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Land at Calcott Hall Farm, Brentwood

Transport Feasibility Study

On behalf of **Hallam Land Management**

Project Ref: 42579/5502 | Rev: V1.1 | Date: January 2019

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Executive Summary

Introduction

Peter Brett Associates, now part of Stantec (PBA), have undertaken a Transport Feasibility Study on behalf of Hallam Land Management to assess the expected impacts and identify potential benefits to the wider community from a transport perspective for a potential residential scheme known as Land at Calcott Hall Farm in Brentwood.

This Transport Feasibility Study sets out the approach to how the development will be delivered, assesses the link impacts on the local highway network from trips that are expected to be generated, highlights the key design principles of the proposed masterplan and the transport benefits it delivers to the wider community, along with the sustainable measures being promoted to enable the proposed scheme to comply with the Local Development Plan.

Site Description

The proposed site comprises approximately 47.6 hectares of agricultural land to the north-west of the urban area of Brentwood and to the south-east of the settlement of Pilgrim's Hatch. It is bound by Ongar Road to the north, by Calcott Hall Farm and the A12 to the east, by Weald Road to the south, and by Sandpit Lane to the west.

Emerging Brentwood Local Plan

Brentwood Borough Council is preparing a new Local Plan 2016 – 2033 which once adopted, will supersede saved policies in the current Replacement Local Plan 2008. It will set out policies and proposals, as well as site allocations, to guide future development and will enable Brentwood Borough Council to manage growth while protecting key areas.

To support the preparation of the emerging Brentwood Local Development Plan, a number of technical studies have been undertaken to provide an up-to-date and robust evidence base. For the transport evidence base, this has been provided through a Transport Assessment (TA) (PBA, October 2018) which considers the strategic level impact of the proposals and site allocations of the emerging Brentwood Local Development Plan on the highway network up to the end of the proposed plan period.

In addition to the TA, a range of sustainable transport measures have been identified for Central and Northern Brentwood that are being considered along with limited physical highway improvement works, to mitigate the impact of the emerging Brentwood Local Development Plan that might prevent its adoption.

Development Proposals – Land at Calcott Hall Farm

Land at Calcott Hall Farm is to the north-west of Brentwood town centre. The proposed masterplan for the site includes approximately 800 dwellings , along with green infrastructure and other associated uses.

It is envisaged that the access to the site will be from both the north (via Ongar Road) and south (via Weald Road). From these two access points, the scheme would provide the opportunity to deliver a new Community Link Road (CLR) through the site between Ongar Road and Weald Road.

The scheme will include provision of pedestrian and cycle priority routes through the site helping to make these active travel modes viable options for future residents of the scheme – connecting the new residents to Brentwood station in approximately 12 minutes cycle time and the town centre in 10 minutes cycle time. The scheme will also enable Sandpit Lane, which is currently used as a rat run for trips seeking to access the A12 and M25, to be downgraded to local access and as a route through for more local pedestrian and cycle trips connecting towards Weald Country Park.

The scheme will provide a robust public transport strategy which is based on the introduction of new services providing direct links to the town centre and train stations. This strategy has been discussed with First Group who operate within the area and they have supported in principle.

The transport and access strategy proposed for the site would sit alongside the masterplan and would guide the delivery of transport infrastructure, green travel measures aimed at managing the demand for travel to and from the site, in particular to limit vehicular traffic using the local highway network and will be aligned with the sustainable transport measures identified for Central and Northern Brentwood as part of the emerging Local Development plan.

Impact Assessment

The scheme is proposed to be delivered across four distinctive phases with build-out from the north and south simultaneously, therefore speeding up the delivery of the Community Link Road (CLR) through the site and the proposed public transport strategy.

At present, high levels of congestion have been identified within Brentwood town centre. Wilsons Corner and the southern end of the Ongar Road approach to Wilsons Corner are particular hot spots. The A1023 corridor and in particular the Mascalls Lane junction also has high levels of congestion in the morning peak hour, causing through traffic to use Sandpit Lane. Honeypot Lane also has instances of through traffic avoiding the town centre.

The proposed development has the opportunity to help address some of these issues by providing the CLR through the site which will help downgrade the Sandpit Lane and Honeypot Lane.

This Transport Feasibility study considers the impact of the forecast trips generated from the proposed scheme on the local highway network, in the context of a link-based assessment, along those routes which are expected to be used by vehicular traffic.

To assess the potential impact of forecast trips being generated from the scheme, a trip generation exercise was conducted using the widely accepted TRICS data base. The Census travel to work mode share is used to assess the trip generation by mode. The link-based assessment has been undertaken based on the 2011 Census travel to work mode share which represents a reasonable worst-case scenario which does not include any provision of the CLR or provision of public transport strategy or sustainable transport measures.

Two key routes have been assessed using the Design Manual for Roads and Bridges (DMRB) Volume 5 Section 1 to identify the existing link capacity. This has been assessed for Ongar Road and A1023 Brook Street using the Department for Transport (DfT) traffic flows and anticipated trip generation from the site that are expected to use these links.

Taking the peak hourly flow from DfT traffic counts and from forecasted trips generated from site, both Ongar Road and A1023 Brook Street links operate within capacity at approximately 60% and 80% of their capacity. Hence the resultant trips from the site do not result in capacity constraints regarding the flows that can be accommodated on the two mentioned links.

Further work will be conducted to assess the impact of the development on the local and wider highway network based on up-to-date traffic counts to take account of the sustainable transport measures and the impact of the CLR. Weald Park Way will also be assessed for suitability of additional traffic.

Key benefits to the wider community

The potential transport related benefits and opportunities of the site are as follows:

- Delivery of the CLR through the site between Ongar Road to the north and Weald Road to the south which has the potential to help to alleviate traffic congestion in the town centre.

- The CLR will help maintain the protected lane status of Sandpit Lane and help downgrade Honeypot Lane.

- Through design and introduction of sustainable transport measures, which may include provision of physical infrastructure and/or improving existing facilities for walking and cycling, encourage sustainable modes of travel to/from the site. These measures are in line with the emerging sustainable transport strategy which will underpin the delivery of the Brentwood Local Plan and improve wider area connectivity and permeability for these sustainable travel modes

- Induce a mode shift by introduction of public transport proposals as a result of the scheme which will result in additional capacity towards stations and reduced journey time

- Primary school location will be designed to take maximum benefit of the improved cycling and walking facilities being provided as part of the development

- Downgrading of Sand Pit Lane which is currently used as a rat run by vehicles traveling towards J28 M25 by making access restricted to properties and no through traffic allowed. It would be used as a pedestrian and cyclist route thus enhancing the permeability of the site and connecting to the wider cyclist/pedestrian route network

- Introduction of Car Club spaces to encourage a reduction in car ownership across the site with provision of multiple (potentially electric) Car Club vehicles on the site, of different sizes to cater for different needs.

- Introduction of electrically-assisted pool bikes at a number of locations across the site with docks in the town centre and at the railway station.

- Personal travel planning for new residents and incentives for low car ownership such as supermarket vouchers, car club membership.

- High quality secure cycle storage provided for all new homes.

- Discounted tickets for new residents for the proposed bus service to Brentwood town centre and railway station.

Summary of Assessment

The provision of the new CLR through site between Ongar Road in the north and Weald Road in the south, provides an alternate and more desirable alternative to vehicles using the A1023 High Street to travel towards J28 M25 and a viable alternative to the protected Sandpit Lane.

Link based assessment of primary routes, Ongar Road and Weald Road, that are expected to be used by trips generated from the site indicate that even with additional development traffic, both the key links operate well under capacity as per DMRB Guidelines. It is noted that junction assessment will need to be conducted to assess the impact of the development comprehensively.

The proposed public transport strategy, which has been discussed and now has support of First Group, to serve the site, once the CLR is complete, will provide a bus service between the site and Brentwood railway station routed via Ongar Road and A1023 High Street in both directions. Thus, encouraging a travel mode share shift towards public transport by increasing capacity.

Dedicated pedestrian and cycle access would be provided to Ongar Road through the improvement of the existing access road to Calcott Hall Farm. In terms of pedestrian and cycle movements from the south, there is the potential to provide off-site pedestrian and cycle infrastructure and connect with the existing route between Weald Road (to the east of the A12 overbridge) and A1023 London Road.

The development will encourage sustainable travel, not just to act responsibly with regards to the welfare of future residents and the environment, but also to manage the site efficiently and not create additional congestion on the local highway network or worsening of conditions within the AQMA 7 to the south (A128/A1023 Junction) and AQMA 4 (where A128 crosses A12). The use of the local sustainable travel opportunities would therefore be encouraged as far as possible through travel planning and will be aligned with the sustainable measures identified within Brentwood Local Plan.

1 Introduction

1.1 Overview

1.1.1 This Transport Feasibility Study has been undertaken by Peter Brett Associates, now part of Stantec (PBA), on behalf of Hallam Land Management to identify potential benefits to the wider community from a transport perspective for a potential residential scheme known as Land at Calcott Hall Farm in Brentwood.

1.2 Site Location and Description

1.2.1 The site comprises approximately 47.6 hectares of agricultural land to the north-west of the urban area of Brentwood and to the south-east of the settlement of Pilgrim's Hatch. It is bound by A123 Ongar Road to the north, by Calcott Hall Farm and the A12 to the east, by Weald Road to the south, and by Sandpit Lane to the west.

