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Assessment of the probable Roman road network in the vicinity of the proposed Little South Solar Farm, Ash

Kent

February 2024

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Site Report No. SR011

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SITE DETAILS

Site Description:

The development site, outlined in yellow on figure 1, is on low lying land, (mainly agricultural) originally part of the Wantsum channel, immediately to the south west of the Roman site at Richborough (*Rutupiae*) in northeast Kent. However the report covers a broader area of roughly 3.5km square (i.e. 12.25 km²), sufficient to understand the Roman road network to the west and south of the Roman fort of *Rutupiae* and how any surviving archaeology relating to these roads may be impacted by the proposed development of the Little South Solar Farm near Ash.

Parish: Ash CP, Sandwich

County: Kent

Approx. Central NGR: NU 1007 1137

HER: Kent

REPORT DETAILS

Report compiled by: Mike Haken.

Figures by: Mike Haken

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1. Summary

This report reassesses the routes of all Roman roads in the area south and west of internationally important Roman site at Richborough (*Rutupiae)*, in order put a putative Roman road, previously postulated to have run through the centre of the proposed development site for the Little South Solar Farm, into the context of the surrounding Roman road network. Specifically, it seeks to assess whether the well known route leading out of Richborough which skirts around the wetland was the only road off the island, or if there is any evidence in support of the aforementioned putative road across the proposed development. Whilst the evidence from within the development site itself is currently inconclusive, the report concludes that the evidence beyond the site itself is incontrovertible: Roman roads from Dover (*Dubris*) and probably from Canterbury (*Durovernum Cantiacorum*) combined to run through the centre of the development site in order to cross the Wantsum channel, either by ferry or causeway, and more probably both.

2. Introduction

The site of the proposed Little South Solar Farm at Ash in Kent is located immediately to the southwest of the Roman site at Richborough (*Rutupiae*), which is today on dry land 2km from the Kent coastline, although in the Roman period *Rutupiae* was on an island in the former Wantsum Channel. To Roman eyes, it was the gateway to the province of Britannia. The role it played in the formation and development of the young Roman province of Britannia, and by extension the history of this country, cannot be overstated, as demonstrated by the construction at *Rutupiae* in the late 1st century AD of one of the largest Triumphal Arches ever built in the Roman empire.

A spur of higher ground, possibly itself an island in the early Roman period, extends across the central part of the proposed development site into the former channel. Over the past century, several scholars and researchers have suggested that a Roman road to Richborough may have crossed the central portion of the site, either by ferry or along this spur (see fig 6 for geological map); it is the purpose of this report to assess the likelihood of that being true and to identify the true archaeological potential of certain key areas. Unfortunately some of the documentation concerning the proposed site submitted as part of the planning process on behalf of the developer, specifically the Geophysical Survey Report (GSR), Archaeological Impact Assessment (AIA) & Environmental Impact Assessment Non-Technical Statement (EIA), contain some major issues. As a result, the AIA states that 'No evidence has been identified to support the presence of a Roman road postulated by the Kent HER to cross the central part of the site'. As will be shown, there is actually considerable evidence demonstrating that a Roman road must have crossed the site, and that there is a very real possibility that it is a contender for being the first Roman military road in Britain. It was not possible to comment on the Environmental Statement since the files uploaded to the planning portal do not contain the actual text. The main issues with the AIA and GSR are listed below.

- With regard to the possibility of a Roman road running across the spur (described in the reports as a large gravel mound), the conclusions drawn in the AIA and EIA rely heavily on apparent lack of archaeological anomalies and features in both the gradiometer survey and the lidar analysis contained in the GSR (Roseveare 2023). However, the lack of anomalies should have been no surprise, since by the Roseveare's own assessment, the soils on the gravel are of 'low magnetic susceptibility' with a high stone content (2023, 3), and therefore unlikely to show many, if any, archaeological anomalies, even if archaeological features are present.
- The lidar study for the GSR utilised a form of visualisation known as 'slope' when other visualisations in common archaeological usage produce more easily interpretable results and clearly show potential archaeological features on the site (see this report, 3.1 & figs. 2-5).
- The AIA's map of Historic Environment Data shows Roman roads in the area which are actually mainly speculative but this is not made clear (Foundations Heritage 2023, fig. 2.2).

- In assessing the possibility of a Roman road crossing the site, the AIA has focused too heavily on a lack of known evidence from the site itself, and is not thorough in its assessment of the surrounding Roman road network in order to accurately place the site in the context of that network.
- With reference to the above point, The AIA map (fig. 2.2) omits a vital segment of road that is known for certain to exist, specifically, the road that runs through the extra-mural settlement (often termed *vicus*) at *Rutupiae* and swings southwestwards past the amphitheatre to the edge of the Wantsum Channel, a road that is vital to the correct understanding of the road across the site (fig. 1). Its identification close to the Wantsum Channel during excavation in 2007 is mentioned (para 6.4.5) but the significance not recognised and it is not mapped.
- Assumptions have been made about Roman roads crossing wetlands without considering any similar examples (which are generally substantial timber piled causeways), resulting in the potentially erroneous conclusion that a ferry is most probable. The only evidence considered in the AIA for a ferry is the terminal mooted by Margary (1949), an idea which Margary himself had already rejected by the time *Roman Roads in Britain Vol. 1* was published (1955). Similar conclusions drawn in the report of excavations at Each End are also referred to without acknowledging that they are also based solely on Margary's idea. The possibility of a causeway is rejected without serious discussion.

This study uses a different form of lidar visualisation to better assess Roman roads in the area and enable the creation of mapping which provides a clearer understanding of the likelihood of their having been a Roman road crossing the site. By considering other similar sites, and taking into account the probable silting up of the Wantsum Channel south of Richborough during the course of the Roman period, rather different conclusions are reached to those given in the AIA and EIA.

3. Roman roads in the vicinity of the site

3.1 Lidar Visualisation

The accounts of roads that follow rely significantly on the interpretation of lidar data, specifically the Environment Agency's 1m Composite Digital Terrain Model 2022, the same data used in the Geophysical Survey Report for the proposed development. That report utilised a form of visualisation known as 'Slope' or 'Slope Gradient', which became quite popular in archaeological analysis a decade or so ago, and can illustrate very minor changes in gradient, rather than 'subtle changes in level', as erroneously stated in said report (Roseveare 2023, 3). Slope visualisation certainly has its place in archaeological analysis, however it does not differentiate between concave and convex features, making interpretation often quite difficult, especially when attempting to identify linear trends (for a comparative discussion of the various forms of lidar visualisation see Kokali & Hesse 2017). Recent large scale studies which have aimed to plot Roman roads from lidar have instead tended to use Local Relief Model (LRM), which compares the elevation at each data point with a local average, thereby highlighting archaeological features which are very slightly higher or lower than surrounding ground. For example, LRM was used in the recent 'Beacons of the Past' project in the Chilterns (see Rothwell & Peveler 2023) and Exeter University's 'Unlocking Landscapes' project in Devon and Cornwall (see Parcero-Oubina, Smart & Fonte 2023). A combination of LRM with the more traditional and naturalistic 'hillshade' visualisation can be especially effective (see for example Malone 2021; Haken 2022). This report uses this latter method, with the depressions appearing dark green or dark blue (deepest), and the mounds and banks appearing yellow or pink (highest).

