highways england

A303 Stonehenge

Amesbury to Berwick Down

Archaeological Investigations and Mitigation Report: GI Phase 6 and Advanced Phase 7

April 2019

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Executive Summary

This document details the results of the archaeological and geoarchaeological monitoring of hand dug inspection pits for geotechnical boreholes on land between Amesbury and Berwick Down, within the Stonehenge, Avebury and Associated Sites World Heritage Site (WHS), as part of proposals for construction of the new A303 western tunnel portal and approach road.

This monitoring was not required as part of the Environmental Impact Assessment for the Scheme and so did not require to be reported in the Environmental Statement (ES) forming part of the application for development consent dated October 2018. Its purpose was, firstly, to ensure that geotechnical boreholes were placed in areas where no archaeology would be affected; and, secondly, to investigate, remove and record any artefactual or environmental evidence discovered in the inspection pits for the boreholes.

The monitoring strategy comprised the hand digging and recording of 0.45 m x 0.45 m inspection pits together with hand sieving the topsoil for artefact recovery. The geotechnical investigations were to be comprised of seven Phase 6 boreholes and 14 boreholes advanced from Phase 7. Of these, one Phase 6 borehole and seven Phase 7 boreholes were relocated so that they coincided with the locations of previously excavated trenches and test pits, and as such had no requirement for monitoring.

The results of the inspection pit monitoring for the remaining 13 borehole locations showed that in all but three of the locations, the topsoil overlay a weathered chalk bedrock. The soil was generally well mixed with some downward sorting of chalk and flint inclusions due to pedogenesis.

In the remaining three test pits (RX633, R71906 and R71907) the topsoil over lay a compact colluvial deposit.

No artefactual or environmental evidence was recovered during the excavation of the inspection pits or the sieving of the topsoil/ploughsoil.

1 Introduction

1.1 Project background

1.1.1 Wessex Archaeology Ltd has been appointed as Archaeological Contractor by AECOM Mace WSP Joint Venture (AmW, the Technical Partner) on behalf of Highways England (the Employer) to undertake a programme of archaeological evaluation for the A303 Stonehenge project (the Scheme).

1.1.2 An Archaeological Evaluation Strategy Report (AESR) [1] sets out the general and specific principles guiding the strategies for field-based investigations. An Overarching Written Scheme of Investigation (OWSI) [2] accompanying the AESR details the methods and techniques employed during archaeological investigations. The AESR and OWSI were approved by the Heritage Monitoring and Advisory Group (HMAG: comprising representatives of Wiltshire Council Archaeology Service, the National Trust and Historic England).

1.1.3 Two Written Schemes of Investigation [3] [4] for two phases of archaeological investigation and mitigation for GI exploratory boreholes detailed the aims and methodologies to be used. These guiding documents were approved by the Heritage Monitoring and Advisory Group (HMAG, comprising representatives of Wiltshire Council Archaeology Service, the National Trust, English Heritage and Historic England) prior to fieldwork commencing. .

1.1.4 Each of the 14 proposed GI locations ('the sites') were investigated in advance of the GI works by means of inspection pits, in order to record any archaeological features and deposits before handover to the GI contractor to continue GI surveys. The strategy involved the hand digging and recording of borehole inspection pits, along with the hand sieving the topsoil/ploughsoil for artefact recovery.

1.2 Scope of Document

1.2.1 This document details the results of the archaeological investigations and mitigation for Ground Investigation on land involved in the Phase 6 and 7 GI works, in accordance with the approved SSWSIs.

2 Site Description

2.1 Location, topography and geology

2.1.1 The two phases (Phase 6 and advanced Phase 7) of additional Ground Investigations ('GI works') proposed comprised 21 boreholes: seven in Phase 6 and fourteen advanced from Phase 7. These geotechnical boreholes within the WHS were advanced for priority with delivery from July 2018.

2.1.2 The location of the Phase 6 and 7 borehole inspection pits can be seen on **Figure 1** and are discussed below.

Phase 6 borehole inspection pits

2.1.3 Of the Phase 6 borehole inspection pits, one (RX629) was located to the northwest of Winterbourne Stoke at Cherry Lodge; one (RX631) was located on the east side of the A360 opposite Druids lodge; one (RX630) was located at Rollestone Corner; and four (RX632, RX633, RX634 and RX637) were located to the east of Longbarrow roundabout adjacent to the A303. RX637 was to be located over the area of a previously excavated trench/test pit so did not require monitoring.

2.1.4 Six of the boreholes were to be drilled for the purposes of monitoring groundwater and the seventh was a geotechnical borehole.

Western Portal approaches (Phase 7)

2.1.5 The Site lies within the WHS and extends south from the A303 for approximately 200 m south of Longbarrow Roundabout, and eastwards for some 1.2 km from the A360 to the proposed Western Portal location northwest of Normanton Gorse.

2.1.6 The Site encompasses a shallow dry valley, the head of which lies near the proposed western tunnel portal at approximately 100 m above Ordnance Datum (aOD). The dry valley rises gently towards the A360 south of the Longbarrow Roundabout at approximately 110 m aOD. The lowest point of the dry valley lies approximately 350 m west of the proposed tunnel portal location. On the north side of the Site the existing A303 crosses the dry valley on an embankment.

2.1.7 Six of the proposed GI boreholes (R71805, R71809, R71813, R71817 and R71821) were located south of the A303, to investigate the Western Portal approach cutting. Archaeological evaluation of the Western Portal approaches consisted of test pitting and evaluation trenches and the boreholes were to be located over previously dug locations. Due to this, no further archaeological investigation and mitigation was required for the borehole inspection pits. However, borehole location R71801 (located just to the south-east of Longbarrow Roundabout) had been relocated and was no longer located over the location of a previously dug location, requiring archaeological monitoring in consequence.

2.1.8 The solid geology comprises chalk of the Seaford Chalk Formation, with no recorded superficial deposits across the majority of the area. A small band of Head – clay, silt, sand, and gravel deposits – is present in the north-west. The soils underlying the west of the Site are likely to consist of brown rendzinas of the 343h (Andover 1) association.

King Barrow Ridge (Phase 7)

2.1.9 The Site lies within the WHS and predominantly comprises agricultural land south of the A303 at West Amesbury Farm. The land lies within the National Trust estate and is tenanted. The four proposed exploratory GI locations in this section are located on the western and eastern flank of Stonehenge Bottom (R71906 and R71907) and on the crest of King Barrow Ridge (R71909 and R71911).

2.1.10 From approximately 80 m aOD at the base of the dry valley (Stonehenge Bottom), the land rises steeply to approximately 100 m aOD, then more gently to the south-east towards a highpoint of approximately 110 m aOD at Coneybury Hill. The eastern flank of Stonehenge Bottom is designated as a County Wildlife Site.