1.3 Proposed Development Masterplan

1.3.1 The key principles of the proposed masterplan are, as follows:

- Accommodate approximately 800 dwellings and provide a mix of units to meet a range of housing requirements
- Achieve access to the site from both the north along Ongar Road and the south along Weald Road
- Deliver a new Community Link Road (CLR) through the site between Ongar Road to the north and Weald Road to the south

1.3.2 The delivery of the masterplan will be underpinned by a sustainable transport strategy that will:

- Encourage sustainable modes of travel for site with focus on walking and cycling
- Induce a mode shift by introduction of a public transport strategy that will be delivered as part of the scheme
- Alleviate traffic congestion from A1023 by providing a new CLR through the scheme that is expected to influence travel behaviour of vehicles that currently are travelling eastbound
- Eliminate the existing rat-running along Sandpit Lane which is too narrow and unsuitable for the volume of traffic currently using it.
- Mobility as a Service during peak periods to provide alternative modes to private car for point to point transport.
- Provision of key local facilities to reduce the need to travel.

1.3.3 The scheme has the potential to be delivered across four distinctive phases. This strategy would build out from the northern and southern access points simultaneously, therefore speeding up delivery of the public transport strategy, the north-south highway Link Road through the site and the scheme.

1.4 Structure of the Report

1.4.1 The structure of this report is provided below-

- **Chapter 2:** Describes the context of the site with regards to its existing access opportunities.
- **Chapter 3:** Reviews transport and planning policy and guidance documents relevant to the site.
- **Chapter 4:** Explains the overall principle of the Masterplan for the site
- **Chapter 5:** Provides a high-level overview of the potential trip generation of the scheme and predicts the vehicle impact of the scheme on the local highway network.
- **Chapter 6:** and sets out the transport and access strategy proposed for the scheme, to help deliver the Masterplan.
- **Chapter 7:** provides a summary of the discussions held with ECC Highways and next steps.

2 Site Context and Opportunities

2.1 Overview

2.1.1 This chapter presents the site location in the context of the Brentwood and the connectivity opportunities that this site offers. Brentwood Town Centre is approximately 25 minutes walking distance and 9 minutes cycling distance from the site and provides access to a vibrant town centre along with primary and secondary schools.

2.1.2 This chapter also presents the existing access locations and examines existing pedestrian and cycle infrastructure, which would support trips to local facilities and amenities and trips to public transport services, as well as the existing public transport services themselves. It also examines the existing local and strategic highway network in proximity to the site and identifies key highway constraints and challenges.

2.1.3 The existing settlement of Pilgrims Hatch (approximate 6,000 population) is immediately to the northwest of the site and provides a number of local facilities that will benefit the new community, including a primary school. The site does therefore provide an opportunity for a substantial number of trips to be made by active forms of travel.

2.1.4 In addition, Ongar Road is an important radial route into Brentwood with existing bus services to the town centre and Brentwood Rail Station. This chapter also examines the potential to enhance public transport connections to the site to the benefit of both the new community but also the existing community including residents of Pilgrims Hatch.

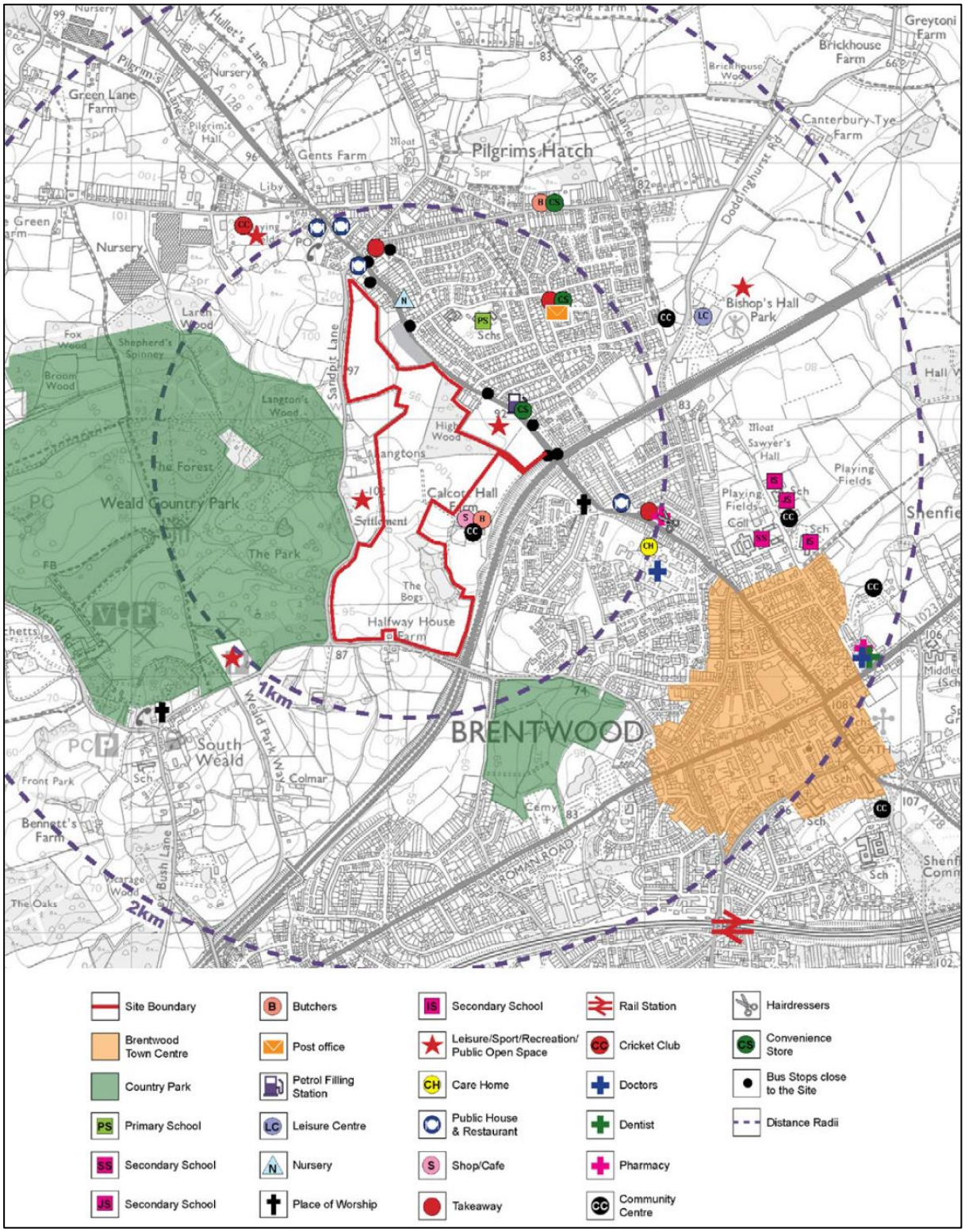
2.1.5 There is also an opportunity to connect Ongar Road in the north to Weald Road in the south via a Community Link Road. This link road will provide an alternative route to Sandpit Lane.

2.2 Location of Key Facilities

2.2.1 Figure 2-1 provides an overview of existing facilities within the vicinity of the proposed site, Pilgrims Hatch and Brentwood town centre and which will have an important influence on patterns of movement to and from the proposed development.

2.2.2 Pilgrims Hatch provides limited facilities but does have a primary school and a Co-op foodstore. The nearest GP surgeries are on the Ongar Road just to the south of the A12 but within easy walking distance of the northern part of the site. The nearest main foodstore is a large Sainsburys store, located off the Ongar Road at the northern end of the town centre. The majority of the secondary schools are located in vicinity of Brentwood town centre and most of the facilities are within 15-minute reach by cycling and within reasonable walking distance from the proposed site. This represents an opportunity to encourage a mode shift towards walking and cycling by interlinking the proposed development site with the Quietway being put forward as part of the Sustainable Transport Measures – Central/ Northern Brentwood under the Brentwood Council Local Plan.

Figure 2-1: Overview of Existing Facilities (Source: Calcott Place Vision Document)



2.2.3 As per the National Travel Survey (NTS) 2017 statistics, the most trips made by people are for purpose of commuting, shopping, education, leisure (which includes visiting friends at home and elsewhere, entertainment, sport, holiday and day trip) and personal business. In addition to the NTS 2017 statistics, a study from WYG has looked at the preferred walking distance, provided in table below, across UK (excluding London) and within London that are acceptable and are generally used for planning purposes. These have been provided in Table 2-1 below.

Table 2-1: Preferred Walking Distance

	Mean (m)	85th Percentile (m)
Walk – As main mode of travel		
UK (Excluding London)	1,150	1,950
London	1,000	1,600
Walk to a Bus Stop		
UK (Excluding London)	580	800
London	490	800
Walk to a Railway Station		
UK (Excluding London)	1,010	1,610
London	740	1,290

(Source: Bunn, N. & Wakenshaw G, How far do people travel, WYG, July 2015)

2.2.4 Further to the above, it was also noted that the journey purpose also has an impact on the distance travelled and a summary of the same has been provided in Table 2-2 below.

Table 2-2: Walking distance by Journey Purpose (excluding London)

Journey Purpose	Weighted Sample Size	Proportion	Mean (m)	85th Percentile (m)
Commuting	2166	7.1%	1250	2100
Business	290	1.0%		
Education/ Escort	5609	18.5%	1,000	1600
Shopping	5958	19.6%	1,000	1600
Other Escort	1392	4.6%	1100	1600
Personal Business	2730	9.0%	1,000	1600
Leisure	5539	18.2%	1150	1950
Other (including just walk)	6698	22.0%	1450	2400
All	30382	100%	1150	1950

(Source: Bunn, N. & Wakenshaw G, How far do people travel, WYG, July 2015)

2.3 Sustainable Access

Walking

2.3.1 Currently, the primary options to access the site from Brentwood town centre on foot are either along Ongar Road (accessing the north of the site) or Weald Road (accessing the south of the site). All facilities within Pilgrims hatch, Brentwood Town Centre including Brentwood station are within reasonable walking distance.