3.2 Overview of Roman roads in the area

In order to fully understand the likelihood that there is a Roman road crossing the central part of the proposed development, it is essential to have a full and accurate picture of the road network approaching Richborough. The AIA portrays a complex picture of seven, arguably eight roads (Foundations Heritage 2023, fig. 2.2), by mapping every supposed stretch of road that has ever been

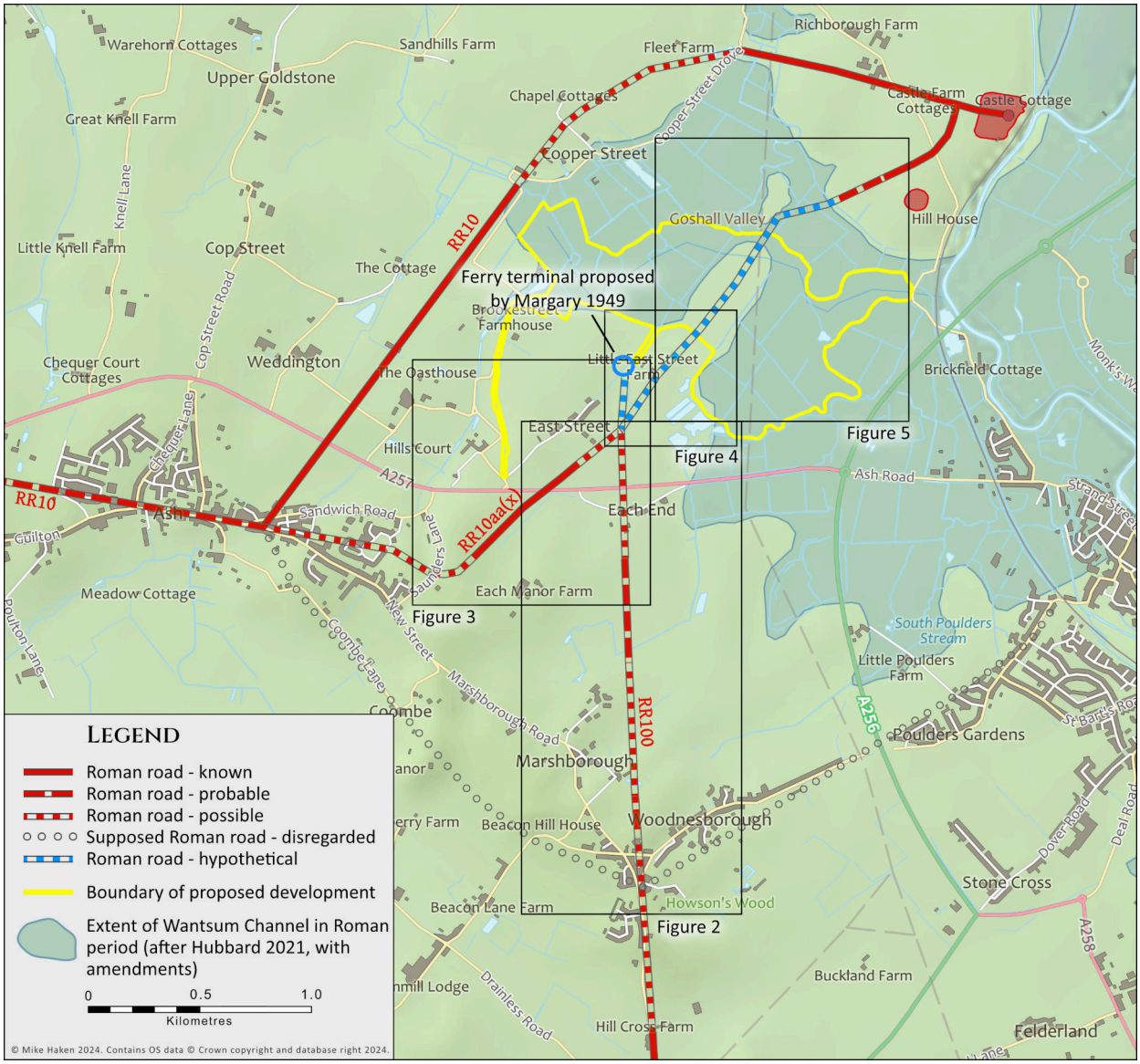

Figure 1. *Map showing the probable layout of Roman roads near Richborough. Roads previously suggested but which have no tangible evidence for their existence or do not conform with typical Roman road planning are not marked.*

claimed over the years, however only a few stand up to any scrutiny. Most published maps (e.g. Manley 2002, fig. 14) show a simpler picture, with a road approaching from Canterbury which forks at Ash. The northeastern fork then loops around the lowest land to Richborough, with the southeastern fork heading to Woodnesborough, where it turns south to Dover. However, the supposed road between Ash and Woodnesborough was only ever proposed because no trace of the road from Dover could be found north of Woodnesborough (Margary 1957, 33-4). However, lidar evidence suggests strongly that the road from Dover did indeed continue north from Woodnesborough (this report, 3.5) and since no evidence of the supposed road between Ash and Woodnesborough has ever been found, it is marked as disregarded in this report (fig.1). Some maps also show a road between Woodnesborough and Sandwich (Margary's RR101), the only evidence for which is a short length of Roman period ditch which may not even relate to a road, so that is similarly marked as disregarded.

The roads for which there is sound evidence are illustrated in figure 1. and described below. The numbers used to refer to individual roads are those awarded by I.D.Margary (1955), with the alternative route of RR10aa added by the RRRA and distinguished by a (x) suffix. The status ratings of known, probable & possible have been determined according to protocols based on those used by the Welsh archaeological trusts and more recently refined by Haken (2021).

3.3 RR10, Richborough to Canterbury

The route of the road between Richborough and Ash is known with reasonable confidence, with some uncertainty between Fleet Farm and Cooper Street. Leaving the west gate of Richborough, the course is well established, crossing the neck of the former Wantsum Channel by a causeway towards Fleet Farm, confirmed by Ogilvie in 1957 (1968, 39).

This would of course be at odds with the conventional notion of a supposed anchorage south of the road, since the causeway would have potentially blocked access. It is worth noting that the mapping showing the Wantsum channel as open water during the Roman period is derived from a very approximate drawing by Walker published almost a century ago (Walker 1927, 97 - not 2017 as erroneously stated in the AIA), and more recent mapping (e.g. Hubbard 2021) shows the narrow channel immediately west of Richborough already silted up in the Roman period, as indeed has been previously suggested. (e.g. Manley 2001, 76).