2.1.11 The bedrock geology throughout is mapped by the British Geological Survey as Chalk of the White Chalk Subgroup. The Stonehenge Bottom dry valley formerly discharged into the River Avon at Lake, some 4 km to the south. Holocene and Pleistocene colluvium and, possibly, alluvial deposits may be encountered within the dry valley or its flanks.

East of King Barrow Ridge (Phase 7)

2.1.12 The Site lies within the WHS on the north side of the existing A303 Amesbury Bypass, east of King Barrow Ridge and to the immediate north of Vespasian's Camp, to the north-west of Amesbury. Proposed exploratory GI locations R71913, R72002 and R72003 were positioned to investigate the eastern part of the tunnel alignment and the eastern portal location.

2.1.13 The Site extends between NGR 414067, 142116 and 415183, 142081, bounded by the A303 to the south and by agricultural land to the north, east and west. The Site comprises agricultural land covered by crop stubble and grass. A series of rectilinear tree plantations relating to the former use of the land as part of the Amesbury Abbey Park lie immediately north and west of the Site.

2.1.14 The Site is situated on an east facing slope from 110 m aOD in the vicinity of R71913 to 90 m aOD in the vicinity of R72002, following a narrow dry valley which runs eastwards towards the edge of the River Avon floodplain.

2.1.15 The solid geology comprises chalk of the Seaford Chalk Formation with no recorded superficial deposits across the majority of the area. Bands of clay, silt, sand, and gravel deposits run across the centre and east of the site, with an area of gravel in the east (British Geological Survey).

2.2 Archaeological and historical background

Introduction

2.2.1 The sites are situated across and beyond the limits of the Stonehenge part of the WHS, largely within areas densely populated with important prehistoric mortuary and other structures. Numerous dedicated research projects have examined parts of this landscape, particularly within the WHS, including the Stonehenge Environs Project which saw extensive fieldwalking and other surveys during the 1980s [5] and large-scale aerial photograph assessments as part of the English Heritage Stonehenge WHS Mapping Project, which was updated in 2016 [6]. Parts of the area were also included within the extensive geophysical survey programme undertaken as part of the Stonehenge Hidden Landscapes Project. The

Stonehenge Southern WHS Survey project included geophysical survey and small-scale excavations on King Barrow Ridge and Coneybury Hill [6].

2.2.2 Highways improvements have also lead to numerous excavations, surveys and evaluations. Construction of the Amesbury northern bypass in the late 1960s was accompanied by archaeological observations by Vatcher and Vatcher [7]; and a major programme of investigations, spanning several years and including trial trenching, test pitting and geophysical surveys, was carried out in connection with the A303 Improvements 2004 Published Scheme [8].

2.2.3 More recent investigations carried out as part of the current Scheme have included three phases of geophysical survey in 2016-7 [9], fieldwalking, test pitting and trial trenching.

2.2.4 The results of previous fieldwork within and close to the Site are incorporated into the period-based background sections below as relevant and discussed in detail below.

Palaeolithic and Mesolithic (450,000–4,000 BC)

2.2.5 Evidence relating to the Palaeolithic period is particularly scarce in the Stonehenge part of the WHS. Traces of occupation become more conspicuous during the Mesolithic. Notable discoveries include the large post pits found beneath the former Stonehenge car park and visitors centre in 1966 [7] and 1988-9 [10, pp. 43-7], and the remains of Mesolithic activity at Blick Mead, south of the A303 at West Amesbury [11] [12]. Trial trenching in 2002 identified near *in situ* Mesolithic flintwork in a colluvial deposit on the edge of the Avon floodplain west of Countess Farm, close to the eastern end of the Site (WSHER number MWI11874) [8].

2.2.6 Most of the recorded evidence for Mesolithic activity has been identified within the eastern part of the WHS with few conspicuous or substantial remains identified further to the west. However, unstratified Mesolithic flint has been recovered from the surface of the long barrow at Longbarrow Roundabout and possibly from pits beneath it [13, p. 37].

Neolithic and Early Bronze Age (4,000 BC–1600 BC)

2.2.7 The traditional understanding of the Early Neolithic landscape is of woodland cleared in places by early farmers. However, more recent evidence has led to a recognition that the landscape was more complex in terms of woodland use, clearance, regrowth, and seasonality: generally the landscape of the Stonehenge environs is described as ‘open’ [14, p. 5.5].

2.2.8 Early Neolithic communities were the first to construct large earthworks in the area. Communal, ceremonial and mortuary structures (the long barrows, cursuses and causewayed enclosures) have historically dominated interpretations of the period. More recently, evidence for settlement in the WHS has begun to broaden the understanding of the lives of these communities.

2.2.9 Long barrows are amongst the earliest monumental constructions in southern Britain, traditionally understood to have been associated with communal burial practises in the early to mid-4th millennium BC. The prominent Winterbourne Stoke 1 long barrow at Longbarrow Roundabout (NHLE 1011841) was

constructed during this period [13, p. 37]; the primary inhumation excavated by Thurnam (1865) is dated to 3630-3360 BC [15, p. 17].

2.2.10 Three further long barrows are known between 500 m and 800 m south-east of Longbarrow Roundabout. These comprise the scheduled long barrow on Wilsford Down 300m north of The Diamond (NHLE 1010830; Winterbourne Stoke 71), a previously unknown long barrow (Winterbourne Stoke 86); and a previously dismissed long barrow, together with a previously unknown Middle Neolithic hengiform monument, situated west of The Diamond wood and identified through recent investigations by Wessex Archaeology and Historic England [6] [16] [17] [9]. Results of investigations on two of these long barrows (Winterbourne Stoke 71 and 86) have recently published together with a review of long barrows in the WHS [14].

2.2.11 Recent excavations at West Amesbury Farm [6] to the south of the A303 revealed a group of five Middle Neolithic pits, which contained a significant assemblage of pottery, worked flint and faunal remains. One pit was cut by another that contained a mortuary deposit including inhumed bone, in turn truncated by another pit. The pits and mortuary deposit appear to have been broadly contemporary with the construction of the Phase 1 Stonehenge ditch.

2.2.12 Large stone and earth structures remain the most conspicuous elements of the archaeological record into the Late Neolithic (*c.* 2900-2200 BC) and Early Bronze Age (*c.* 2200–1600 BC). A range of distinctive ceremonial monument types appeared during these periods, notably henges, stone and timber circles and various forms of mortuary structure. It is during this period that Stonehenge was first constructed, and subsequently underwent numerous episodes of alteration.