2.3.2 From the centre of the site, most of the facilities and amenities of Brentwood town centre are within a distance of 2 kilometres. In terms of potential walking times from the site to the town centre, from the northern pedestrian/cycle access, it is approximately a 22-minute walk along Ongar Road, while from the southern access, it is approximately a 20-minute walk along Weald Road. Brentwood railway station is a further 5-minute walk from both directions.

2.3.3 A footway is provided along both sides of Ongar Road, with a shared footway/cycleway provided alongside the westbound lane between its junction with Dounsell Court and Costead Manor Road. A controlled (zebra) pedestrian crossing is located on Ongar Road in proximity to its junction with Sandpit Lane, while a signalised pedestrian crossing is also provided on Ongar Road, just to the east of its junction with Costead Manor Road. In addition to these controlled pedestrian crossings, a number of uncontrolled pedestrian crossing facilities, with dropped

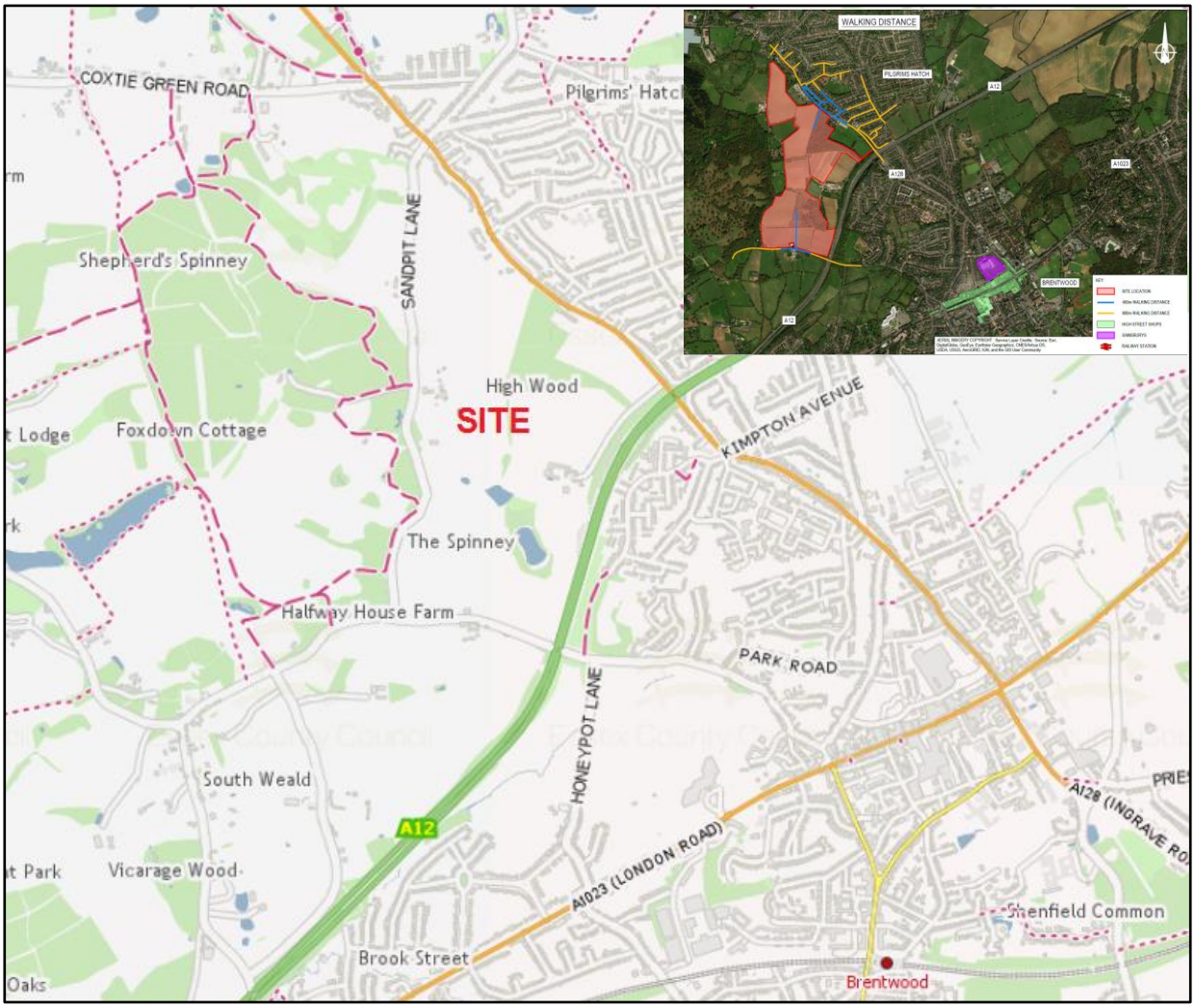
kerbs/tactile paving and central refuge islands, are also located at intervals along Ongar Road towards the town centre. The current infrastructure demonstrates that strong pedestrian links towards the town centre already exist along Ongar Road.

2.3.4 A footway is provided along both sides of Weald Road from the town centre up to the point where it crosses over the A12. From here, the footway continues only on the southern side of Weald Road, adjacent to the westbound carriageway and terminates approximately 300m to the east of its junction with Sandpit Lane. Just to the east of Honeypot Lane along Weald Road, access to an off-road shared footpath/cycleway is provided which offers an alternative walking and cycling route towards A1023 High Street and the town centre.

2.3.5 No formal pedestrian infrastructure exists along Sandpit Lane, except for the northern section where a short length of footway either side of the carriageway is provided towards its junction with Ongar Road.

2.3.6 In terms of Public Rights of Way, while none cross the site, routes to the west of Sandpit Lane and in Weald Park exist which demonstrate the presence of strong leisure links towards the west and north west of the site. Figure 2-2 shows the site in the context of an extract from Essex County Council's interactive Public Rights of Way map.

Figure 2-2: Site in Context of Existing Public Rights of Way (Extract from Essex County Council Interactive PROW Map, Obtained 23/11/2018) and Walking Distances from the Site



Cycling

2.3.7 It is considered that for this site cycling provides a major opportunity to encourage the use of active modes of travel due to the location of the site with respect to key facilities and the thrust of the emerging sustainable transport strategy for Brentwood. The introduction of increased parking controls within town centre and in and around stations and the potential adoption of school clear zones, will all help to encourage increased use of cycling as will plans to enhance cycle routes and facilities across the town centre.

2.3.8 Shenfield Station is a 15-minute cycle distance from the site and has faster and more direct trains connecting London Liverpool Street in approximately 23 mins.

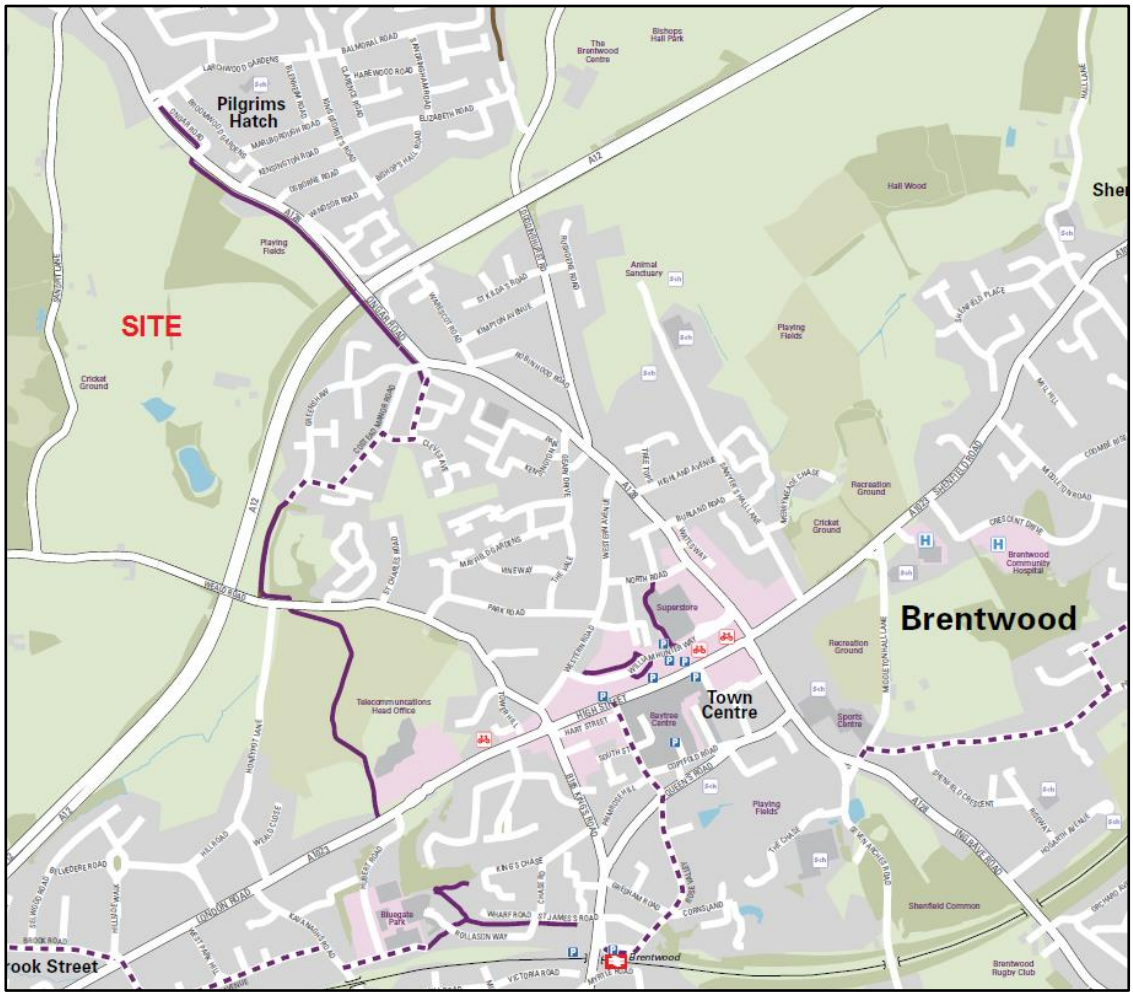
2.3.9 As stated in paragraph 2.3.3, a shared footway/cycleway is provided alongside the westbound carriageway of Ongar Road between its junction with Dounsell Court and Costead Manor Road. Although this infrastructure does not continue further south east towards the town centre, the nature of Ongar Road, geometry and direct link to town centre, would enable cyclists to use this route from the site. It should be noted that the route between the site and the Town Centre is relatively flat and therefore conducive to cycling.