It must be remembered, however, that Roman occupation lasted three and a half centuries, and it seems quite possible that the channel west of Richborough that the channel was originally open, but became silted up at some point during the Roman period, and the road only constructed after that time. Indeed, the excavations by both Ogilvy and KAFS may support this suggestion, since they revealed that the road structure contained much re-used Roman material, such as Carrara marble, broken Roman brick and tile, quern stone fragments, and sherds of Roman pottery. (KAFS 2001, 14; Ogilvy 1968, 39). This clearly raises the possibility that the road may not have been not the original route west from Richborough.

The continued route to Cooper Street is unclear. The course marked as a heavy line in the AIA (fig. 2.2) represented by Cooper Street running along the edge of the Wantsum Channel (after KAFS 2021, 14), is decidedly un-Roman in planning and has no known supporting evidence. A much more likely route is marked in figure 1, keeping to higher ground just south of Fleet Farm where a possible length of agger is visible on lidar between TR30666028 and TR30606024. It would then head south of Chapel Cottages through a possible cutting at TR30466013, before heading SSW along the known straight alignment through Europa Greenhouses to Ash. At Ash, the road makes a sharp turn of up to 73° to head west towards Canterbury (e.g. Margary 1955, 32). Further west, the line of the road between Ash and Pine Woods has until recently been unclear with Margary's suggestion that the A257 between Ash and Littlebourne represented it being 'not very believable' (Tatton-Brown 2001, 123), however its true course is now being pretty much certain. The Street in Ash fossilises its course between the ends of Sandwich Road and Pudding Lane, the Roman line continuing along the same straight alignment for four kilometres, fossilised today by Nash Lane and Heart's Delight Road. West of Wenderton Lane it can be seen clearly on lidar imagery making an alignment change at TR24255923, before crossing the valley to head WSW through Wickhambreaux and on to Pine Woods and Canterbury.

Returning to Ash, the sharp turn at Ash may seem peculiar, however it allows the road to keep to high ground with a good field of view, whereas the direct route would have crossed several shallow marshy valleys creating an engineering problem to overcome, and potentially leaving a force on the march vulnerable to attack; this is the often suggested direct route from Fleet Farm (Kent HER TR25 NW450, shown on AIA fig. 2.2) which has no convincing evidence supporting it and is rejected. There is, however, another explanation for the sharp turn at Ash, in that the road from Richborough could be meeting a pre-existing road which today runs east to west through Ash (fig. 1).

3.4 RR10aa(x), East Street to Ash

In 1992, excavations took place (centred at about TR30405850) on the line of the Ash by-pass prior to its construction (Hicks 1998). A previously unknown Roman road was revealed aligned roughly south-west to north-east, with adjacent roadside settlement probably dating from the mid second to the late third centuries, with evidence for some activity throughout most of the Roman period. The excavators suggested that the road was probably first constructed shortly after the Claudian invasion (ibid, 101), although without any substantive evidence for such an early date. There was an earlier rutted trackway with drainage gullies which was presumably in use until the route was formalised with an engineered

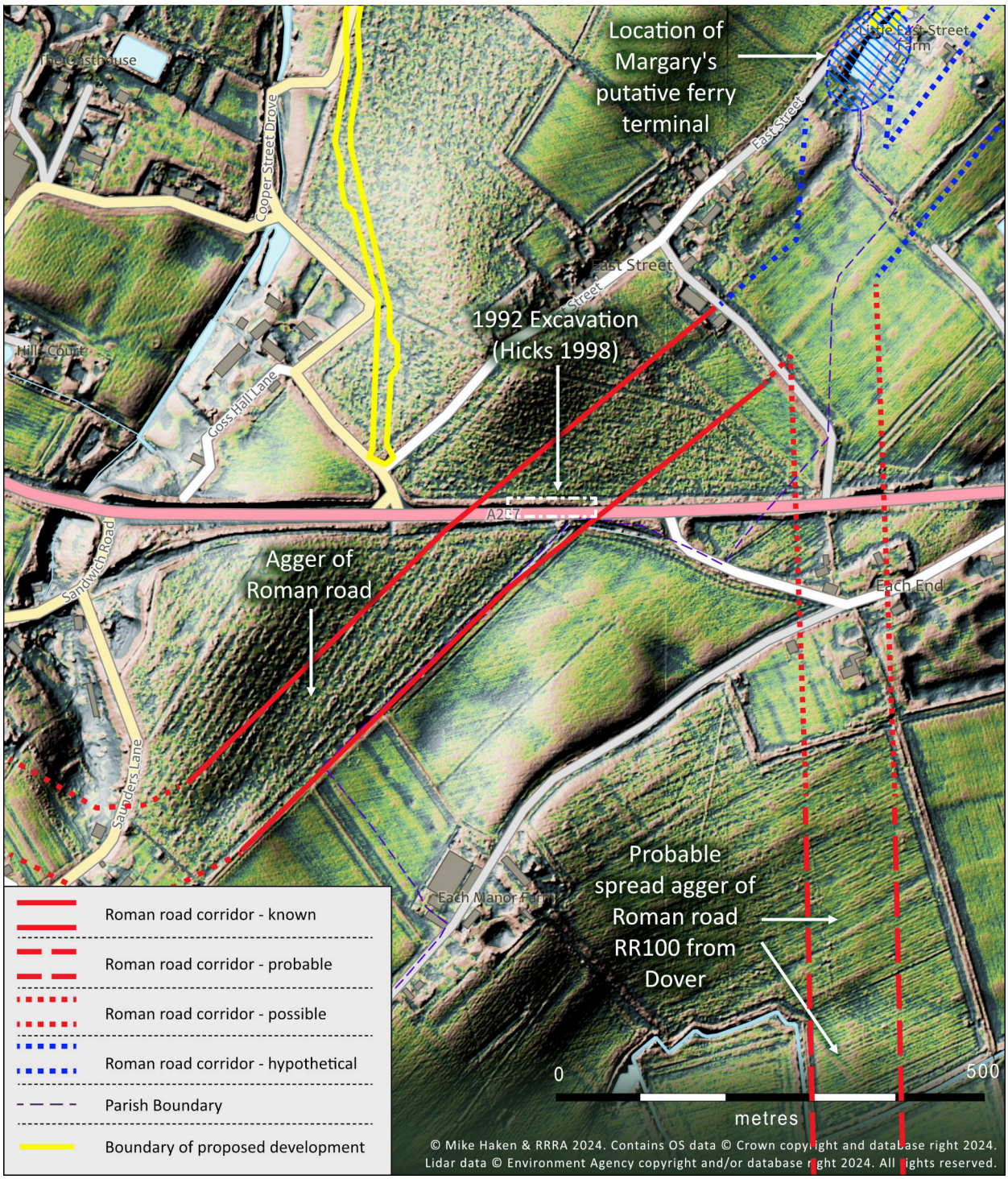

Figure 2. *Lidar visualisation clearly showing the agger of part of the extension of RR10 towards East Street and a junction with RR100 from Dover*

road (ibid, 97). Coin evidence from deposits above the road suggested that the road went out of use in either the late third or early fourth century. The excavators suggested that the presence of coins indicated continued use as a trackway, (ibid, 92) however coin finds on road excavations are very infrequent, and they are much more likely to indicate continued use of the nearby settlement after the road went out of use, giving the road a probable lifespan from c.AD45 to c.AD300.

