations are shown within the supporting figures at Appendix O.

Stratigraphic sequence

Six stratigraphic units were identified within the Proposed Scheme. These comprised from oldest to youngest:

- Fine clayey gravel (Pleistocene Burtle Beds)
- Unstructured blue grey clay (pre-late Mesolithic)
- Interbedded peat and clays
- Oxidised silt/clay (post-late Bronze Age)
- Topsoil
- Modern Made Ground

Fine gravel was recorded in one borehole only: BH25. It is found at +2.19m OD (1.58m below ground level (bgl)) and is at least 0.72m thick. The borehole was located at Greylake and records the northeast margin of an inlier of the Burtle Beds.

Unstructured blue grey silt/clay deposits were found in two distinct sections of the auger transect and at two different elevations. The first is in two boreholes (BH13 and BH14) on Aller Moor in the Parrett Valley at +3.35m OD (0.96m bgl) and +3.58m OD (0.75m bgl), respectively. The second section includes fifteen boreholes (BH24, BH26 – BH39) from Greylake to Mount Close Batch on King's Sedgemoor, where the deposits lie between -0.37m OD (3.71m bgl) and +0.86m OD (2.25m bgl) in BH37 and BH38, respectively. The lithology of the deposits is the same: namely a structureless and soft, blue grey silt/clay which contained rare black humic spots and sand-sized peat fragments. The high-level deposits in BH13 and 14 may represent silted-up meander cut-offs of the ancient River Parrett. On King's Sedgemoor though, the deposits are probably mid-Holocene (late Mesolithic, sixth millennium) tidal flat mud deposits.

Peat deposits were found in all the boreholes (except BH19 and BH40). From Monk's Leaze Clyce (BH1) to Othery (BH20) peat sub-crops below oxidised silt/clay deposits between +3.64m OD in BH9 (0.79m bgl) and +4.05m (0.23m bgl) in BH16). From Othery (BH21) to Mount Close Batch (BH39) the peat outcrops. The ground surface in this section of the transect lies between +3.85m OD in BH21 and +2.96m OD in BH31. There are three broad peat lithologies: wood peat, reed peat and interbedded peat and clay. Wood peat has been defined as a fibrous peat matrix with >30% composed of clasts of wood, if it has <30% the deposit is a reed peat. Interbedded peat and clay deposits are composed of peat and clay beds with the latter no thicker than 200mm, displaying diffuse or gradual boundaries and containing frequent, poorly sorted peat clasts. The colour of the clay beds is generally a grey to olive brown.

Oxidised silt/clay deposits were found in 18 consecutive boreholes that lie from Monk's Leaze Clyce (BH1) to Othery (BH18). The deposit outcrops with a topsoil developed in the uppermost fraction in BH1 – BH11 and BH7 – BH14. The thickness

of the oxidised silt/clay is a maximum of 1.21m in BH3 and it decreases northwards, away from the influence of the River Parrett. The lithology of the oxidised silt/clay is a firm yellowish-brown silt/clay with 50% iron oxide mottles. There is a gradual boundary to the underlying peat and the colour grades into a dark greyish-brown with occasional peat granules. The unit is bioturbated by roots of grass pasture. It represents flood water alluviation from the River Parrett.

Modern Made Ground was found in BH40 where a turf line covers impenetrable 20th century rubbish, and in BH19 where a topsoil with modern detritus overlies hard deposits that are probably associated with infrastructure works at the site.

Archaeological and palaeoenvironmental potential

The archaeological and palaeoenvironmental potential of the stratigraphic units within the vicinity of the Proposed Scheme was identified to be as follows.