2.3.10 No formal cycle infrastructure exists along Weald Road between the site and Brentwood town centre. As noted in paragraph 2.3.3 however, access to an off-road shared footpath/cycleway is provided just to the east of Honeypot Lane which offers an alternative walking and cycling

route towards A1023 High Street and the town centre. The route via Honeypot Lane provides a potential route from site towards Brentwood station and will benefit from improvement works. The nature of such improvement works will need to be addressed through more detailed feasibility work.

2.3.11 Figure 2-3 shows the location of the site in the context of designated on and off carriageway cycle routes in Brentwood from the Brentwood cycling map, published by Essex County Council.

Figure 2-3: Site in Context of Off-Road (Solid) and On-Road (Dotted) Cycle Routes (Essex County Council, Obtained 23/11/2018)



2.3.12 In terms of potential cycling times to local facilities and amenities, Brentwood town centre is approximately an 8-minute cycle along both Ongar Road or Weald Road from the northern and southern accesses of the site respectively, while Brentwood railway station is within a 10-minute cycle of the site.

2.3.13 Further from the site, Brentwood town centre has some provision of both on-road and off-road cycle routes; however, these do not currently provide a cohesive network of cycle links and some on-carriageway cycling is needed. The perceived barriers towards cycling are considered to be general antipathy towards cycling in the area, lack of cycle infrastructure and geometry of roads containing new cycle lanes. Hence these short comings provide opportunity to identify infrastructure improvements to key identified strategic links that can potentially link with existing cycling route to increase the permeability of the cycle network in the area.

2.3.14 The Essex Cycling Strategy (Essex County Council, November 2016) sets out the key elements of a long-term plan that will lead to a significant and sustained increase in cycling throughout

Essex, establishing it as a regular mode of travel, especially for short trips, as well as a major participation activity and sport for all ages.

2.3.15 The vision of the Essex Cycling Strategy is to see more people cycling in Essex, more safely and more often. Its objectives are to:

- Double the number of cycling stages (trips) in Essex from 2014 levels by 2025 at monitored counter sites and other key routes;
- Cultivate a mind-set that sees cycling as a normal, enjoyable and everyday activity for the majority of short journeys; and
- Establish cycling as an enjoyable participation activity for health gain and a popular competitive sport.

2.3.16 The long-term strategy for increasing cycling in Essex has three key elements and nine areas of strategic action, as stated below.

- ENABLE: A focus on leadership that will drive the strategy forward

  1) An Essex Cycling Advocate
  2) Transformational Funding
  3) 'Best Practice' Design

- PROMOTE: A targeted increase in the promotion of cycling

  4) A 'Cycle Essex' Brand
  5) High Profile Events
  6) Increased Support for Local Initiatives

- PROVIDE: A step-change in the extent and quality of cycling infrastructure

  7) Coherent Cycle Networks
  8) Continental Standard Cycling Facilities and 'Quietways'
  9) Training and Access

2.3.17 The effectiveness of the Essex Cycling Strategy will be monitored using a range of measures, including Monitoring, Performance Indicators and Funding. Both Essex County Council and the Essex Cycling Steering Group will seek to review the strategy in 2021 (five years from publication) and will work closely with the district/borough councils and key stakeholders during the review process.

2.3.18 The Brentwood Borough Cycling Action Plan, presented in Figure 2-5, (Essex County Council, March 2018) has been prepared for Brentwood as part of the Essex Cycling Strategy. The aims of the Action Plan are, as follows:

- Identify how cycling levels can be increased in Brentwood
- Prioritise funding for new cycling schemes in Brentwood
- Create a usable, high-quality cycle network that connects residential areas with key employment locations, railway stations, and town centres
- Create opportunities to increase recreational cycling in Brentwood.

2.3.19 Taking into account the current barriers to cycling in the Borough, commuter flow analysis and locations of committed development, the following key recommendations have been made for cycle enhancements in Brentwood:

- Review existing route signage and lighting
- Improve maintenance of existing routes
- Prioritise the east-west Flagship Route, providing access to the town centre and railway station

- Increased provision of useful cycle routes in Brentwood, in particular
- Provide additional/relocated cycle parking at Brentwood railway station
- Fill obvious gaps in the existing cycle route network, on alignments with cycle-friendly topography)
- Provide new infrastructure on key roads with cycle-friendly topography, but no existing facilities
- Investigate how to improve north-south access for cyclists across the railway line as part of longer-term improvements for cycling in Brentwood
- Redesign the public realm at Brentwood railway station, including provision for cyclist commuters to the station and for cyclists wishing to cross the railway
- Update the existing cycle map every two years taking on board new innovation in cycle map design and promote it and disseminate it widely through a range of channels and outlets
- Develop Flagship Routes through Feasibility Studies to Detailed Design
- Promote and market Flagship Routes with 'Cycle Superhighway' style branding and disseminating techniques.

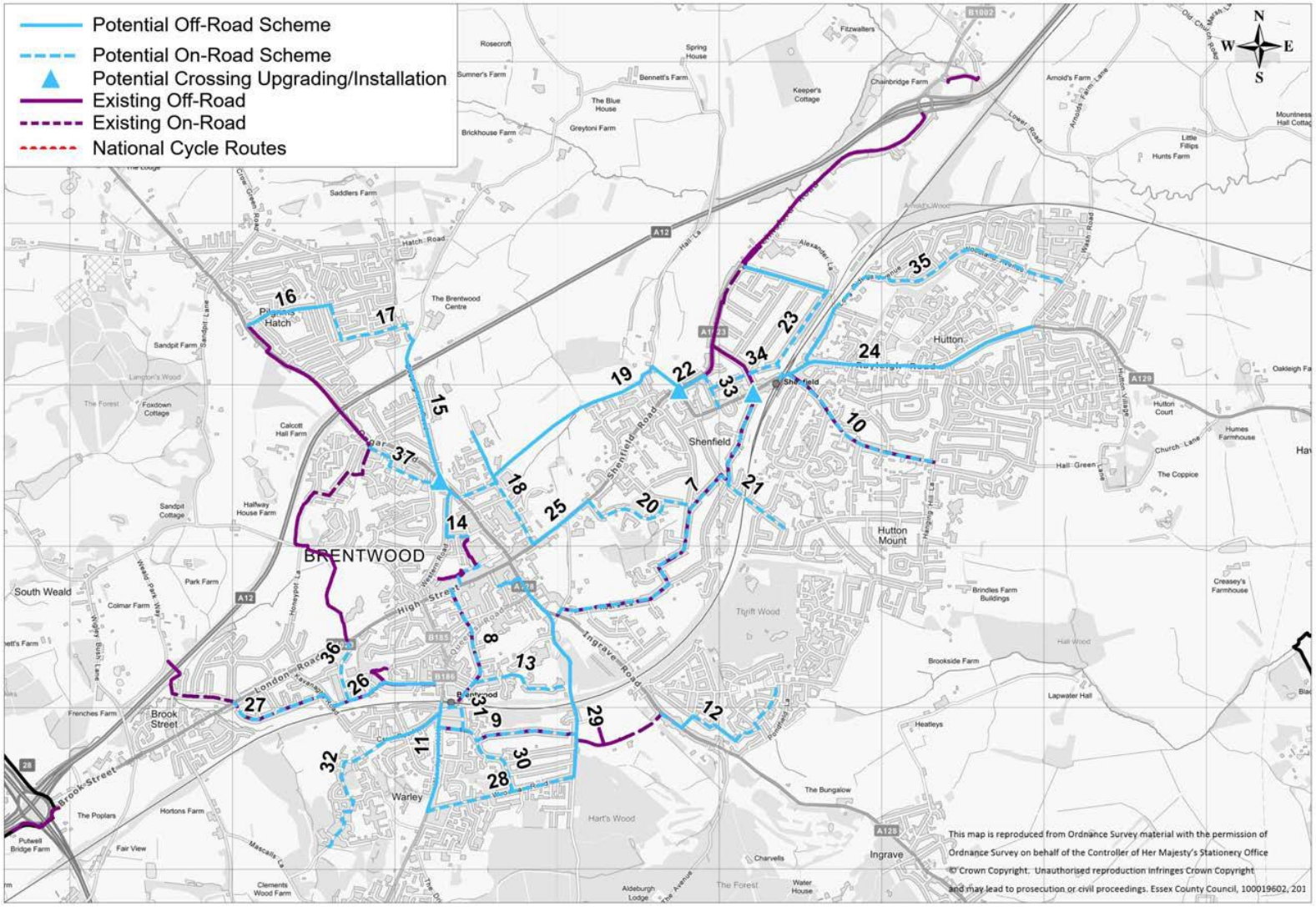
2.3.20 The Action Plan states that, to overcome barriers to cycling and provide suitable infrastructure, it is essential that all new developments in Brentwood include where possible, cycling and walking links to key services and areas of employment. To this end, all potential developments associated with the Local Development Plan for Brentwood Borough should contribute towards creating a wider cycle network, connecting key cycle corridors and desire lines.