The excavators concluded that the light construction (15cm thick metalling) suggested that it was not intended for heavy use and that it was therefore merely a local road, however excavated examples of much thinner metalling are known over aggers of many other important *viae militares* in Britain, for

example part of the York (*Eboracum*) to Alborough (*Isurium Brigantum*) road (Ambrey & Cooper 2009, 9). Furthermore the ditch separation of between 15m and 18m apart) is typical for Roman military roads in lowland Britain (average about 60 *pedes*), local minor roads generally being less. Indeed, outside of early towns such as Verulamium or Camulodunum, all roads built so early in the Roman period are of military origin, even if they served a local function later (Bishop 2014, 45). The metalling extending beyond the central agger right up to the ditches in a single build is unusual (but not unique) and might suggest that the road was designed to accommodate large movements of foot traffic moving from the port, such as disembarked military units.

The remains of the road can be seen on lidar imagery running for 830m from East Street at TR30625869 to about TR30005815 near Saunders Lane, where all trace is lost, however it is presumed that it skirted around the head of the small valley west of the lane (thus avoiding gradients of 1 in 5), where it would meet the extended alignment of RR10 from Ash to Wenderton Lane already described. This is essentially a similar conclusion reached by the excavation report, although they were unaware that this road extended as far southwest as it does and of the true course of RR10 west of Ash.

To the northeast, it is clear that RR100 from Dover (see fig. 3 & 2.5) meets this road near East Street, although what happens beyond that junction is less clear. The excavation report did recognise that this road was aligned on Richborough, and that this was the likely destination, concluding that it 'seems probable that the Wantsum channel was crossed by ferry' (Hicks 1998, 102). However, no evidence was presented to justify such a conclusion, nor were any similar examples of wetland crossings by causeway or bridge discussed. Instead, Margary's speculative suggestion of a ferry terminal near Little East Street Farm (1949, 132) which Margary himself appears to have later rejected (see this report, 2) was suggested as a destination, and this view has been repeated in the AIA. This issue is discussed in detail later in this report.

Since the road from Dover is unlikely to have been built before AD100 (see this report 3.5) it seems possible, even probable that this is the original course of the road from Richborough to Canterbury, which was eventually replaced by the northern route near Fleet Farm after the channel there silted up. Slight caution is advised here, since the dating of this road is only an estimate, and if a conquest period military site were to be found at Dover, therefore making RR100 (the Dover road) potentially earlier, then this road could simply be a link road between RR100 and RR10.

3.5 RR100, Dover to East Street

Whilst often assumed to be associated with the early stages of Roman occupation, there is little evidence for Roman occupation at Dover (*Dubris*) before the early second century (e.g. Hosegood et al 2020, 54-6), and it therefore seems unlikely that this road was constructed any earlier than c.AD100.

The road is set out along a single straight planning alignment which is followed by the *via principalis* of the Classis Britannica fort in Dover (Philp 1981, 12). The route of the road northwards is a little sketchy leaving Dover, making a local deviation from the alignment as it climbed out of the valley of the R. Dour, after which it rejoined the alignment from Dubris which it then followed for eight miles. Today, the Roman line is often represented by modern road but with intermittent extant sections of surviving agger. Since no trace was known north of Woodnesborough, it is traditionally assumed that it turned north west to head to Ash where it joined RR10 to head northwest to Richborough, but despite Margary's reasoned argument in favour of such a road to Ash (1949, 131), no evidence of it has ever been found.

Margary did originally speculate that the Dover alignment may have continued north of Woodnesborough as far as a putative ferry terminal near Little East Street Farm (ibid, 132), although six years later in his first volume of Roman Roads in Britain, he made no mention of it (Margary 1955, 33-4). A few years later in 1965, The Ordnance Survey's Field Investigator, A.S. Phillips, reported that whilst he could find no trace on the ground, a continuation of the Dover alignment as far as East Street was feasible, and he further suggested that it may then have changed alignment along a spur of land (see 3.6) extending into the Wantsum Channel and meeting RR10 just west of the fort at Richborough (OS

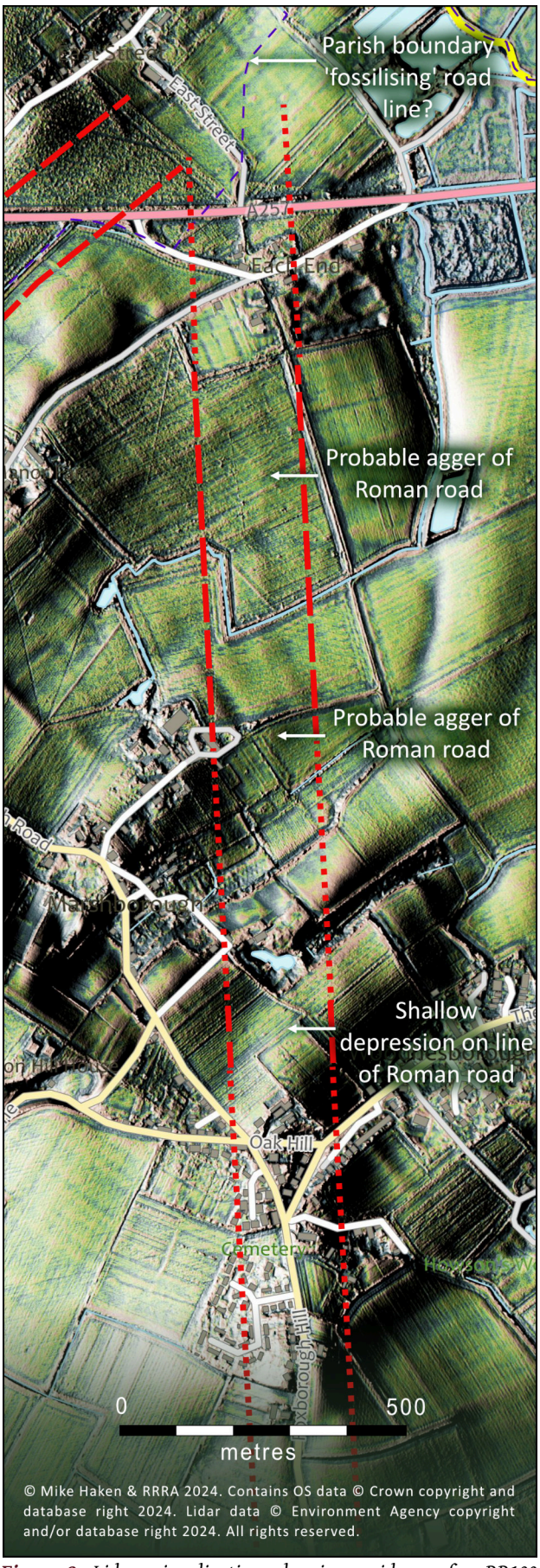

Figure 3. *Lidar visualisation showing evidence for RR100 north of Woodnesborough on the alignment from Dover*

Linear file for RR100, Historic England Archive, Swindon).