2.2.13 Some existing monuments constructed during the preceding millennium seem to have gone out of use by the Early Bronze Age, although others appear to have continued to influence activities in this landscape. The development of the substantial round barrow cemetery, known as the Winterbourne Stoke Crossroads group (NHLE 1012368) and its numerous outliers around the Early Neolithic long barrow (NHLE 1011841) represents one of the clearest examples of the continuing influence of earlier monuments.

2.2.14 There are numerous Early Bronze Age round barrows in the area. In addition to the Winterbourne Stoke group, important round barrow cemeteries include those on Normanton Down and King Barrow Ridge, and there are other barrows and cropmarks of ring ditches to the north of Countess Farm and to the south (NHLE 1010331, 1012127, 1012128, 1012129, 101230, 101213, 1014088, 1009142, 1009143, 1009144 and 1009151).

2.2.15 The appearance and proliferation of round barrows appears to represent a distinct shift in ceremonial and mortuary traditions at the end of the Late Neolithic (*c.* 2900-2200 BC) and into the Early-Middle Bronze Age (*c.* 2200–1600 BC). Many of the barrows and other monuments visible in the Stonehenge landscape were excavated prior to the twentieth century; very few examples have been excavated in recent times and there is a corresponding paucity of absolute dating evidence. Nevertheless, it is generally accepted that, although round barrows were being constructed in the latter stages of the Late Neolithic, the majority of these appear to date to between 2200 and 1520 BC with the tradition of barrow

construction persisting into the early part of the Middle Bronze Age. In many cases, there is also evidence for multiple phases of construction and sequential interments.

2.2.16 The Wilsford G1 bowl barrow (NHLE 1010832) is located approximately 25 m east of the proposed western tunnel portal location. Approximately 30 distinctive Beaker burials have been recognised within the WHS, some beneath barrow mounds, others interred in earlier monuments (e.g. the 'Stonehenge Archer', or an example at Fargo Henge), or as flat graves, such as those immediately north of Wilsford G1 [8] and revealed during the 2018 evaluations further to the west [18] where Beaker ceramics were also recovered from pits among scatters of struck flint in the ploughzone. In some instances, barrows appear to have clustered around earlier Beaker burials. Further afield on the eastern side of the Avon, the discoveries known as the Amesbury Archer, (2440–2290 BC) and the Boscombe Bowmen (2460–2280 BC) have provided evidence that long distance contacts existed at this time between communities in the Stonehenge landscape and groups elsewhere in continental Europe.

2.2.17 Immediately south of the current route of the A303 is the feature known as the Wilsford Shaft, which was initially identified as a pond barrow (NHLE 1010833). The feature was excavated in 1960-2 after the levelling of the upstanding earthworks. Excavations revealed a shaft 30 m in depth, interpreted as either a well or as fulfilling a ritual or ceremonial function [19]. The shaft is conventionally dated to the mid-2nd millennium BC, although one apparently anomalous radiocarbon date of 3650–3100 BC obtained from a wooden bucket near the base of the feature might indicate that it had much earlier origins [20].

Middle–Late Bronze Age (*c.* 1600–1200 BC – *c.* 1200–700 BC), Iron Age (*c.* 800 BC– AD43) and Roman (AD 43–410)

2.2.18 The Stonehenge landscape was transformed in the middle of the 2nd millennium BC when 'its sacred and ceremonial significance seems to have diminished sharply; a more mundane agricultural regime of farmsteads and fields took over or intensified noticeably' [15, p. 66]. Although the interment of burials in and around barrows continued into the Middle Bronze Age, the tradition of constructing funerary and ceremonial monuments appears to have declined and eventually ceased by, or during, this period.

2.2.19 Large linear ditches, commonly referred to as Wessex Linear Ditches, are a characteristic feature of the fossilised prehistoric landscape contained within the Salisbury Plain area and across the wider chalklands of southern England [21]. Although many of these features appear to have been established in the Late Bronze Age (*c.*1200-700 BC), they are often not closely dated and certain examples may be somewhat earlier [15] [22]. There are also indications that some linear boundaries were maintained and elaborated over prolonged periods. The tradition of constructing these landscape-scale features is frequently interpreted as the manifestation of increased territoriality and the emergence and consolidation of cultural, political and economic divisions during the 1st millennium BC.

2.2.20 The western end of the site also coincides with an extensive area of co-axial field systems and lynchets (MWI7003; MWI7094; MWI12625; MWI12695; MWI12748; MWI13128; MWI73295; MWI74633) identified south of the A303 from aerial

photograph analysis and several episodes of geophysical survey (e.g. [9]). Several other linear features (MWI13149) have also been identified further to the west, although it is less certain if these are of anthropogenic origin. In some instances, trial trenching and other small-scale excavation has confirmed the presence of archaeological features correlating with elements of the field systems identified via remote sensing techniques (e.g. [23] [16] [24]). Although these boundaries may have been established during multiple phases of activity and subject to episodic alteration and reorganisation, the field systems as a whole are likely to date broadly to the later prehistoric to Roman periods, following a pattern observed across large swathes of Salisbury Plain. However, these field systems may also incorporate some elements derived from considerably later episodes of land division, including medieval lynchets and Post-medieval field boundaries.

2.2.21 Although evidence of settlement activity during preceding periods is comparatively rare, and typically insubstantial, traces of occupation become more conspicuous from the latter stages of the Bronze Age onwards. Several probable settlement sites have been identified to the west of the WHS boundary, such as those on Oatlands Hill (MWI7125), near Scotland Lodge (MWI6943; MWI6959) and on High Down (MWI7098). Although there are few indications of extensive settlement activity within the core of the WHS during this period, significant evidence of later Bronze Age activity has been identified beneath and to the west of the A303/A360 junction.

2.2.22 The remains of three small Bronze Age roundhouses and a possible 'stockade' were uncovered during the construction of the Longbarrow roundabout in 1967 (MWI6924) [5, pp. 208-10] [25, p. 208]. Subsequent investigations demonstrated that the 'stockade' was a later feature, unconnected to the Bronze Age settlement [26]. The presence of Middle and Late Bronze Age burials amongst the barrows has also been highlighted as evidence that the earlier monuments may have retained some significance for the occupants of the neighbouring settlement [13]. A scheduled enclosure (NHLE 1011048), visible on aerial photographs and confirmed by geophysical survey [27] [9], is bisected by the A303 to the west of Longbarrow Roundabout. It is possible that the feature was associated with the nearby Bronze Age settlement; however, the enclosure has not been subject to recorded archaeological investigation.