- The palaeoenvironmental potential of the unstructured blue grey silt/clay and the peat deposits is high. The deposits will contain a suite of botanical and faunal remains, for example, diatoms, pollen, plant macrofossils, beetles and molluscs. The archaeological potential of these deposits is moderate to high on the Burtle edge where prehistoric human occupation has been demonstrated, but generally low in the main body of the valley peats. However, prehistoric trackways have been identified, for example: west of Mount Close Batch in King's Sedgemoor Back Ditch (HER 10847); a late Bronze Age brushwood trackway (HER 10580) at Greylake in the west bank of the Langacre Rhyne, which runs parallel to the River Sowey (see Wessex Archaeology 2015, 21:5.1.21); and Bronze Age piles and cut roundwood (>4m bgl) on Aller Moor (HER 15766 and HER 16137). This evidence points to important, local, high archaeological potential.
- The palaeoenvironmental potential of the top fraction of the peat where it is oxidised, and the oxidised silt/clay deposits is moderate to low. In places it is noted that the peat is exposed on the surface due to erosion/plough damage. In such areas, the palaeoenvironmental potential is low to negligible. Archaeological potential for non-organic artefacts and features is high particularly those relating to drainage activities and post-drainage times.

No geological feature was identified in the auger transect that will preclude the presence of buried archaeological remains.

Value

The deposits of geoarchaeological and palaeoenvironmental interest within the area of the Proposed Scheme, comprising unstructured blue grey silt/clay and peat, have the potential to contain well preserved archaeological and environmental evidence that will contribute to Regional Research Aims such as 3, 18 and 20 associated with prehistoric activity and environmental information for the region (Webster, 2007). As such, these deposits are assessed to be of medium value.

8.4.8. Archaeological potential

There is a high potential for previously unknown archaeological assets and deposits of palaeoenvironmental/geoarchaeological interest to be present within the vicinity of the Proposed Scheme. Areas of particular interest, as highlighted by the above review of the known baseline, include:

- To the west of the scheduled trackways south-east of Parchey Bridge (NHLE 1014430). It is highly likely that the previous identified trackways continue from the topographic spur at Sutton Hams to the south-west across the area of the Proposed Scheme. Timber posts have been identified in the west bank of the KSD (HER 11319) opposite the scheduled area and may represent an extension of the scheduled prehistoric trackways. In addition, previously recorded lithic scatters could indicate a potential for preserved in-situ knapping floors or area of activity
- There is a high potential for further evidence of the Battle of Sedgemoor (NHLE 1000032) which lies on the left bank of the KSD immediately to the north of Westonzoyland, in the form of finds and possibly buried remains
- At the topographic island of Greylake, there is evidence for at least three phases of the disposal of human remains including Mesolithic, Early Bronze Age and Late Bronze Age activity (Brunning 2013). In addition, there is also evidence of wooden trackways across King's Sedgemoor from the topographic spur at Briarwood Farm extending to the south-west across the Proposed Scheme towards Greylake and Middlezoy. There are also numerous PAS finds recorded within the Greylake area, including a cluster of Bronze Age metal work which may represent votive offerings. As such, there is a potential for further preserved wooden features to survive within this area and also further unstratified metal finds
- There is a high potential for wooden trackways in the area between Othery and High Ham linking the two areas of higher ground. This is supported by the known presence of wooden finds in this area and analogy with similar natural crossing points in the same valley and the Brue Valley to the north (Brunning pers. comm)
- An undated timber pile alignment (HER 16137) is recorded at Oath in the southern part of the Proposed Scheme. Further evidence of this feature may survive within the Proposed Scheme

The value of any previously unknown archaeological assets is currently unknown. However, if further evidence of prehistoric trackways was identified to the south of Parchey Bridge, it could be considered of equivalent status to the Scheduled Monument (i.e. high value).

8.5. Likely significant effects

Potential impacts to heritage assets as a result of the construction of the Proposed Scheme include:

- Damage to designated assets arising from plant movements
- Damage to designated and non-designated assets as a result of compression from bank raising works
- Partial exposure or damage to designated and non-designated archaeological assets, including unstratified finds related to the Battle of Sedgemoor, during shallow topsoil stripping in advance of embankment raising works

- Partial or complete removal of previously unknown archaeological assets during excavation works for the embayments, two-stage channels and backwaters
- Impacts on deposits of palaeoenvironmental and geoarchaeological interest arising from excavation works for the embayments, two-stage channels and backwaters
- Impacts on deposits of palaeoenvironmental and geoarchaeological interest arising from excavation works and sheet piling for sluice refurbishment works on the right bank of the KSD, fencing removal and reinstatement, and culvert crossing strengthening on left bank of Sowy and KSD
- Impacts to non-designated archaeological assets arising from replacement tree planting

Likely significant effects are detailed in Table 8.4 below.