2.3.21 The proposed scheme at Land at Calcott Hall Farm is in line with the Action Plan and will provide links with existing cycle/footway infrastructure to Ongar Road and new route along Weald Road, from the development, to existing facilities east of Honeypot Lane.

2.3.22 All potential new off-road and on-road cycle schemes in Brentwood, as well as potential crossing upgrading/installation schemes as identified in the Brentwood Borough Cycling Action Plan, are shown in Figure 2-3. This demonstrates that both the town centre and railway station would become more accessible by cycle from the site. The cycle distances from the site are also shown in the Figure 2-3.

2.3.23 A plan showing the potential off-road and on-road scheme in Brentwood is shown in Figure 2-4. Brentwood Station is a 12-minute cycle distance from the site through a combination of existing and proposed on-road and off-road cycle facilities. Shenfield station is a 15-minute cycle distance from the site through a combination of existing and proposed on-road and off-road cycle facilities.

Figure 2-4: Potential Cycle Schemes in Brentwood and Shenfield



Bus

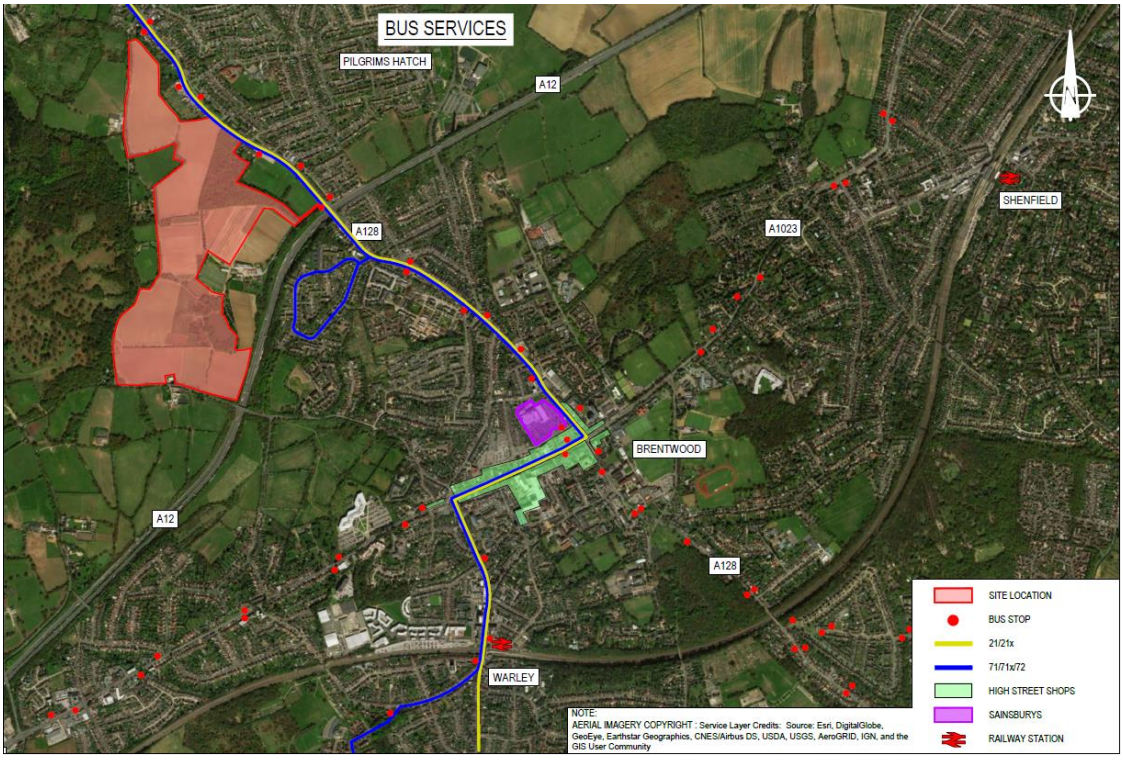
2.3.24 The closest existing bus stops to the site are located along Ongar Road adjacent to the A12 over-bridge and access to Calcott Hall Farm. This access is proposed as a pedestrian/cycle access to the proposed site. These bus stops have timetable information and shelter (in the eastbound direction) with seating to protect waiting passengers from inclement weather. A description of the services which call at the bus stops along Ongar Road are shown in Table 2-3.

Table 2-3: Existing Local Bus Services

Operator	Service No.	Route	Daytime Frequency (mins)		
			Mon-Fri	Sat	Sun
Ensign Bus	21 / X21	Ongar - Kelvedon Hatch - Pilgrims Hatch - Brentwood	Every hour	Every hour	No Service
Stephenson's of Essex	71 / 71(c)	Stondon Massey - Kelvedon Hatch - Pilgrims Hatch - Brentwood Rail Station - Warley (Circular)	8 per day	2 per day	No Service
Stephenson's of Essex	72	Stondon Massey - Kelvedon Hatch - Pilgrims Hatch - Warley (Circular)	2 per day	2 per day	No Service

2.3.25 A plan which shows the existing routes of these local bus services is provided in Figure 2-5 below.

Figure 2-5: Existing Bus Routes



2.3.26 The information provided in Table 2-3 demonstrates the frequency of bus services available along Ongar Road which provide access to Brentwood town centre and onwards towards the

railway station. A number of additional routes pass through Brentwood town centre which include those to Romford, Chelmsford, Basildon and Herongate.

Rail

2.3.27 Brentwood railway station is located along Waverly Hill approximately 2 kilometres from the centre of the site. It is located on the Great Eastern Main Line and forms part of both the Greater Anglia network and the TfL-Rail network.

2.3.28 On both the Greater Anglia network and the TfL-Rail network, the railway station provides services south to Romford and Stratford towards London Liverpool Street, while on the Greater Anglia network only, it provides services north towards Chelmsford, Colchester, Ipswich and Norwich and east towards Southend Victoria and Clacton-on-Sea.

2.3.29 From the site, access to the Brentwood railway station is within a 30-minute walk and a 12-minute cycle, while all bus services which call at the stops along Ongar Road call at the stops located along Waverly Hill adjacent to the railway station. Cycle parking is available at Brentwood Station. There are 466 car parking spaces available at the station including 14 accessible spaces. The cost of parking per day over weekdays is £6.10.

2.3.30 From the site, access to the Shenfield railway station is within a 40-minute walk and a 15-minute cycle, while all bus services which call at the stops along Ongar Road call at the stops located along Hutton Road which is approximately 5-minutes' walk to the station entrance. Cycle parking is available at Shenfield Station. Car parking, 426 parking spaces including 7 accessible spaces, is available at the station at and cost £11 per day with off peak daily cost of £10 over weekdays.

2.3.31 At present, major rail investment is underway that will benefit Brentwood with the opening of the Elizabeth Line in late 2019. The Elizabeth Line will improve links from Essex to central and western London by providing a high frequency service from Brentwood, via Stratford and London Liverpool Street, through to the West End and on to Maidenhead and Reading. As stated in the Essex LTP3, this investment would also provide the opportunity for improvements to be made to Brentwood station to improve access and interchange opportunities for passengers.

2.3.32 From a parking study undertaken by JMP Associates in 2014, it was noted that 37% of the people using Shenfield station used car to travel to the station and park. 29% of the respondent walked to the station with another 6% cycling and 7% taking the bus. Provision of new improved rail services at the station may result in some junctions experiencing delays due to increase in the number of car-based trips accessing the station. However, the Brentwood Local Plan puts emphasis on accessibility to both the stations to be via sustainable modes of travel. This is expected to be achieved by improving the pedestrian and cycling infrastructure and bus services and introducing new parking control measures where needed to discourage parking around the stations, thus resulting in reduce trips overall by car.

2.3.33 In addition to improvements to rail as a result of the Elizabeth Line, the entire rolling stock on the Greater Anglia rail franchise will be replaced by 2021 to provide a completely new fleet of modern trains with air-conditioning, free Wi-Fi access, power sockets, information systems, improved comfort and seating capacity. This is being accompanied by improvements to Brentwood and Shenfield stations. It is clear that there are significant improvements to the public transport infrastructure in the area which makes Brentwood attractive to new residents and there is an opportunity to influence their future travel choices.

2.4 Highway Network

2.4.1 Initial discussions with the Essex County Council Highways have identified a number of key constraints on the local highway network that will need to be considered. Figure 2.6 presents the highways constraints plan. These are as follows:

- High levels of congestion within the town centre particularly at Wilsons Corner are related as much to school drop off / pick up activity as to commuter trips. This includes congestion at the southern end of Ongar Road as it approaches Wilsons Corner

- Congestion along the A1023 corridor (which parallels the A12) and in particular at the junction with Mascalls Lane

- Locally, and associated with congestion within the town centre and along the A1023 corridor and the lack of a direct route between Ongar Road and the western end of the A1023 and M25, leads to traffic using Sandpit Lane and Honeypot Lane as a rat run.