Analysis of lidar carried out for this report suggests that Phillips was at least half right, since a series of linear features following the Dover alignment can clearly be seen between Woodnesborough and Each End, where it is met by another road approaching from the southwest (see para. 2.5). A very faint feature along this alignment just north of Woodnesborough can just be seen as a very shallow depression about 15m across, perhaps suggesting that the metalling has been robbed out. The northern group of features all present as a very low ridge about 25m across, exactly what should be expected for the agger of a Roman road heavily truncated by modern ploughing. That said, there remains the very slim possibility that the truncated features represent a different monument type, hence the rating of probable. Interestingly, a short length of the Ash/ Woodnesborough parish boundary seems to have fossilised the position of the road junction, and could perhaps help confirm that the road from the junction to Ash went out of use in the late 3rd century, as the excavation results suggested, after which the junction effectively became a bend in the Dover road.

The planning of this road is clearly deliberate, keeping to higher ground wherever possible as is typical of Roman road planning and avoiding the low and wet valley to the south of Ash. Had it been intended to join a road skirting around the the west of the Wantsum Channel to reach Richborough, then a second short alignment would have been set out north westwards from Woodnesborough to Ash as Margary suggested, but as already stated there is simply no evidence to support this. Therefore, it seems highly probable that RR100 was laid out to join the earlier road (RR10aa(x)) at East Street in order to utilise the existing route to Richborough across the Wantsum Channel.

Many scholars (e.g. Winbolt 1925, 162, but not Margary) have suggested a road from Lympne joining RR100 just south of Each End. Based solely on a perceived line of modern lanes, parish boundaries and field boundaries (which are mainly not very straight) it has crept onto many modern maps however there is no known archaeological evidence for such a road nor did the lidar study for this report show any evidence for it, and it has therefore been ignored.

Figure 4. *Lidar visualisation of the area around Little East Street Farm, and the location of Margary's putative ferry.*

3.6 East Street to Richborough .

The fact that there are almost certainly two important Roman roads meeting at East Street makes the former existence of a crossing of the Wantsum Channel somewhere between East Street and Richborough inevitable. The only questions that remain are by what method, and where?

Figure 4 shows the area around Little East Street Farm, where Margary originally located his supposed ferry terminal. Unfortunately the AIA authors conflated the excavated road approaching from the south west with the road Margary describes approaching the supposed terminal from the south (Foundations Heritage 2023, 6.4.10 (p.25)), which is of course the road from Dover - there are two roads, not one. Margary noted that 'an inlet still exists at this place, ending in a rectangular basin still holding water, situated just at the end of the alignment of the Dover road'. This still survives (see fig. 4), although whether or not this was ever a part of a ferry terminal is unknown. The AIA authors concluded that the rectangular basin is probably post-medieval (op. cit.), with no obvious signs of Roman work being visible. Of course, it always possible that the surviving 'basin' and the channel leading to it are relatively modern re-cuts of a Roman feature, however without excavation that can never be established one way or the other. Unfortunately, whilst recognising the possibility of a Roman ferry terminal at this point, there is no recognition of the fact in the AIA that a proposed access road is

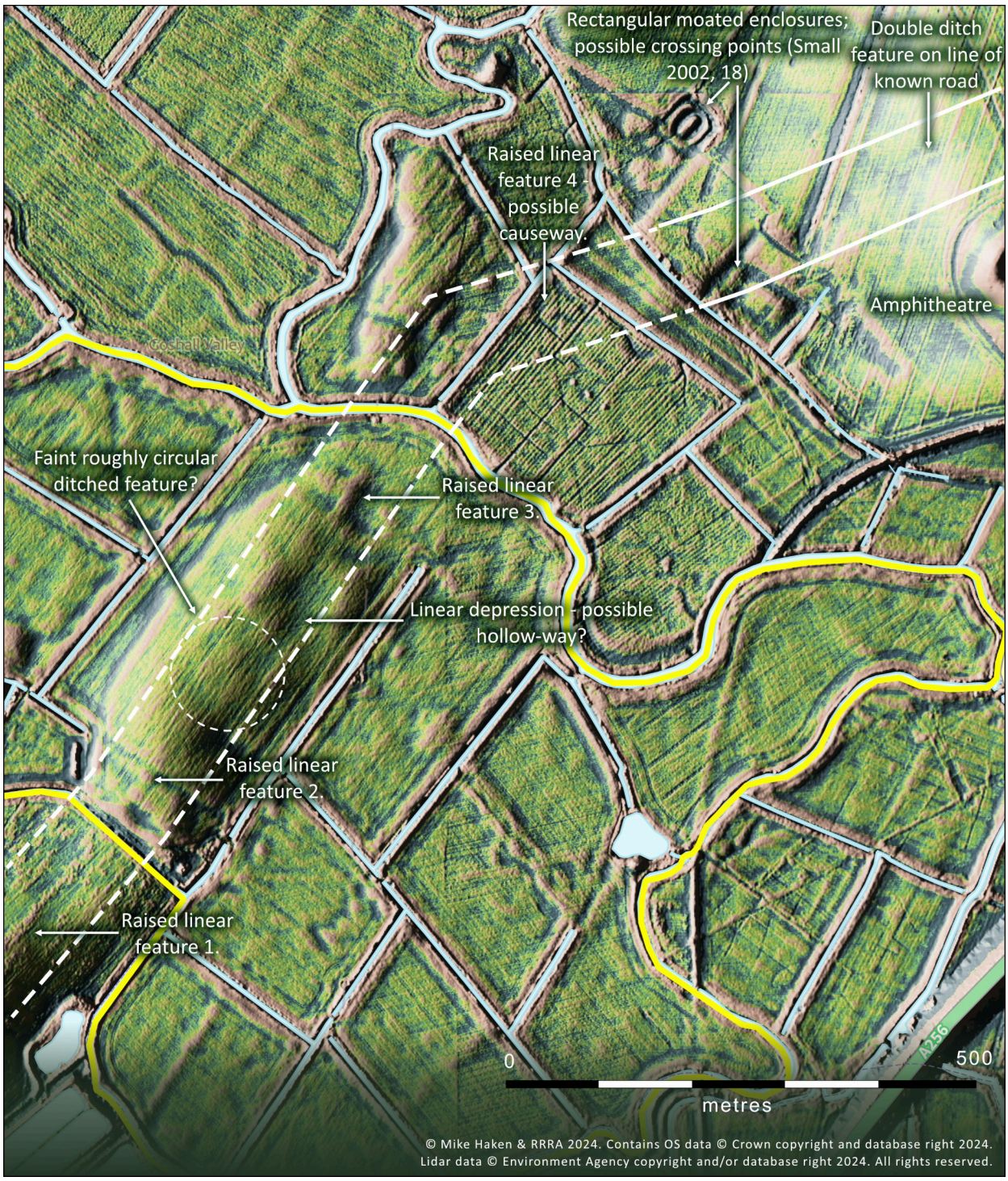

Figure 5. *Lidar visualisation of the putative route of Roman road and causeway via the gravel spur.*

scheduled to run along the course of Margary's inlet, with no recommendations for investigations or mitigation nor any reference to potential damage to what would be a nationally important archaeological site. The EIA (Stantec 2023) also appears to ignore this completely.