2.2.23 Trial trenching undertaken in 2002 [8] and in 2016 [16] has identified several Early and Middle Bronze Age and Early/Middle Iron Age pits to the south of the A303, to the south and south-west of the site, along with assemblages of Neolithic to Iron Age flint and pottery suggesting activity in this location over a prolonged period.

2.2.24 Although sporadic features and small quantities of artefactual material have been recovered to the south of the A303 during trial trenching for the earlier A303 scheme [8], substantial evidence for Iron Age and Roman activity near the site remains comparatively limited.

Early medieval (AD 410–1066), medieval (AD1066–1540), Post-medieval and 20th Century (1540–2000)

2.2.25 Amesbury Abbey was founded *c.* 979 AD and the town is thought to have been an important settlement by the 10th century [28] [29]. Possible earlier-dated early medieval activity is suggested by the discovery of several burials near London

Road [30]. The abbey was dissolved in 1177, with elements being incorporated into a subsequent priory. The new priory was endowed by Henry II and during the 12th to 14th centuries was a large and influential establishment [30].

2.2.26 A small early to middle Saxon settlement has been confirmed at Countess East, where several sunken-featured buildings where located during archaeological evaluation [31]. This is the only currently confirmed settlement activity of this period in the Stonehenge area, although it is likely that medieval and Post-medieval occupation may overlie and obscure evidence for earlier origins.

2.2.27 Several intrusive Saxon burials have also been recorded within the barrow cemeteries of the Stonehenge landscape (e.g. at Lake Barrow Barrows, NHLE 1010863; Winterbourne Stoke West, NHLE 1015019). Although undated, several graves noted as intrusive burials within one of the barrows to the south of Woodhenge [32] could reflect a tradition of association between Saxon burial sites and earlier monuments.

2.2.28 The 1086 Domesday Survey indicates a distribution of settlements similar to that still seen today, with occupation focused along the Avon valley at Wilsford, Amesbury, Ratfyn, Bulford and Durrington. The documentary evidence also suggests the Avon Valley was heavily cultivated during this period with medieval parish and tithing boundaries bisecting the river valley on each side of the river [33] [34]. Cultivation extended into the open fields of West Amesbury, including King Barrow Ridge, Coneybury and Vespasian's Camp [34].

2.2.29 During the medieval period, Amesbury continued to be a significant local centre of 111 households with eight mills also recorded. Settlement is also noted at the small hamlet of Ratfyn east of the town, with other areas of associated settlement thought to have existed at Countess and West Amesbury [35]. Beyond the known settlement sites, areas of ridge and furrow to the west of Amesbury (MWI12817) indicate arable cultivation. Vestiges of medieval ridge and furrow cultivation (ID 220 & 221) were confirmed in the provisional results of the Hidden Landscapes Project [36, p. 21]

2.2.30 With the notable exception of the Drinking Stone, a medieval cross base (MWI13139), there is a relative paucity of recorded archaeological evidence for activity elsewhere throughout the early medieval to early Post-medieval periods. This may be due to the use of this location, at the margins of adjoining parishes, as pasture. However, faint traces of ridge and furrow have occasionally been recorded across the Stonehenge landscape suggesting that at least some areas were under cultivation during this period.

2.2.31 The present day A303 and A360 were former turnpike roads which likely formalised existing routes. Although subject to alterations in recent times, and possibly earlier re-alignments of the roads, the junction has been located approximately in its current location since the earliest accurate mapping was produced.

2.2.32 Much of the Stonehenge landscape remained in use for downland grazing until the 19th and 20th centuries, when large areas were enclosed and converted to arable cultivation, or improved pasture, or acquired by the army for training purposes.

2.2.33 A large area of land to the north-east of the A303/A360 junction was used for the establishment of the Stonehenge Airfield (MWI12606), which operated between 1917 and 1919 and functioned as a finishing school for pilots and observers in both day and night bombing. The area to the west and south of the junction formed Oatlands Airfield (MWI6984), a grass airfield, which opened in 1941 as a training unit for fighter reconnaissance squadrons. Use of the site from 1942 was only intermittent and the site was closed in 1946 [37]. Another military aerodrome was opened on a 65 ha site further to the south on Lake Down in 1917; this facility closed at the end of the First World War.

2.2.34 The western end of the site is crossed by the route of a spur of the Larkhill Military Railway (MWI12608; MWI73256), a light military railway constructed in the early twentieth century, and largely dismantled by the mid-1930s. This branch of the railway ran parallel to the eastern edge of the A360, joining the Horse Isolation Hospital at Fargo Road to the Lake Down Aerodrome, via the Stonehenge Airfield. It was built following the outbreak of the First World War and closed in 1923 [37]. Parts of the military light railway have been investigated archaeologically on several occasions, including during trial trenching in 2016. This revealed that no substantial traces of the railway line survived, except for heavily truncated straight north–south shallow cuts [16].

3 Aims and objectives

3.1 Research framework

3.1.1 The AESR (AmW 2018a) identifies a number of themes derived from the Stonehenge, Avebury and Associated Sites World Heritage Site Research Framework [38], of which the following were particularly relevant to this work:

- **D. Landscape History and Memory**: to gain a better understanding of the changing, long-term histories […] of the WHS, and particular locations within [it] - how places came to be seen as significant; how their meanings changed over time, and how they came to be viewed and treated after their periods of primary use had ended.

- **F. Daily Life**: to gain a better understanding of the changing, day-to-day lives of those living within, or passing through, the WHS landscapes, both as they related to the construction and use of its prehistoric monuments and separate from any involvement with them.

3.1.2 The above themes can be considered in the context of the following period specific research themes:

- Neolithic Settlement and Landscape;
- Beaker and Early Bronze Age;
- Middle and Late Bronze Age;
- Iron Age;
- Romano-British; and
- Post-medieval and Modern.

3.2 Potential contribution to research themes

3.2.1 The 2015 WHS Management Plan [39] identifies seven attributes that together convey the Outstanding Universal Value (OUV) of the WHS. These attributes include, *'The physical remains of the Neolithic and Bronze Age funerary monuments and associated sites'.*

3.2.2 The archaeological investigations reported on here examined areas at Cherry Lodge and Rollestone Corner, and within the WHS at Druid's Lodge, on Normanton Down, Stonehenge Down, Stonehenge Bottom and on and east of King Barrow Ridge. Scheduled monuments in the vicinity of these sites include the Coneybury Anomaly, Coneybury Henge and extensive Bronze Age round barrow cemeteries.

3.2.3 The investigations had the potential to recover additional evidence for activity in the Stonehenge landscape, including geoarchaeological and palaeo-environmental data which could further contribute to knowledge and understanding in relation to the range and chronology of occupation activity relating to 'associated sites' and their relationship to the natural and cultural landscapes within which they were constructed.