In terms of impacts to the settings of designated assets, given the nature of the Proposed Scheme, no permanent adverse effects on such assets arising from changes to their settings are identified. The Proposed Scheme will comprise works to existing embankments and creation of new embayments, two stage channels and backwaters within a landscape dominated by drainage features. As such, no harm to the value of any designated assets, or the ability to appreciate this value, is predicted as a consequence of minor changes to their settings. Albeit it is noted that there will be a temporary impact during the construction period arising from the presence of construction machinery within their settings.

The Proposed Scheme will not result in any pathway to change groundwater quality and quantity (see Appendix E). Therefore, no impacts on heritage assets arising from changes to hydrology are predicted to arise from the operation of the Proposed Scheme. This is particularly relevant to the scheduled prehistoric trackway located approximately 670m to the south-east of Parchey Bridge (NHLE 1014430) due to it being included on the Heritage At Risk Register (Historic England, 2020a) due to the threat of drainage/ dewatering.

Modelling of compression impacts arising from plant movements and embankment and land raising indicates that the effect on buried archaeological assets is likely to be negligible. The results of the compression modelling for the works within the area of the scheduled prehistoric trackways 670m to the south-east of Parchey Bridge (NHLE 1014430) and at Greylake are provided at Appendix O.

Table 8.4 Likely significant effects on heritage assets

Asset	Description	Period	Value	Description of impact, phase, and duration	Magnitude	Significance of effect
Prehistoric wooden trackway located approximately 670m to the south-east of Parchey Bridge (NHLE 1014430)	Designated as a Scheduled Monument and comprising at least seven potential wooden trackways radiating across the Proposed Scheme	Prehistoric	High	Compression and rutting from plant movements (direct, construction, temporary). Compression from embankment and land raising (direct, construction, permanent)	Low	Moderate (Significant)
Timber posts identified in the west bank of the KSD (HER 11319)	Non-designated asset, potentially a continuation of the scheduled trackways on the eastern side of the KSD	Prehistoric	High	None identified. No embankment raising works are identified in the vicinity of this asset	No Change	Negligible (Not significant)
Strangway's Causeway (HER 12833)	Non-designated wooden causeway comprising a row of timber piles	Prehistoric	Medium	Topsoil stripping in advance of embankment raising could impact on this asset (direct, construction, permanent) Compression from embankment and land raising (direct,	Medium	Moderate (Significant)

Asset	Description	Period	Value	Description of impact, phase, and duration	Magnitude	Significance of effect
				construction, permanent)		
Bronze Age brushwood trackway at Greylake (HER 10580)	Non-designated brushwood trackway identified within the Langacre Rhyne to the east of the Proposed Scheme	Prehistoric	Medium	Topsoil stripping in advance of embankment raising could impact on this asset (direct, construction, permanent) Replacement tree planting could impact on this asset (direct, construction, permanent)	Medium	Moderate (Significant)
Timber piles identified in the north bank of the River Sowy (HER 16137)	Non-designated alignment of timber piles which were identified in the north bank of the River Sowy and within the river bed 100m east of Church Drove Bridge, Oath	Prehistoric	Medium	None identified.	No Change	Negligible (Not significant)
Human skull find (HER 39230)	Non-designated findspot of a human skull	Prehistoric	Low	None identified. This asset has been removed from the Proposed Scheme	No Change	Negligible (Not significant)