Margary's suggested terminal was of course based on the idea that the road from Dover continued north, however based on what is known about the likely date of the two roads approaching here, it is much more likely (but not certain) that the earlier road from Ash (RR10) was dominant, the Dover road (RR100) butting up to it at a 'T' junction. If RR10aa(x) is heading to a ferry, it would therefore seem that if one existed, a ferry terminal would logically be further to the north east, much closer to its destination, possibly in the vicinity of Raised Linear feature 1 (figs. 4 & 5) or near the Goshall Stream

which today flows through a break in the gravel spur projecting onto the Channel. It has previously been suggested that two rectangular moated features on the northern side of the channel (ie the southern shore of Richborough Island), identified in 2001 during the Richborough Environs Project (Small 2002, 18) and both clearly visible on fig. 5, may be landing or beaching sites, possibly for the putative ferry. It has also been suggested that the access to at least the southeastern one of these two sites was provided by a road which branched south off RR10 just outside the fort to head through the extramural settlement (fig. 1). In 2001 that road was confirmed by a gradiometer survey to be curving around northwest of the amphitheatre (Martin 2002, 5 & fig.2). A double ditch feature visible on lidar imagery between TR31975994 and TR31905991 (fig. 5) is almost certainly part of this road, as is a short section of Roman road (TR31695982) on the same alignment discovered during excavation for the Thanet Supply Main in 2007. However, Raised Linear Feature 4. (fig. 5), identified by the lidar survey for this report, seems to represent a continuation of the road through the extra-mural settlement. Since the feature traverses part of the former channel it strongly suggests that the road is actually heading across the former Wantsum Channel by means of a causeway.

As already noted, any road attempting to cross at this point would have utilised the low spur crossing the proposed development site, as A.S Phillips suggested back in 1965. The AIA (6.4.1) briefly refers to this spur as a large gravel mound which according to the Geophysical Survey report 'rises prominently above the surrounding land and must always have been an island within the marsh' (Roseveare 2003, 4). A possible route is marked on Figure 5. As mentioned in the Introduction, it is no surprise that the geophysical survey found no evidence of archaeology on the mound, due to the nature of the soils. Whilst it is true that analysis of lidar does not show clear evidence of a road, the statement in the AIA that 'there is no evidence for earthworks that could relate to features like a Roman road.' (ibid, 3) is misleading at best.

Rather than the 'Slope' visualisation used in the Geophysical Survey Report which resulted in no potential archaeology on the ridge, processing using Local Relief Model overlaid on Hillshade results in a quite different picture emerging. Fig. 5 shows a lidar visualisation of the mound and its surroundings which exhibit evidence of man made features, potentially archaeological in nature which apart from one broadly fit into four categories; former boundary features, multiple small depressions of unknown date indicative of gravel quarrying, linear features orientated lengthways along the mound (marked as Raised linear features 1-3 on fig. 5). The exception is a faint roughly circular feature some 70m in diameter. Whilst this may represent a series of gravel extraction pits forming a circle purely by chance, it could equally be more significant, perhaps taking advantage of the position within the marsh.

Raised Linear Feature 1 (see fig.5) is a straight but poorly defined linear feature just outside the proposed development. Whilst roughly in the right place for the putative road, it could also represent a former enclosure boundary, or perhaps a later boundary following the line of the road, although no such boundary is marked on any extant maps. More interesting are Raised Linears 2 & 3 which align perfectly with each other at either end of the gravel mound. Linear 2 is cut by two ditches, both probably field boundary features, and therefore probably predates the boundary in that position marked on the Gouge map of 1823-5 (Foundations Heritage 2023, fig. 3.1). It appears to be leading onto the mound and could potentially be part of a road, or equally have simply given access for gravel extraction. A similar feature at the northern end (Raised Linear Feature 3) is slightly different since it appears to cross two ditches (where there was also a field boundary marked on the Gouge map). This does not mean that it necessarily post-dates them, since it could have been reinstated later in the 19th century to give access to the mound for gravel extraction. To the southeast of the line between Raised Linear Features 2 & 3 and parallel to them is a straight linear depression running along the mound, potentially a hollow-way. Whilst it is impossible to ascribe a date to this feature, it remains conceivable that it developed parallel to a former road that had ceased to be maintained. Without intrusive investigation it is impossible to be certain of the true nature of these features, but it is clearly incorrect to conclude that there is 'no evidence for earthworks that could relate to features like a Roman road' (Roseveare 2023, 3)

4. Discussion of potential Wantsum crossings

It has been established that the Roman road excavated as part of the A257 improvements in 1992 heads north eastwards in the direction of Richborough and that it is almost certainly met by the Roman road from Dover (probably later) between Each End and East Street, the approximate site of the junction being marked by a bend in the parish boundary between Ash and Woodnesborough. However, the AIA concludes that 'Evidence to date suggests that a Roman route from Dover to Richborough is more likely to have been a ferry crossing from Little East Street Farm to a harbour west of the west gate of the fort, than a road across the Wantsum Channel.' (Foundations Heritage 2023, para. 8.4). Despite that bold statement, no evidence has been provided in support of it nor any argument presented that such a scheme would have an advantage over a potential land route via Ash. Would it be logical for the route from Dover to go this way?

The primary function of every *via militaris* was to allow the efficient and rapid movement of troops and logistical support. Crossings of major watercourses, especially broad ones, caused problems that had to be resolved in a manner that provided the most rapid movement of traffic at all times, hence, despite popular belief to the contrary, we hardly ever see the use of fords for river crossings (Bishop 2014 34-5). Ferries are just as rare, since they could potentially create a bottleneck slowing down the movement of a military unit.. Consider the theoretical journey made by a single cohort (480 men) from the east bank of the Wantsum Channel to the junction of RR100 from Dover with the road from Ash, via RR10 through Ash and along the supposed (but probably non-existent) road between Ash to Woodnesborough, which is 5.4km. The accepted average speed of a Roman soldier is 3mph, ie about 4.8kph, so the journey would therefore take 67 minutes. Now consider the same journey by ferry and road. The direct distance from the north eastern end of Margary's putative lagoon/ferry terminal to the where RR10 meets the east bank of the Wantsum Channel, is 1514m and the remainder by road 2300m. We do not know what type of vessels would have been used for tasks such as this, but they would presumably have been relatively small and maneouverable boats with a shallow draft, propelled by oars or a combination of oars and sail, and unlikely to be bigger than the 18m long *Stella Noviomagi*, a modern reconstruction of a Roman trading vessel used on the Moselle, which has 22 oars.