2.4.2 The development has an opportunity to address these issues by:

- Providing an alternative route to Sandpit Lane by means of a Community Link Road through the site

- Traffic management measures including traffic calming to reduce traffic through Honeypot Lane

- Encouraging children to walk, cycle or use the bus to access the secondary schools within Brentwood

- Encourage commuters to either cycle or use the bus to access rail services from Shenfield or Brentwood Stations

- Encourage commuters to the town centre to use walk, cycle or use the bus.

2.4.3 From the site, primary access from north is via Ongar Road and via Weald Road to the south. Vehicles traveling towards J28 M25 from Ongar Road are expected to route via the CLR towards Weald Road following Weald Park Way towards A1023 Brook Street.

2.4.4 Ongar Road is located along the northern boundary of the site. The carriageway varies in width between 7.5m and 9.5m and a footway is provided along both sides of the carriageway, which acts as a segregated footway/cycleway alongside the south-eastbound lane towards Brentwood town centre however it is not a designated cycle route. These footways and footway/cycleways are well lit, and the adjacent carriageway is subject to a speed limit of 30mph in the vicinity of the site and between the site frontage and town centre.

2.4.5 Ongar Road is a classified A road and is a radial route from Brentwood town centre to the M11 and north Essex. A Department for Transport count point [ID:78375], located on A128 Ongar Road east of A12, demonstrates the significance of this route through the recorded Annual Average Daily Traffic flow, with data for Ongar Road for the previous 5-year period set out below.

- 2017 (*estimated*): 17,036 vehicles AADT
- 2016 (*counted*): 17,038 vehicles AADT
- 2015 (*estimated*): 17,379 vehicles AADT
- 2014 (*estimated*): 16,993 vehicles AADT
- 2013 (*estimated*): 16,462 vehicles AADT

2.4.6 Weald Road is located along the southern boundary of the site and forms a minor radial route towards the town centre from the west. The carriageway is approximately 6.5m wide and has a footway alongside the westbound carriageway and is subject to the national speed limit along the site frontage.

2.4.7 Sandpit Lane is located along the western boundary of the site. This is a minor rural road which forms a north-south link between Ongar Road to the north and Weald Road to the south. No footway is provided along the carriageway and no street lighting is present. Sandpit lane varies in width, at its widest being approximately 4.5m wide, but several sections are not sufficiently

wide for two vehicles to pass. It should be noted that Sandpit Lane has been designated as a Protected Lane and Essex Highways have put in physical traffic management measures and signed restrictions at both ends of the lane. However, following inspection reported to Essex County Council on 12 October'2018, it has been highlighted that the physical condition of Sandpit Lane has deteriorated significantly, and no measures have been identified to supplement regular check-ups.

2.4.8 Further from the site, both Ongar Road and Weald Road provide access to A1023 High Street towards the east. Ongar Road forms a double mini roundabout junction with A1023 High Street to the northern end of this route (known as Wilsons Corner), while Weald Road forms a signalised junction to the southern end. The junction of Ongar Road and A1023 High Street forms part of an Air Quality Management Area (AQMA No. 7) declared by Brentwood Borough Council.

2.4.9 Honeypot Lane runs between Weald Road to the north and A1023 London Road to the south. For approximately 230m south from its junction with Weald Road, it is a two-way route with a footway provided alongside the southbound lane. Further south however, Honeypot Lane narrows to a single-lane and provides vehicle access to residential properties. To discourage traffic from the site using Honeypot Lane, which is an unclassified adopted highway, to access A1023 High Street, there is the potential to introduce traffic calming features at the northern end of this route.

2.4.10 Wigley Bush Lane runs between Weald Road and A1023 London Road. With the exception of the northern section through South Weald village, which is subject to a speed limit of 30mph, Wigley Bush Lane is approximately 6.5m wide and is subject to the national speed limit.

2.4.11 Weald Park Way runs between Weald Road and Wigley Bush Lane and would provide an attractive route to access both the M25 and the A12 for traffic from the site while avoiding South Weald village.

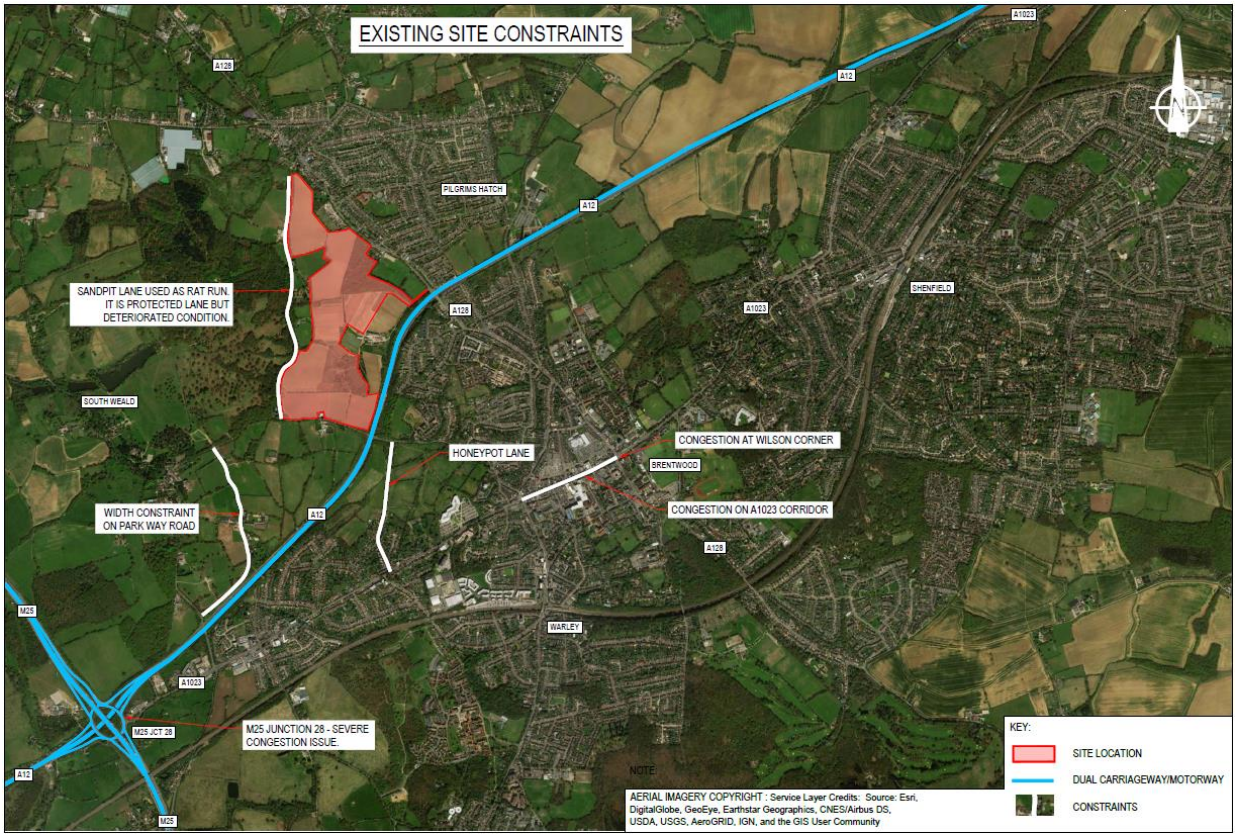
2.4.12 It is subject to a speed restriction of 40mph for the majority of its length and, while the northern section is more rural in nature with a carriageway width of approximately 4.5m, the southern section of Weald Park Way is approximately 6.5m wide with a footway alongside the northbound lane which runs from its junction with Wigley Bush Lane for approximately 550m. A shared footpath / cycleway exists over the A12 from Weald Park Way towards Spital Lane which continues southwards towards A1023 High Street.

2.4.13 A1023 High Street is a principle urban distributor road and the main route through the town centre. As a result, it experiences congestion, especially during the morning peak period. A Department for Transport count point [ID:7478], located on A1023 west of junction with Honeypot Lane, demonstrates the significance of this route through the recorded Annual Average Daily Traffic flow, with data for A1023 High Street for the previous 5-year period set out below.

- 2017 (*estimated*): 15,700 vehicles AADT
- 2016 (*counted*): 15,697 vehicles AADT
- 2015 (*estimated*): 16,605 vehicles AADT
- 2014 (*estimated*): 16,252 vehicles AADT
- 2013 (*estimated*): 15,752 vehicles AADT

2.4.14 From A1023 High Street, access to the strategic highway network is possible towards both to the east and west. To the east through Shenfield, access to the A12 is possible at Junction 12, which provides a strategic route towards Chelmsford and Colchester. To the west, access to the M25 is possible at Junction 28, while access to the A12 both northbound and southbound is also possible from this interchange. Figure 2-6 below shows a plan of key constraints in relation to site location.

Figure 2-6: Existing Site Constraints



2.4.15 The masterplan together with the associated transport strategy provides an opportunity to address a number of these key highway constraints by providing an alternative route to Sandpit Lane and Honeypot Lane and encouraging sustainable travel behaviour from the outset.

2.4.16 Summary

2.4.17 The proposed site is strategically located within reasonable walking and easy cycling distance to key facilities located in neighbourhood of Pilgrims Hatch and Brentwood town centre.