Asset	Description	Period	Value	Description of impact, phase, and duration	Magnitude	Significance of effect
A group of linear ditch cropmarks (HER 11278)	Non-designated linear features representing a field system that spans the Proposed Scheme at Greylake	Medieval	Low	Topsoil stripping in advance of embankment raising could impact on this asset (direct, construction, permanent)	Low	Minor (Not significant)
Stack stands which are visible on aerial photographs (HER 18899)	Non-designated earthworks of three probable stack stands located to the north-east of Othery on King's Sedgemoor	Medieval	Low	Topsoil stripping in advance of embankment raising could impact on this asset (direct, construction, permanent)	Low	Minor (Not significant)
Site of a deserted medieval farmstead (HER 54919)	Non-designated complex of earthworks representing a probable farmstead located on the west bank of the River Sowy to the south of Othery	Medieval	Medium	None identified.	No Change	Negligible (Not significant)
Battle of Sedgemoor Registered Battlefield (NHLE 1000032)	Designated battlefield covering the area of the final engagement of the Monmouth Rebellion against the Monarchy of James II and located on the	Post medieval	Medium	Topsoil stripping in advance of embankment raising could impact on unstratified finds related to this asset and/or other	Low	Minor (Not significant)

Asset	Description	Period	Value	Description of impact, phase, and duration	Magnitude	Significance of effect
	west bank of the KSD at the northern extent of the Proposed Scheme			associated evidence of the battle (direct, construction, permanent) Excavations for culvert strengthening works could impact on unstratified finds related to this asset and/or other associated evidence of the battle (direct, construction, permanent)		
Greylake Fosse (HER 10567)	Non-designated stone causeway	Post medieval	Low	None identified.	No Change	Negligible (Not significant)
18 th century turnpike road (HER 26224)	Non-designated road	Post medieval	Low	None identified.	No Change	Negligible (Not significant)
18 th century turnpike road (HER 24693)	Non-designated road	Post medieval	Low	None identified.	No Change	Negligible (Not significant)
Battle of Aller Drove (HER 19451) site of	Non-designated site of a skirmish dating from	Post Medieval	Medium	None identified.	No Change	Negligible

Asset	Description	Period	Value	Description of impact, phase, and duration	Magnitude	Significance of effect
	the Battle of Langport (1645)					(Not significant)
Mound (HER 12086)	Non-designated mound identified at Cossington Right Drove on the east bank of the KSD	Undated	Low	Topsoil stripping in advance of embankment raising could impact on this asset (direct, construction, permanent)	Low	Minor (Not significant)
Trackways to the north of Westonzoyland Airfield (HER 18916)	Non-designated trackways identified to intersect with the Proposed Scheme close to the River Sowy and KSD confluence	Undated	Low	Topsoil stripping in advance of embankment raising could impact on this asset (direct, construction, permanent)	Low	Minor (Not significant)
A cropmark enclosure (HER 29970)	Non-designated enclosure visible on aerial photographs and includes an 'annular mark' within its boundary	Undated	Low	None identified.	No Change	Negligible (Not significant)
Two groups of similarly oriented ditches (HER 54926)	Non-designated group of ditches which may represent a former field system or enclosure. Located at the	Undated	Low	None identified.	No Change	Negligible (Not significant)

Asset	Description	Period	Value	Description of impact, phase, and duration	Magnitude	Significance of effect
	southern limit of the Proposed Scheme					
Previously unknown archaeological assets and deposits of paleoenvironmental and geoarchaeological interest	Non-designated	Undated	Unknown – predicted to be high as a worst-case scenario	Excavation for the embayments and two stage channels could result in the partial or complete removal of such remains (direct, construction, permanent) Sheet piling for culvert strengthening works could also impact on such remains	High – predicted	Substantial (Significant)
Previously unknown archaeological assets (prehistoric metalwork and later finds) in the Greylake area	Non-designated	Undated	Unknown – predicted to be low	Topsoil stripping in advance of embankment raising could impact on unstratified finds in the Greylake area as highlighted by the concentration of recorded PAS finds	Medium	Minor (Not significant)

8.6. Mitigation

In accordance with the requirements of the Ancient Monuments and Archaeological Areas Act 1979, SMC will be obtained for the proposed bank raising works within the scheduled area of the prehistoric trackways 670m to the south-east of Parchey Bridge (NHLE 1014430). Compliance with any conditions of the SMC will form part of the mitigation for the Proposed Scheme. To mitigate the impacts of plant movement within the scheduled area, temporary vehicle mats will be utilised.