Let's assume that most troops arriving at Richborough were capable of rowing (which without specialist training is actually highly improbable). If we're generous and say that 40 men could be conveyed in a single boat, and that the average speed achieved over the journey was an ambitious 3 knots (i.e. 5.55km/hr), it would take 21 minutes for the trip, plus a further 5 minutes at each end to board and disembark, plus 29 minutes to walk to Woodnesborough, ie 60 minutes - marginally quicker than walking and always assuming that there were 12 boats accompanied by the essential crew (ie steersman and captain) available at all times - highly unrealistic. If, for sake of argument, there were only six boats, the boats would have to return for a second trip, it would take 111 minutes for a single cohort of 480 men. If we're considering an entire legion, then with twelve boats it would take over eight hours, entirely unrealistic. And we haven't yet considered the baggage train and logistical support! Little wonder then that evidence for use of ferries on major *viae militares* is extremely thin and restricted to where there was no other realistic options, our known examples being the crossings of the Humber and Severn estuaries, and possibly the Wash.

This exercise was theoretical, designed to demonstrate that a road skirting around via Ash was a much better alternative than a ferry along the route proposed in the AIA from Margary's putative terminal, yet there is no evidence that the supposed Ash to Woodnesborough road ever existed. Consequently, whilst the conclusion of the AIA can be safely rejected, we have established that there must be a southern crossing of the Wantsum channel somewhere and we are still faced with the question of how this was made, and from where. Whatever method was used to cross the channel, it stands to reason that the Roman engineers would endeavour to make the crossing as short as possible, which almost certainly means making use of the spur of land projecting into the channel. Indeed, since Richborough is thought to have possible pre-Conquest origins, it would not be unreasonable to suggest that this logical crossing point was probably utilised in the late Iron Age as a way of the island, and the track beneath the excavated Roman road near Each End (see 3.4.) an extension of it. The spur shows

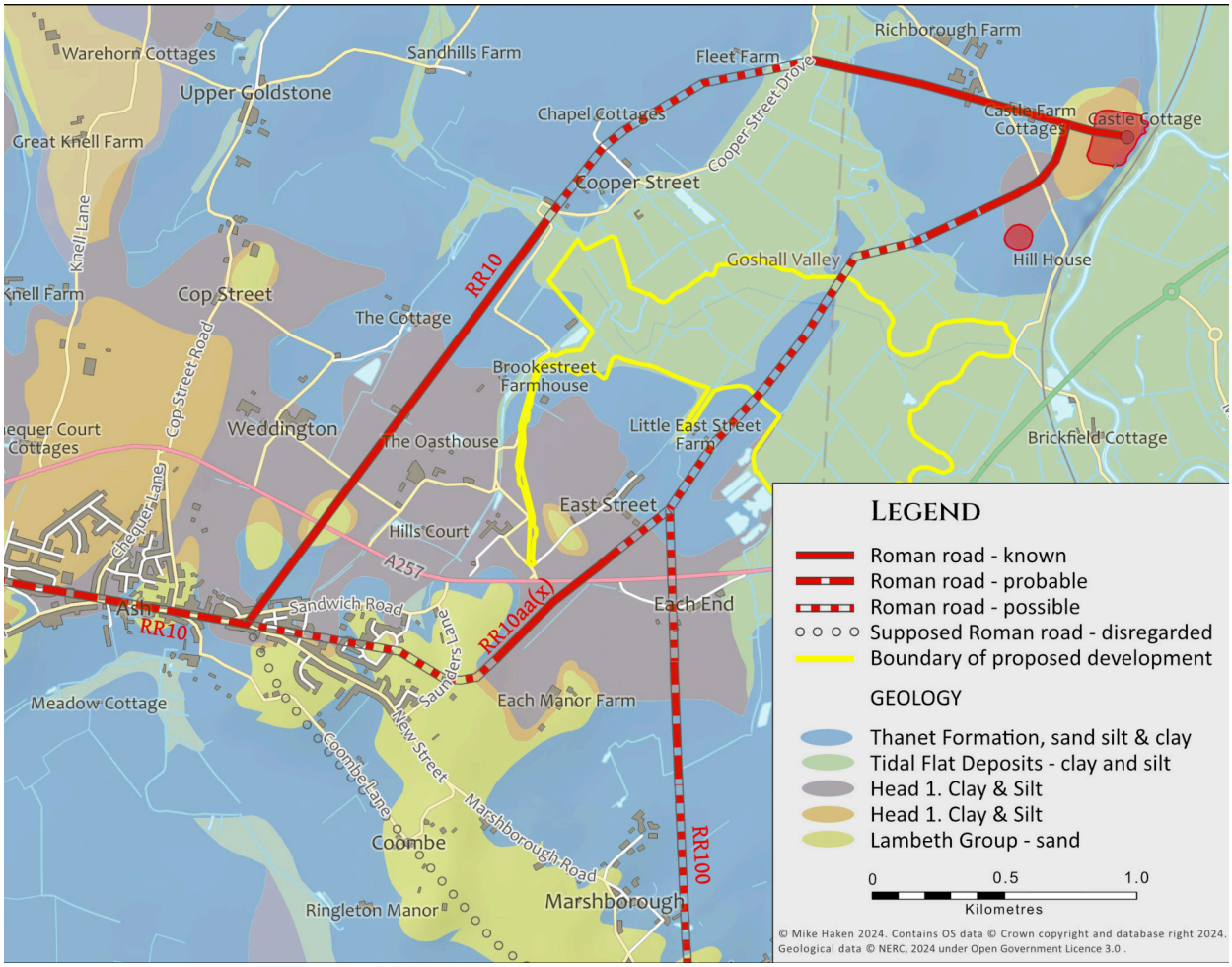

Figure 6. *Geological map clearly illustrating the most logical route for a Roman road approaching from the south to cross the Wantsum Channel*

extremely well on modern geological maps as illustrated in figure 6 where it can be seen in blue standing proud of the Tidal Flat Deposits of the Wantsum Channel (green). The most probable crossing point is from somewhere close to Raised Linear Feature 3 (fig. 5), although in order reach this, it seems probable that a short length of piled causeway would have been needed across the low ground at the southern end of the mound, a short length of which is within the proposed site, cut by a modern drainage ditch.