2.4.18 The site is located within approximately a 12-minute and 15-minute cycling time to Brentwood station and Shenfield station which provides train services to London Liverpool Street station. With the new Elizabeth Line expected to start operating in 2019, improvements are being made to both the stations along with improvements to walking and cycling infrastructure which have been identified in the Brentwood Local Plan.

2.4.19 Brentwood Local Plan puts emphasis on accessibility to both the stations to be via sustainable modes of travel by adopting the sustainable measures identified for Central and Northern Brentwood within the local plan which includes introduction of controlled parking measures around stations and town centre and school keep clear zones.

2.4.20 High levels of congestion have been identified within Brentwood town centre with focus on Wilsons Corner and the southern end of Ongar Road approach to Wilsons Corner, along the A1023 corridor, and in particular at the junction with Mascalls Lane. Associated with this congestion is the use of a number of rat-runs, in particular Sandpit Lane and Honeypot Lane.

2.4.21 The proposed development provides an opportunity to address these issues by providing a CLR through the site which will serve as alternative to Sandpit Lane. The development can also take advantage of its location and the emerging Brentwood sustainable transport strategy to encourage the use of sustainable mode of travel towards the town centre and providing

improved infrastructure for cycling and walking to encourage commuter to take these travel modes to access the two rail stations.

2.5 Sustainable Transport Measures – Bentwood Local Plan

2.5.1 Brentwood Local Plan also provides a principal context for the site. The Local Plan supports various sustainable transport measures which are based on the current and future development needs. The Local Plan has recognised the existing highway constraints within Brentwood Town Centre and along the A12 corridor. It also recognises that there are limited potential opportunities to mitigate the impacts of new development though highway improvement strategies alone.

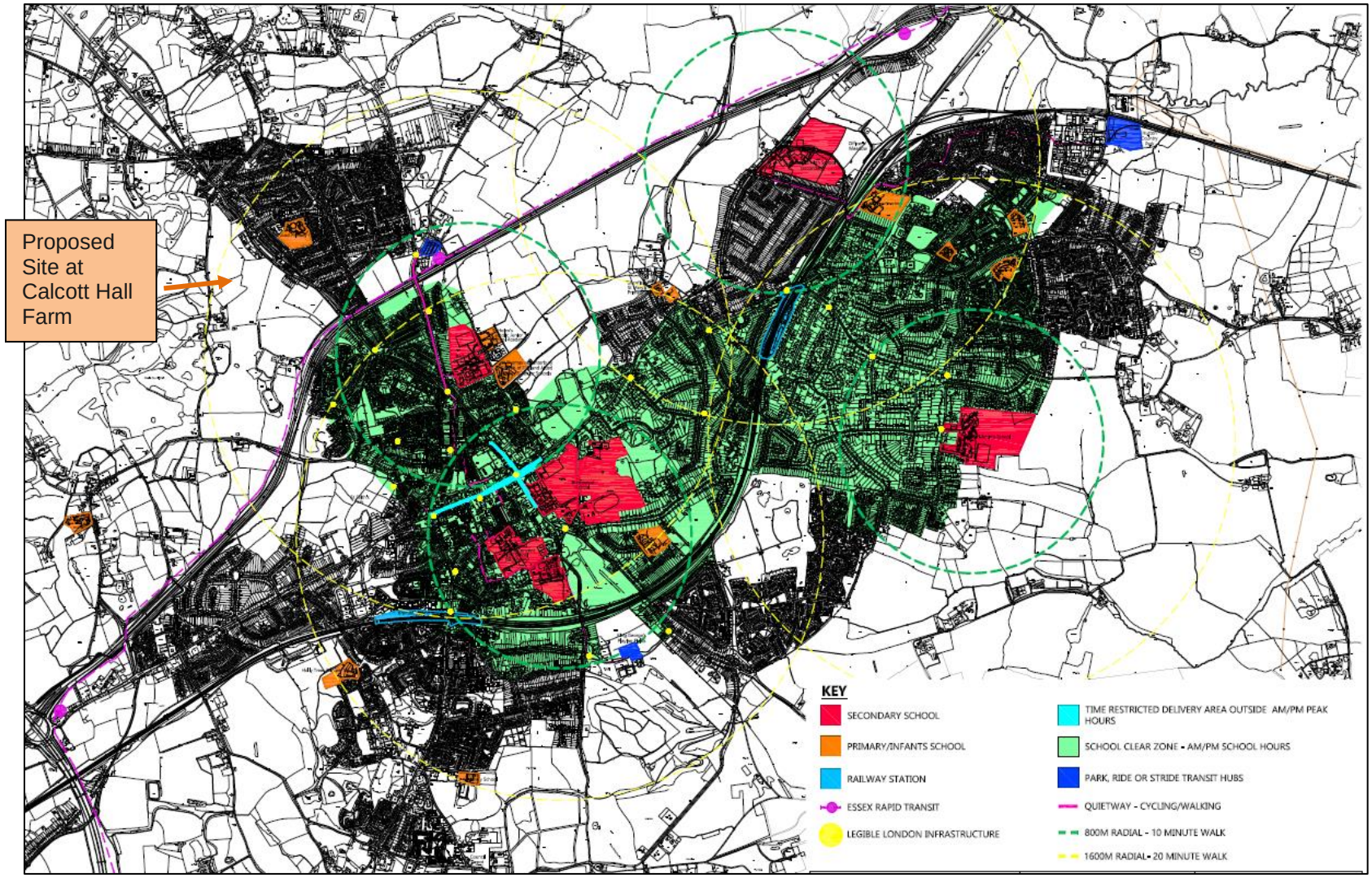
2.5.2 Therefore, the Plan has focussed traffic away from the town centre and particularly the A1023 corridor and focussed on Enterprise Park and at West Horndon.

2.5.3 Within Brentwood itself, the focus is on support for a package of sustainable measures. Table 2-4 and Figure 2-7 present a set of short term and medium terms sustainable transport measures being put forward as part of the Brentwood Local Plan.

Table 2-4: Sustainable Transport Measures from Brentwood Local Plan

Item	Description	Timeline	Comment
1	Create School Clear Zone to restrict all vehicles from stopping, parking for drop off during AM/PM peaks from a specific area(s).	SHORT - MEDIUM	Parking allowed in legally designated car parks and spaces on the High St within the zone. Should reduce congestion at AM peak. Additional benefit of improving air quality at Wilson Corner. Public Transport exempt.
2	Deliver Park, Ride or Stride facilities for workers within Brentwood T.C. or drop/pick up off points for parents to drop off their children.	MEDIUM	Impact on local traffic patterns would need to be understood. Work needed with schools to re-educate parents. Consider an electric and ordinary bicycle hire scheme hub. Additional option to include bus service for schools from these hubs.
3	Plan and deliver in phases 'Quietway' cycle routes in Brentwood initially connecting Transfer Hubs to Town Centre schools	MEDIUM	Segregated routes where possible. Where not consider contra-flow cycling routes by creating new one-way streets. Consider 20mph in the zone.
4	Ban all large freight vehicle from stopping deliveries within the Central Brentwood zone and A128 corridor during AM/PM peaks.	MEDIUM	New developments sites won't compete with Central Brentwood as the retail centre. The larger population could lead to more large vehicles stopping for extended periods to service new developments and a busier High Street.
5	Policy requiring all new developments dependent on location to be 'Car light' and/or encourage e-vehicles.	SHORT	Difficult given political situation Consider partnership with car club company providing electric cars or low emission hybrids
6	Introduce a pedestrian wayfinding system like Legible London.	SHORT / MEDIUM	Residents and employees of new developments and the existing population should be encouraged to walk more.
7	Create and/or promote a multiple service App making access to smart car hire/ community buses/ booking bikes (including e-bikes) etc. easier.	SHORT	Partner with software organisation that creates community-based apps. Pays for itself through advertising
8	Introduce electrical parking points to encourage use of such vehicles and plan and deliver other IT infrastructure redundancy to allow future implementation of emerging SMART systems.	SHORT / MEDIUM	All new residential and commercial developments should include e-charging spaces for car clubs using e-vehicles and charging hubs for e-bikes. Important to facilitate sustainable north/south movements from DHGV to Central Brentwood.
9	Create through phases a new multi-modal interchange at West Horndon Station	MEDIUM	This interchange will serve the DHGV, Childerditch, West Horndon and Enterprise Development sites, plus any future Northern Thurrock developments.

Figure 2-7: Sustainable Transport Measures



3 Policy Context

3.1 Overview

3.1.1 This chapter provides an overview of the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) which govern policy and guidance for transport and planning at the national level, as well as the Essex Local Transport Plan 3 2011-2026 (LTP3) and Brentwood Replacement Local Plan 2008, which provide the policy and guidance at the local level.

3.1.2 This chapter also provides an overview of the emerging Brentwood Local Plan 2016-2033 which once adopted, will supersede saved policies in the Replacement Local Plan 2008, as well as the Transport Assessment supporting the emerging Brentwood Local Plan 2016-2033, which has provided an evidence base for this Transport Feasibility Study.

3.2 National Policy and Guidance

National Planning Policy Framework

3.2.1 The NPPF sets out the economic, environmental and social planning policies for England and articulates the vision of sustainable development. It recognises the importance that transport has in enabling development, while also contributing towards wider sustainable and health objectives.

3.2.2 The NPPF sets out a commitment to ensure that the planning system does everything it can to support sustainable economic growth. A positive planning system is essential because without growth, a sustainable future is not achievable. The planning system must operate to encourage growth and not act as an impediment; therefore, significant weight should be placed on the need to support economic growth through the planning system.