Where potential impacts to designated and non-designated assets have been identified, these will be mitigated through a programme of archaeological monitoring (watching brief) during construction. For the topsoil stripping within the designated Battle of Sedgemoor Registered Battlefield, and within the area of the Proposed Scheme to the north of Greylake (southern bank of the Sow), the watching brief will be augmented with a metal detector survey due to the heightened potential for unstratified metal finds within these areas.

During excavation works for the embayments, two stage channels and backwaters archaeological investigation and recording will also be undertaken. Excavation works will be managed to enable the full length of the embayments to be examined to depth prior to breaching. If complex or unexpected archaeological remains are encountered, works will stop and the Archaeological Advisor to Sedgemoor District Council informed. Where possible, the preference will be to preserve any significant archaeological remains *in-situ* through redesign of the embayments, two stage channels and backwaters. Where this is not feasible, further mitigation in the form of detailed archaeological excavation and recording will be required.

All the archaeological investigations will be conducted in accordance with a Written Scheme of Investigation (WSI) submitted to and approved by the Archaeological Advisor to Sedgemoor District Council, and where necessary, Historic England.

Investigation, recording and dissemination of any archaeological assets that cannot be left *in-situ* is in accordance with NPPF (Paragraph 199).

All works will be conducted in accordance with the standards and guidance provided by the Chartered Institute for Archaeologists.

8.7. Conclusions and summary of residual effects

As the Proposed Scheme is located within a landscape of high archaeological potential, with a number of designated and non-designated assets of archaeological interest present within the footprint of the proposed works, there will be a requirement for a programme of archaeological mitigation to be undertaken during the construction period. This will comprise a programme of archaeological monitoring (watching brief) and, if unexpected or complex remains are encountered that cannot be left *in-situ*, detailed archaeological investigation and recording (excavation).

SMC will also be obtained for the works within the area of the scheduled prehistoric trackways 670m to the south-east of Parchey Bridge (NHLE 1014430). Compliance with any conditions attached to the SMC will form part of the mitigation programme.

No impacts are identified arising from changes to hydrology or the settings of any designated assets.

Modelling of compression impacts arising from plant movements and embankment and land raising indicates that the effect on buried archaeological assets is likely to be negligible.

Table 8.5 Residual effects where significant effects are predicted in the absence of mitigation

Receptor (sensitivity/value)	Nature of impact (magnitude)	Significance (pre-mitigation)	Mitigation	Residual effect
Construction				
Prehistoric wooden trackway located approximately 670m to the south-east of Parchey Bridge (NHLE 1014430) (high)	Compression and rutting from plant movements (low, temporary). Compression from embankment and land raising (low, permanent)	Moderate adverse (significant)	Temporary matting for vehicle access Archaeological monitoring of groundworks	Negligible adverse (not significant)
Strangway's Causeway (HER 12833) (medium)	Topsoil stripping in advance of embankment raising could impact on this asset Compression from embankment and land raising (medium, permanent)	Moderate adverse (significant)	Archaeological monitoring of groundworks	Negligible adverse (not significant)
Bronze Age brushwood trackway at Greylake (HER 10580) (medium)	Topsoil stripping in advance of embankment raising could impact on this asset	Moderate adverse (significant)	Archaeological investigation and recording Archaeological excavation and recording	Moderate (significant)

Receptor (sensitivity/value)	Nature of impact (magnitude)	Significance (pre-mitigation)	Mitigation	Residual effect
	Replacement tree planting could impact on this asset (Medium, permanent)		if preservation <i>in-situ</i> not achievable	
Previously unknown archaeological assets and deposits of paleoenvironmental and geoarchaeological interest (high – as a worst case)	Excavation for the embayments and two stage channels could result in the partial or complete removal of such remains (high, permanent)	Substantial (significant)	Archaeological investigation and recording Archaeological excavation and recording if preservation <i>in-situ</i> not achievable	Negligible adverse (not significant)
Operation				
No significant effects anticipated				