3.3 Aims and objectives

3.3.1 The following aims and objectives were proposed in order to address the research questions identified above:

- To ensure all archaeological remains affected by the GI survey within the Site are identified and appropriately investigated, mitigated, recorded and reported by a professional archaeological company, within the GI programme period;
- To locate, identify and to investigate and record the presence/absence of archaeological features or deposits within the GI locations;
- To evaluate and characterize artefactual evidence within the ploughzone;
- To identify opportunities to avoid the disturbance of complex or significant archaeological remains which, if present, could merit more detailed investigation at a later stage;
- Where necessary, possible and practical to obtain continuous core samples through geoarchaeological sequences in potentially informative GI locations;
- To interpret the probable environments represented and determine the importance of the deposits, with regard to their archaeological and palaeoenvironmental potential;
- To consider the chronology of surviving archaeological remains and their relationship to the natural and cultural landscape, as evidenced by palaeoenvironmental, faunal, human and cultural remains where these survive;
- To identify the impact of previous and current land uses on archaeological survival within the Site; and
- To understand the significance of surviving archaeological remains within the Site in terms of their contribution to the OUV of the WHS.

4 Methodology

4.1 GI works

4.1.1 The archaeological fieldwork comprised the archaeological investigation and mitigation in advance of and during the programme of Ground Investigations and aquifer investigations.

4.1.2 Following completion of the archaeological evaluation of the western portal approaches (test pitting and trial trenches) it was proposed that one of the Phase 6 boreholes (RX637) and seven of the Phase 7 borehole inspection pits (R71801, R71805, R71809, R71813, R71817, R71821 and R71822) be located within the area of previously excavated and recorded trial trenches avoiding any identified archaeologically significant deposits and as such not requiring any further archaeological mitigation.

4.1.3 The GI works that required archaeological monitoring comprised 14 hand dug inspection pits 0.45 m x 0.45 m wide. All were archaeologically excavated to the top of the bedrock or 1.2 m in depth, whichever was reached first.

Ploughzone artefact sampling – test pitting and dry sieving

4.1.4 The topsoil was dry sieved by hand, with the following aims:

- to confirm the presence or absence of artefactual material within the ploughsoil and ploughsoil/subsoil interface and their relative concentrations;
- to determine the range, date and quantity of artefactual evidence present;
- to establish the extent, character, date (where possible) and significance of artefact scatters and the contribution they make to the OUV of the WHS; and
- to inform the development of an archaeological mitigation strategy for the scheme[1].

4.2 Archaeological Fieldwork

4.2.1 The programme of archaeological works was comprised of two parts. Firstly, the conventional excavation and recording of all GI locations and secondly, where required, the monitoring and assessment of deposits of geoarchaeological potential.

4.2.2 Each of the 14 proposed GI locations were investigated in advance of the GI works by means of hand dug inspection pits, in order to record any archaeological features and deposits before handover to the GI contractor to continue GI surveys.

4.3 Conventional archaeological works

4.3.1 The topsoil and underlying deposits were excavated by hand within all borehole inspection pits (‘starter pits’) to the upper surface of significant archaeological features/deposits or the top of the underlying geology, whichever was the higher. All topsoil was dry sieved on site through a 10 mm mesh, with a sub-fraction of the soil (*c.* 30 litres) sieved through a 5 mm mesh to recover smaller artefacts such as microliths and finer flint debitage.

[1] The approach to archaeological mitigation for the Scheme is set out in section 6.8 of the ES

4.3.2 Where archaeological features were encountered they were to be excavated by hand, by a qualified archaeologist, fully recorded and surveyed in by GPS. If any complex or significant archaeological features were encountered care was to be taken to preserve the integrity of any archaeological features or complex deposits that may be subject to preservation *in situ*, or be the subject of a subsequent programme of archaeological mitigation works for the scheme, including detailed archaeological excavation.

4.3.3 If extensive and well-preserved remains which would require a contingent excavation were found, a programme for this was to be agreed in consultation with the Technical Partner, HMAG and the National Trust Archaeologist (Stonehenge and Avebury WHS), potentially extending the scope of archaeological works, whilst ensuring no unreasonable delay was caused to the GI programme.

4.3.4 In the event that complex archaeological deposits and/or features, including human remains, were uncovered these would be identified and made clear to the HMAG, the Technical Partner and the GI contractor. Due to the time constraints of the project a Ministry of Justice Licence was obtained in advance of commencement of the fieldwork by the Archaeological Contractor.

4.3.5 If archaeological features were only partially exposed within inspection pits, the excavation was to be extended horizontally in order to better characterise them, in consultation with the Technical Partner, HMAG and the National Trust Archaeologist (Stonehenge and Avebury WHS). Any increase in the size of the excavation area was to be minimal, and only enough to ensure the aims of the archaeological works could be fulfilled.

4.3.6 If it became necessary, GI locations were to be relocated to avoid disturbing complex or significant archaeological remains that may require preservation *in situ* or more detailed investigation at a later stage. In the first instance GI locations could be re-located within a 5 m radius in consultation with the Archaeological Contractor and the Technical Partner's archaeologist. All such relocations would be controlled and documented through application of a 'permit-to-dig' system.

4.3.7 If any GI locations needed to be re-located beyond 5 m, they would be subject to consultation with and agreement of HMAG and the National Trust Archaeologist (Stonehenge and Avebury WHS). Any significant archaeological remains left *in situ* were to be accurately located and recorded in as much detail as was practical, prior to reinstatement.

4.3.8 Within each inspection pit a representative section was recorded and the deposits characterised. All inspection pits were excavated to the top of bedrock or to 1.2 m depth, whichever was encountered first.

4.3.9 Once all necessary archaeological and geoarchaeological work required was carried out and the potential for further archaeological remains to be uncovered had been exhausted, each GI location, once agreed with the Technical Partner, HMAG and the National Trust Archaeologist (Stonehenge and Avebury WHS) was handed over to the GI contractor.

4.3.10 In the event, no archaeological features were encountered.

4.4 Geoarchaeological works

4.4.1 In addition to the standard archaeological recording of the inspection pits, geoarchaeological monitoring of boreholes was also required where colluvial deposits had been encountered or were likely to be encountered.

4.4.2 If appropriate, relevant cores were to be examined at the GI contractor's works compound or at the GI Contractor's premises in Bristol and described by a suitably experienced geoarchaeologist, to include information such as:

- Depth
- Texture
- Composition
- Colour
- Inclusions
- Structure (bedding, ped characteristics etc.)
- Contacts between deposits

4.4.3 If suitable deposits were encountered, interpretations would be made regarding the probable depositional environments and formation processes of the sampled deposits. The data would then be tabulated by borehole and depth.