A direct crossing from the north end of the mound to the north bank is about 400m. With the much reduced distance, a ferry now becomes a viable option, especially as there are two rectangular features on the northern bank which have been interpreted as possible landing or beaching sites. Instead of a ferry, could a bridge have been possible? A direct bridge (not considered in the AIA) would have been about 400m long, although this could have been reduced by using an indirect route utilising the smaller gravel mound to the north, thus needing two bridges of about 150m and 180m in length. Both suggestions are technologically possible; by way of example, a century before the Claudian invasion, Caesar's legions took just ten days to bridge the Rhine (*de Bello Gallico* 4.17-19), probably near Andernach, with a structure between 250m and 350m in length. However, such a bridge would probably prevent access to the anchorage to the northwest by seagoing vessels with fixed masts. Therefore, if such an anchorage existed, whether a bridge was used comes down to whether ships needed to get through, and since the northern channel near Fleet Farm could well have been open, a bridge has to be a possibility. Even it a ferry were used (assuming six boats), the journey time to Dover from the west gate of Richborough to Woodnesborough is only three minutes slower using the ferry than skirting round via RR10Ash. Clearly, there was never any compelling reason for the Roman Army to build a road

between Woodnesborough and Ash.

The brief discussions in the AIA assume that the crossing was over open water throughout the Roman period, however this was probably not the case. We certainly know that by the later Roman period (at the latest) the northern part of the channel where RR10 crosses was already silted up since RR10 crosses it by causeway, with the channel south of Richborough also silting up. Indeed, at least one scholar has recently illustrated most of the channel south and west of Richborough as salt-marsh in the Roman period (Hubbard 2021). Further paleoenvironmental analysis is needed from multiple locations within the former channel in order to fully understand the changes taking place in the navigability of different parts of the Channel within the Roman period. However, it seems probable that an alternative would have had to be found to the original ferry crossing, since at least some of the route would have become salt-marsh.

Crossings of marshland, particularly during or soon after campaign, were often made by what were in effect floating roads (sometimes termed 'corduroy') such as the one some 7m wide that carried the agger of RR28a from Lincoln to Doncaster over the 300m wide boggy floodplain of the river Idle near Scaftworth, Nottinghamshire (Van de Noort 2004, 110-114 & Van de Noort et al 1997). Here, the river itself was crossed by a long bridge, the entire structure being probably an example of a *pons longus* (literally 'long bridge') as referred to by Tacitus (*Annals* 1.63.3-4). Possible because of problems caused by flooding, this was soon replaced with a much more substantial raised timber structure incorporating piling and a box frame. Similar structures are known from other sites across northern Europe most notably the one discovered at Valkenburg on the Netherlands coast. 1.5km have been excavated (Vos & Hessing 2021, 154) in a very similar landscape, close to the mouth of the Old Rhine across what was then saltmarsh (Kooistra et al 2021, fig. 1.1), and notably an inscription carved into a single pile record its building by the second cohort of Roman citizens (Vos & Hessing 2021, 73). Rather than a straight route across the marsh following that of the ferry, a more logical route would have been to utilise the eastern edge of the smaller gravel mound to the north, and then turn across the marsh towards the extra-mural settlement. Not only would such a route approach the known road running through the extra-mural settlement, but a feature centred at TR31535976 that is visible on lidar, aligns perfectly with the known road and may possibly be part of this putative causeway.

5. Summary and Conclusions

The Roman road discovered in 1992 prior to work on the A257 can be seen clearly on lidar imagery heading towards the long spur, or gravel mound (within the proposed development site) that heads into the former Wantsum Channel towards the major Roman site at Richborough. Linear features identified on lidar imagery south of East Street are almost certainly remains of the agger of RR100 from Dover, and it seems that the two roads must have met just south of East Street, before heading over the spur. At the point where they meet, even though there are no features visible today, the parish boundary between Ash and Woodnesborough seems to preserve the lines of the road from Dover and the road heading to towards Richborough suggesting that features were at least visible in the medieval period and that the Dover to Richborough route continued in use after the road west of Each End (RR10aa(x) went out of use somewhere around AD300. Furthermore, if the route proposed for the road excavated in 1992 (RR10aa(x)) is correct then it seems probable from both available excavation evidence and from the way the roads are set out in relation to each other, that RR10aa(x) may well be the original road from Richborough to Canterbury, built immediately after the Claudian conquest and before the road from the west gate of Richborough fort past Fleet Farm was constructed. In those circumstances, it could potentially be the first Roman military road in Britain.

It is clear that the Wantsum Channel was then crossed, with the road on the northern side almost certainly being the one already known curving northwards through the extra-mural settlement at Richborough. If this is indeed the original road to Canterbury, then its route joining the road leading from the west gate is initially hard to understand. One plausible explanation would be that this is a later rerouting of the road which occurred as the extra-mural settlement developed and well before the so-

called Saxon Shore fort was built in the late 3rd century, and that it originally ran to either the west gate of the fort. There are hints on the gradiometer survey (Martin 2002, fig. 2) in the area around TR32126002 and a little further north east that could be interpreted as suggesting that this is the case.

There are uncertainties as to how the Wantsum Channel was crossed here, with a possible bridge, or perhaps a short ferry. If the latter, it would seem certain that in the later Roman period a timber piled causeway would have to have been built across the salt-marsh as it silted up, and a feature visible on lidar imagery may actually part of this structure, although it is outside the boundary of the proposed development. It is probable that remains of the road over the gravel mound will survive in places, although lidar shows that there has clearly been piecemeal gravel extraction which may impact upon this. Give the waterlogged nature of the lowest ground, anaerobic conditions mean that it is highly likely that the timber structure that supported the causeway will be preserved at both ends of the gravel mound. If a bridge had been built, it would almost certainly be a timber construction, and again it seems probable that there would be survival of some of the structure at the northern end of the gravel mound.

These timbers could potentially provide valuable dendrochronological dating evidence which if from a bridge could tell us whether or not the road was constructed during the conquest period, as has been suggested as a distinct possibility earlier in this report. This could be crucial in determining the nature of the road between East Street and Ash, which seems likely to part of an early road to Canterbury from Richborough, although at present a simple link between RR100 and RR10 cannot be entirely ruled out. Timbers from the causeway would similarly provide dating evidence, expected to be later.

It is this report's conclusion that the statements made in the AIA that there is no evidence to support a road across the long gravel mound, that a ferry crossing was most likely from Margary's supposed ferry terminal near Little East Street Farm running 1.5km to meet RR10 west of the fort, and that archaeological potential in the centre of the site is low, are all incorrect. Extensive trial trenching and other invasive techniques both across the long gravel mound and particularly at its southern and northern ends, with particular reference to Raised Linear Features 2 & 3, are essential in order to accurately determine the location, extent and condition of remains of structures related to the road. Whilst this report has concluded that Margary's ferry terminal, which he himself rejected before 1955, is probably implausible, investigations should also be made along the channel or former inlet that leads to the supposed terminal, to determine whether or not this ever was a navigable channel. This is especially important since an access road is planned along its line.

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