4.4.4 After the site work was been completed, the cored samples were transported to the GI contractor's premises, where they remain available for inspection for a limited period, should further investigations be required.

5 Results

5.1 Introduction

5.1.1 During the course of the survey 14 inspection pits were excavated by hand and recorded, all but three of which (RX633, R71906 and R72002) were dug by hand to the top of bedrock. Three of the inspection pits (R71801, R71909 and R71907) were relocated to the edges of fields or tracks at the request of the landowner.

5.1.2 Inspection pits RX633, R71906 and R72002 all contained colluvial deposits below the topsoil and were dug to a maximum of 1.2 m without bedrock being encountered. Arrangements were then made with the GI contractor to enable the boreholes to be geoarchaeologically monitored when drilling began.

5.1.3 The topsoil/plough soil from all 14 inspection pits was hand sieved for artefact recovery. Sieving of the arisings from the test pits produced no artefacts other than Post-medieval/modern material, none of which was retained.

5.2 Inspection pits

5.2.1 The Inspection pits are described below and summarised in **Appendix A**.

RX 629

5.2.2 RX629 measured 0.75 m x 0.75 m and up to 0.35 m in depth where a weathered chalk bedrock (**62903**) was encountered. The chalk was overlain by a medium grey brown silty clay topsoil (**62901**) from 0 – 0.15 m, with frequent small sub-angular (SA) flint fragments and very occasional small fragments of chalk over a light grey brown silty clay subsoil (**62902**).

RX630

5.2.3 RX630 measured 0.7 m x 0.5 m and up to 0.08 m in depth where a weathered chalk bedrock (**63002**) was encountered. The chalk was overlain by a medium grey silty clay topsoil (**63001**) with rare small SA flint inclusions and a clear lower boundary.

RX631

5.2.4 RX631 measured 0.45 m x 0.45 m and up to 0.4 m in depth where a weathered chalk bedrock (**63103**) was encountered. The chalk was overlain by a firm grey brown silty clay loam topsoil (**63101**) from 0 – 0.3 m with common large flint inclusions. The soil was well mixed and contained fragments of modern glass.

5.2.5 From 0.3 m – 0.4 m the topsoil overlay a dark yellow brown silty clay loam subsoil (**63102**) containing large flint cobbles.

RX632

5.2.6 RX632 measured 0.45 m x 0.45 m and up to 0.28 m in depth where a weathered chalk bedrock (**63202**) was encountered. The chalk was overlain by a medium grey brown silty clay loam topsoil with common small SA flint and chalk inclusions.

RX633

5.2.7 RX633 measured 0.45 m x 0.45 m and up to 1.2 m in depth through colluvial deposits. The sequence recorded consisted of:

- 0 m – 0.08 m: a firm grey brown silty clay loam topsoil (**63301**) with a blocky granular structure and a clear lower boundary;
- 0.08 m – 0.15 m: a light grey layer of re-deposited chalk (**63302**) with a clear lower boundary; and
- 0.15 m – 1.2 m: a light brown compact sandy silt with common flint inclusions increasing in size and quantity with depth.

5.2.8 As the bedrock chalk had not been encountered within the inspection pit the drilling of borehole RX633 was monitored to record the depth of colluvium and any possible buried land surface that may have been preserved under the colluvial deposits.

5.2.9 The colluvium was recorded to a maximum depth of 1.5 m before the chalk bedrock was reached. No evidence of any preserved land surface below the colluvium was encountered.

RX634

5.2.10 RX634 measured 0.45 m x 0.45 m and up to 0.25 m in depth where a weathered chalk bedrock (**63402**) was encountered. The chalk was overlain by a dark grey brown silty clay loam topsoil (**63401**), with a blocky/granular structure and a clear lower boundary.

R71801

5.2.11 R71801 measured 0.45 m x 0.45 m and up to 0.26 m in depth where a weathered chalk bedrock (**718013**) was encountered. A grey brown silty clay loam topsoil (**718011**) was present from 0 – 0.17 m with a granular structure with common fine roots and very small chalk fragments, above a grey brown silty clay loam (**718012**) subsoil from 0.17 m – 0.26 m.

R71906

5.2.12 R71906 measured 0.45 m x 0.45 m and up to 1.2 m in depth through colluvial deposits. The sequence of deposits recorded consisted of:

5.2.13 0 m – 0.2 m: a dark grey brown very dry friable silty clay loam topsoil (**719061**) containing occasional small chalk and flint inclusions;

5.2.14 0.2 m – 0.3 m: a grey brown silty clay loam subsoil (**719062**); and

5.2.15 0.3 m – 1.2 m: a light brown hard, dry, friable poorly sorted sandy silt (**719063**) containing common small SA chalk and flint inclusions.

5.2.16 As the bedrock chalk had not been encountered within the inspection pit the drilling of borehole R71906 was monitored to record the depth of colluvium and any possible buried land surface that may have been preserved under the colluvial deposits.

5.2.17 The colluvium was recorded to a maximum depth of 1.5 m before the chalk bedrock was reached. No evidence of any preserved land surface below the colluvium was encountered.

R71907

5.2.18 R71907 measured 0.45 m x 0.45 m and up to 0.35 m deep where a weathered chalk bedrock (**719073**) was encountered. A dry friable dark grey brown silty clay loam topsoil (**719071**) containing common small SA common large flint inclusions lay between 0 – 0.13 m, with a grey brown silty clay subsoil (**719072**) with common large flint inclusions from 0.13 – 0.3 m.

R71909

5.2.19 R71909 measured 0.45 m x 0.45 m and up to 0.4 m deep. A weathered chalk bedrock (**719093**) was encountered at 0.3 m. A dark grey brown dry friable silty clay loam topsoil (**719091**) lay between 0 m – 0.15 m, and grey brown silty clay loam subsoil (**719092**) from 0.15 – 0.3 m.

R71911

5.2.20 R71911 measured 0.45 m x 0.45 m and up to 0.2 m deep where a weathered chalk bedrock (**719112**) was encountered. The chalk was overlain by a dark yellow brown silty clay loam topsoil (**719111**).

R71913

5.2.21 R71913 measured 0.45 m x 0.45 m and up to 0.2 m deep where a weathered chalk bedrock (**719132**) was encountered. The chalk was overlain by a compact grey brown silty clay loam

R72002 (plate 1)

5.2.22 R72002 measured 0.45 m x 0.45 m and up to 1.2 m deep through colluvial deposits. A compact yellow brown dry silty clay loam topsoil (**720021**) was recorded from 0 – 0.2 m, below which a firm light grey brown silty clay (**720022**) with poorly sorted SA chalk and flint inclusions, recorded to the 1.2 m maximum depth of the inspection pit.

5.2.23 As the bedrock chalk had not been encountered within the inspection pit the drilling of borehole R72002 was monitored to record the depth of colluvium and any possible buried land surface that may have been preserved under the colluvial deposits.

5.2.24 The colluvium was recorded to 1.7 m where a band of flint cobbles (**720023**) from 1.7 m – 1.79 m overlay a pale brown deposit of soliflucted chalk (**720024**) to 2.79 m in depth where a weathered chalk bedrock (**720025**) was encountered. No evidence of any preserved land surfaces was found.

R72003 (Plate 2)

5.2.25 R72003 measured 0.45 m x 0.45 m and up to 0.27 m in depth where a weathered chalk bedrock (**720032**) was encountered. The chalk was overlain by a medium grey brown silty clay loam topsoil (**720031**) containing common small SA chalk and flint inclusions.

5.3 GI borehole monitoring

5.3.1 Colluvial deposits were recorded in three of the hand-dug inspection pits (**RX633, R71906 and R72002**). As the base of the colluvium was not reached before the 1.2 m maximum depth of the test pit was reached, the boreholes were monitored once drilling commenced. This was done firstly to characterise and establish the full depositional sequence overlying the chalk bedrock, and secondly to establish the presence or absence of possible buried land surfaces below the colluvium.

5.3.2 The inspection pit for **RX633** was dug on the 20th July 2018 and the drilling of the borehole was monitored shortly afterwards. The silty sand colluvium was recorded to 1.5 m in depth below which a weathered chalk bedrock was encountered.

5.3.3 The borehole at **R71906** was monitored on the 23rd August 2018. The sandy silt colluvial deposits were recorded to a depth of 1.5 m from the ground surface where they overlay the chalk bedrock and there was no old land surface preserved at the boundary between the colluvium and the bedrock.

5.3.4 The borehole at **R72002** was monitored on the 18th September 2018. The light grey brown silty clay colluvial deposits containing poorly sorted chalk and flint inclusions were recorded to a depth of 1.7 m below the ground surface where a 0.09 m thick layer of flint cobbles was recorded, below which, from 1.79 m – 2.79 m a very pale brown soliflucted chalk overlay the chalk bedrock. No old land surface was recorded as being preserved at the boundary between the colluvium and the bedrock.

6 Conclusions

6.1 Summary

6.1.1 The results of the inspection pit monitoring showed that in all but three of the borehole locations (RX633, R71906 and R72002) the topsoil was a fairly homogenous yellow brown to dark brown silty clay/silty clay loam commonly over a grey brown subsoil in turn overlying a weathered chalk bedrock. The soil was generally well mixed with some downward sorting of chalk and flint inclusions due to pedogenesis, though this was less visible in borehole inspection pits located in areas of arable cultivation compared to fields laid to pasture.

6.1.2 In the inspection pits for boreholes RX633 and R71906 located in the area of Stonehenge Bottom the topsoil and subsoil overlay a compact sandy silt colluvium with poorly sorted chalk and flint inclusions. The colluvial deposits reached a depth of 1.5 m in RX633 and in R71906 where they overlay a weathered chalk bedrock.

6.1.3 In the inspection pit for borehole R72002 located to the north of the A303 and to the east of the Avenue the topsoil and subsoil overlay a compact silty clay colluvial deposit with poorly sorted chalk and flint inclusions down to 1.79 m in depth where a weathered chalk bedrock was recorded.

6.1.4 The colluvial deposits recorded within the inspection pits were poorly sorted and for the most part finer grained with occasional larger flint and chalk gravels and cobbles. Deposition would have resulted from mobilisation of sediments up slope, most likely as a result of disturbances which may include clearance of woodland and/or agricultural practices.

6.1.5 No archaeological features were encountered, or finds recovered.

7 Tables

Table 6-1 Location of borehole inspection pits

Ref	Easting	Northing	Location
Phase 6			
Cherry Lodge Winterbourne Stoke			
RX629	406432	142058	South-east of Cherry Lodge, Winterbourne Stoke
Rollestone Corner			
RX630	409710	144635	Rollestone Corner (north-east of junction/)
Druids Lodge (east of A360)			
RX631	409710	138926	East side of A360 opposite Druids Lodge
Stonehenge Down			
RX632	412179	141927	South of A303 at Stonehenge Down
RX634	411056	141709	
Stonehenge Bottom			
RX633	412840	142045	South of A303 at Stonehenge Bottom
Normanton Gorse			
RX637	411206	141695	North of Normanton Gorse and south of A303
Phase 7			
Western portal approaches			
R71801	410020	141331	South-east of Longbarrow Roundabout (western portal approach cutting)
R71805	410225	141340	South-east of Longbarrow Roundabout (western portal approach cutting)
R71809	410395	141465	East of Longbarrow Roundabout (north side of western portal approach cutting)
R71813	410594	141495	East of Longbarrow Roundabout (western portal approach cutting)
R71817	410798	141524	East of Longbarrow Roundabout (south side of western portal approach cutting)
R71821	410968	141645	North-west of Normanton Gorse (north side of western portal approach cutting)
R71822	411080	141607	North-west of Normanton Gorse (south side of western portal approach cutting)
King Barrows Ridge			
R71906			West side of Stonehenge Bottom south of A303, north of Luxenborough Plantation
R71907	412939	141969	East side of Stonehenge Bottom south of A303, north of Luxenborough Plantation
R71909	413139	141982	King Barrows Ridge south of A303, north-east of Luxenborough Plantation
R71911	413433	141969	King Barrows Ridge south of A303, opposite Stonehenge Cottages
R71913	413839	142051	North side of A303, west of The Avenue

R72002	414130	142114	North side of A303, east of the Avenue (eastern portal)
R72003	414176	142150	North side of A303, east of the Avenue (north of eastern portal)

8 Figures

Figure 7-1 Inspection pit locations.

RX630
RX629
RX632
RX633
RX634
RX637
R71801
RX631
R71906
R71907
R71909
R71911
R71913
R72003
R72002
Maddington
Shrewton
Elston
Rollestone
Homanton
Winterbourne Stoke Down
Fore Down
Larkhill Artillery Range
Larkhill
Durrington Down
Durrington Field
Storehenge Down
Sauvey Barrows
Winterbourne Stoke
Winterbourne Stoke Hill
Oatlands Hill
Berwick St James
Willsford Down
Lake Down
Nomanton
Willsford
Amesbury Down
West Amesbury
Lake
0.25 0 0.25 0.5 0.75 1 1.25 km
N

NOTES / LEGEND

- Phase 6 boreholes
- Phase 7 boreholes
- DCO boundary

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Revision Details	By	Check	Date	Suffix

Purpose of issue

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AMESBURY TO BERWICK DOWN

Drawing Title

INPSECTION PIT LOCATIONS

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9 Plates

Plate 8-1. Inspection pit for borehole R72002

Plate 8-2. Inspection pit for borehole R72003

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Appendices

Appendix A Test pit summaries

Test pit no.	Context	Depth	Interpretation
RX 629	62901 62902 62903	0 – 0.15 0.15 – 0.35 0.35m+	Topsoil Subsoil Weathered chalk bedrock
RX 630	63001 63002	0 – 0.08m 0.08m+	Topsoil Weathered chalk bedrock
RX 631	63101 63102 63103	0 – 0.3m 0.3 – 0.4m 0.4m+	Topsoil Subsoil Weathered chalk bedrock
RX 632	63201 63202	0 – 0.28m 0.25m+	Topsoil Weathered chalk bedrock
RX 633	63301 63302 63303 63304	0 – 0.08m 0.08 – 0.15m 0.15 – 1.5m 1.5m+	Topsoil Subsoil Colluvium Weathered chalk bedrock
RX 634	63401 63402	0 – 0.25m 0.25m+	Topsoil Weathered chalk bedrock
R71801	718011 718012 718013	0 – 0.17m 0.17 – 0.26m 0.26m+	Topsoil Subsoil Weathered chalk bedrock
R71906	719061 719062 719063	0 – 0.2m 0.2 – 0.3m 0.3m+	Topsoil Subsoil Weathered chalk bedrock
R71907	719071 719072 719073	0 – 0.13m 0.13 – 0.3m 0.3 – 0.35m	Topsoil Subsoil Weathered chalk bedrock
R71909	719091 719092 719093	0 – 0.15m 0.15 – 0.3m 0.3 – 0.4m	Topsoil Subsoil Weathered chalk bedrock
R71911	719111 719112	0 – 0.2m 0.2m+	Topsoil Weathered chalk bedrock
R71913	719131 719132	0 – 0.2m 0.2m+	Topsoil Weathered chalk bedrock
R72002	720021 720022 720023 720024 720025	0 – 0.2m 0.2 – 1.7m 1.7 – 1.79m 1.79 – 2.79m 2.79m+	Topsoil Colluvium Flint cobbles (Lag deposit) Soliflucted chalk Weathered chalk bedrock
R72003	720031 720032	0 – 0.27m 0.27m+	Topsoil Weathered chalk bedrock

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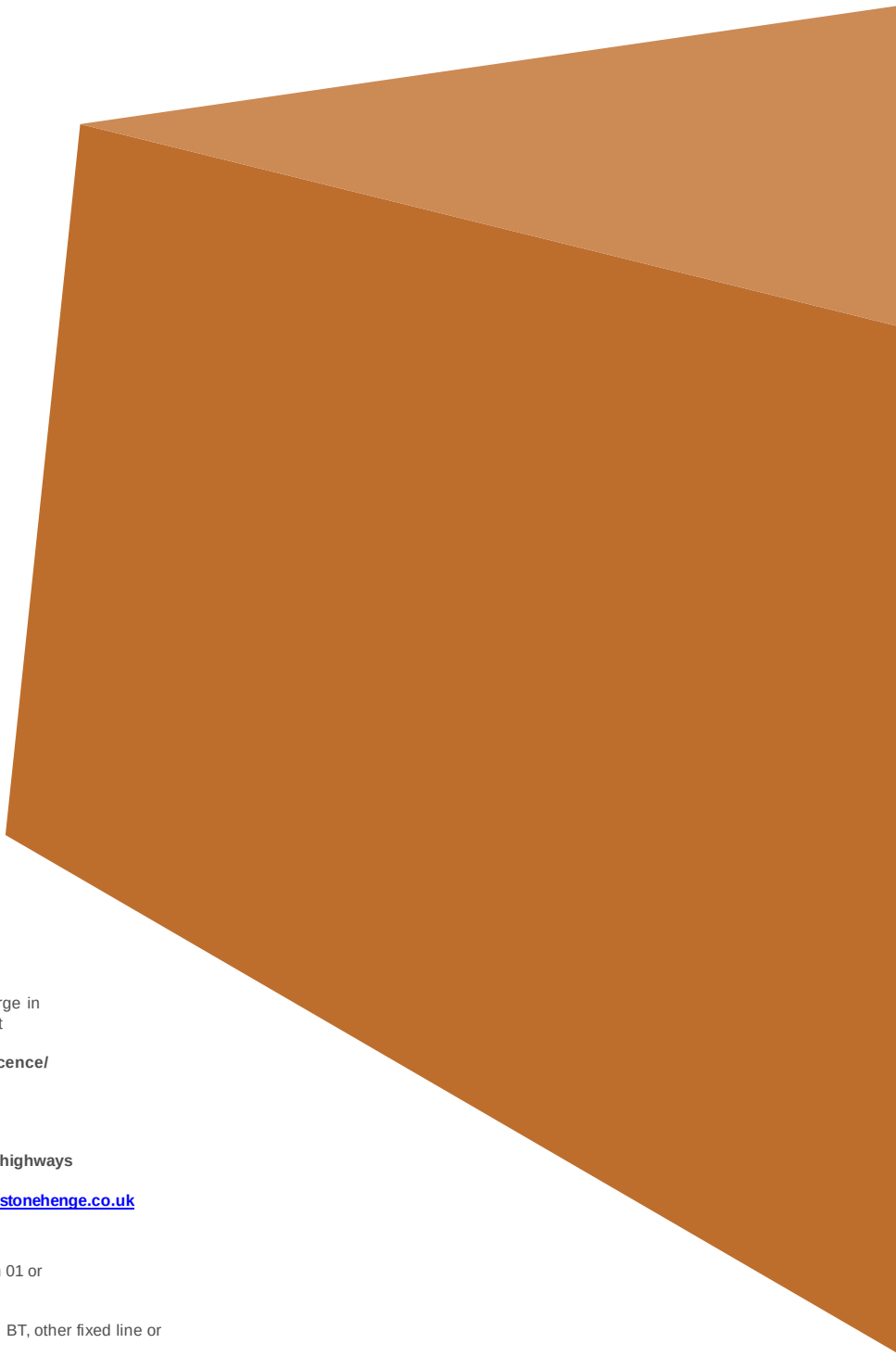

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