3.2.3 Within this over-arching role which the planning system should play towards supporting economic growth, the NPPF sets out at Paragraph 102 that transport issues should be considered from the earliest stages of development proposals so that:

a) the potential impacts of development on transport networks can be addressed;

b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places.

3.2.4 The NPPF also identifies in Paragraph 108 that, in assessing sites that may be allocated for development in plans, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be, or have been, taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

Planning Practice Guidance

3.2.5 In terms of Travel Plans and Transport Assessments and how they relate to and influence each other, NPPG states at Paragraph 005 the below.

> "*The primary purpose of a Travel Plan is to identify opportunities for the effective promotion and delivery of sustainable transport initiatives e.g. walking, cycling, public transport and tele-commuting, in connection with both proposed and existing developments and through this, to thereby reduce the demand for travel by less sustainable modes… though, they should not be used as way of unfairly penalising drivers.*
>
> *Transport Assessments and Transport Statements primarily focus on evaluating the potential transport impacts of a development proposal. They may consider those impacts net of any reductions likely to arise from the implementation of a Travel Plan, though producing a Travel Plan is not always required. The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts. Travel Plans can play an effective role in taking forward those mitigation measures which relate to on-going occupation and operation of the development.*"

3.2.6 Paragraph 005 continues and states that these documents can be used to establish whether the residual transport impacts of a development scheme are likely to be 'severe', which may be a reason for refusal.

3.3 Local Policy and Guidance

Essex Local Transport Plan 3 2011-2026

3.3.1 The Essex LTP3 is the approach adopted by Essex County Council for transport in Essex. It sets out the aspirations for improving travel in the county, demonstrating the importance of meeting these aspirations to achieve sustainable long-term economic growth in Essex and enrich the lives of residents.

3.3.2 This third iteration of the Local Transport Plan for Essex is wider in scope than previous plans, providing a framework for the effective and efficient delivery of all transport services provided by or on behalf of Essex County Council. It informs and guides work with other organisations and local communities across Essex, ensuring that transport services are delivered in ways which effectively respond to local needs and offer good value for money to local taxpayers.

3.3.3 The Essex Transport Strategy: The Local Transport Plan for Essex has been developed following an extensive period of consultation and evidence gathering and was published in June 2011. It aims to manage car use, while also protecting the commercial viability of town centres. To achieve this, large towns such as Brentwood are required to encourage alternative modes of travel to single occupancy car use; therefore, borough councils should provide bus priority measures, improved footways and cycleways alongside car parking pricing and control measures.

Brentwood Replacement Local Plan 2008

3.3.4 The Brentwood Replacement Local Plan was formally adopted in 2005, with policies saved in 2008. This document provides a comprehensive statement of land use policies and proposals for Brentwood and is the current development plan until such time it is replaced by the emerging Local Development Plan.

3.3.5 The transport policies included in the Brentwood Replacement Local Plan promote improved accessibility, public transport, walking and cycling and traffic management across Brentwood and seek to integrate public and sustainable transport with private transport. To achieve this, the Brentwood Replacement Local Plan focuses on reducing the overall number of journeys and increasing sustainable travel modes. It also promotes developments with a less dispersed pattern and for the rail and road networks to be more closely aligned to these developments, while also improving the accessibility of town centres.

3.4 Emerging Brentwood Local Development Plan 2016-2033

3.4.1 Brentwood Borough Council has published a new Local Plan which once adopted, will supersede saved policies in the current Replacement Local Plan 2008. It sets out policies and proposals, as well as site allocations, to guide future development and will enable Brentwood Borough Council to manage growth while protecting key areas.

3.4.2 To support the preparation of the emerging Brentwood Local Development Plan, a number of technical studies have been undertaken to provide an up-to-date and robust evidence base. For the transport evidence base, this has been provided through a Transport Assessment (PBA, October 2018) which considers the strategic level impact of the proposals and site allocations of the emerging Brentwood Local Development Plan on the highway network up to the end of the proposed plan period.

3.4.3 The Transport Assessment (PBA, October 2018) considers:

- The approach undertaken for the modelling work
- The results of modelling and junction assessments
- Highlights those worse performing junctions that may require mitigation
- Identifies sustainable measures that are proposed to reduce peak highway flows to enable the development sites to come forward.

3.4.4 The transport work identified within the Transport Assessment (PBA, October 2018) demonstrates that, through sustainable transport measures and in some cases, limited physical highway improvement works, the impact of the emerging Brentwood Local Development Plan can be mitigated and that there are no major residual impacts that might prevent its adoption.

3.4.5 This is being further tested by Brentwood and suitable assessment package are being investigated.

4 Proposed Development Masterplan

4.1 Principle of the Proposed Masterplan

4.1.1 The overarching principle of the proposed masterplan for the site is to deliver a sustainable and distinctive new neighbourhood to the north-west of Brentwood town centre which integrates with the surrounding communities. Further it aspires to evolve as a 'Garden Village' with green infrastructure and sustainability being the dominant design theme for the site.

4.1.2 The site has the potential to accommodate approximately 800 dwellings and provide a mix of units to meet a range of market and affordable housing requirements along with accessible greenspace, a new CLR, network of green infrastructure including play areas landscape enhancements, improved connectivity between country parks and provision of primary school. This estimate as to the number of dwellings reflects approximately 50% of the site area being used for provision of green infrastructure.

4.1.3 It is envisaged that the access to the site will be from both the north (via Ongar Road) and south (via Weald Road). From these two access points, the scheme would provide the opportunity to deliver a new Community Link Road through the site between Ongar Road and Weald Road. This would help alleviate existing pressures on the local highway network by providing an alternative route for eastbound traffic.

4.1.4 If the current journey times are tested, traffic from Pilgrims Hatch and other areas to the north-west of the site can access via Ongar Road, Western Avenue and High Street takes approximately 14 minutes when compared to traffic through Sandpit Lane, where the journey time suggests 10 mins. Figure 4-1 and Figure 4-2 show the existing congestion and journey times in vicinity of proposed site respectively.

Figure 4-1: Existing Congestion Levels

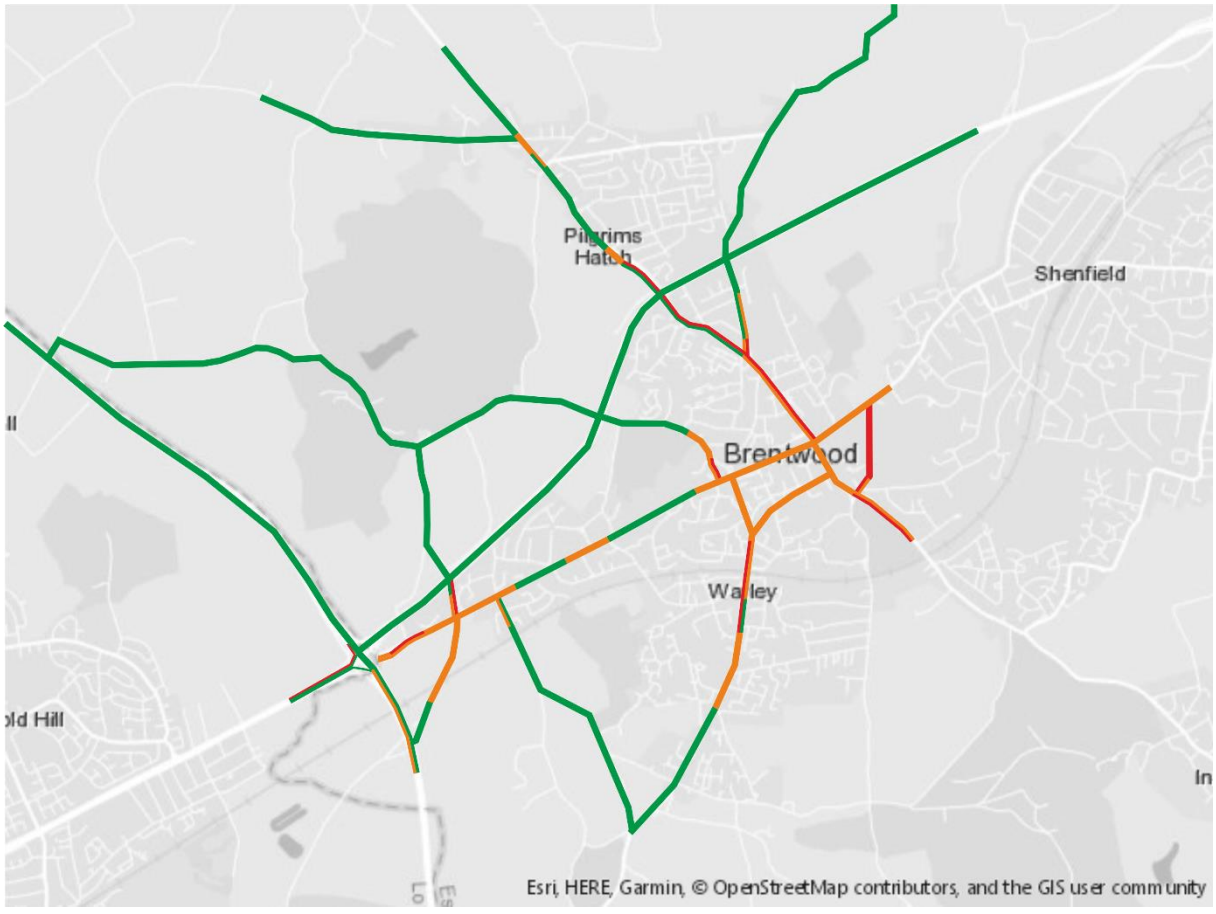
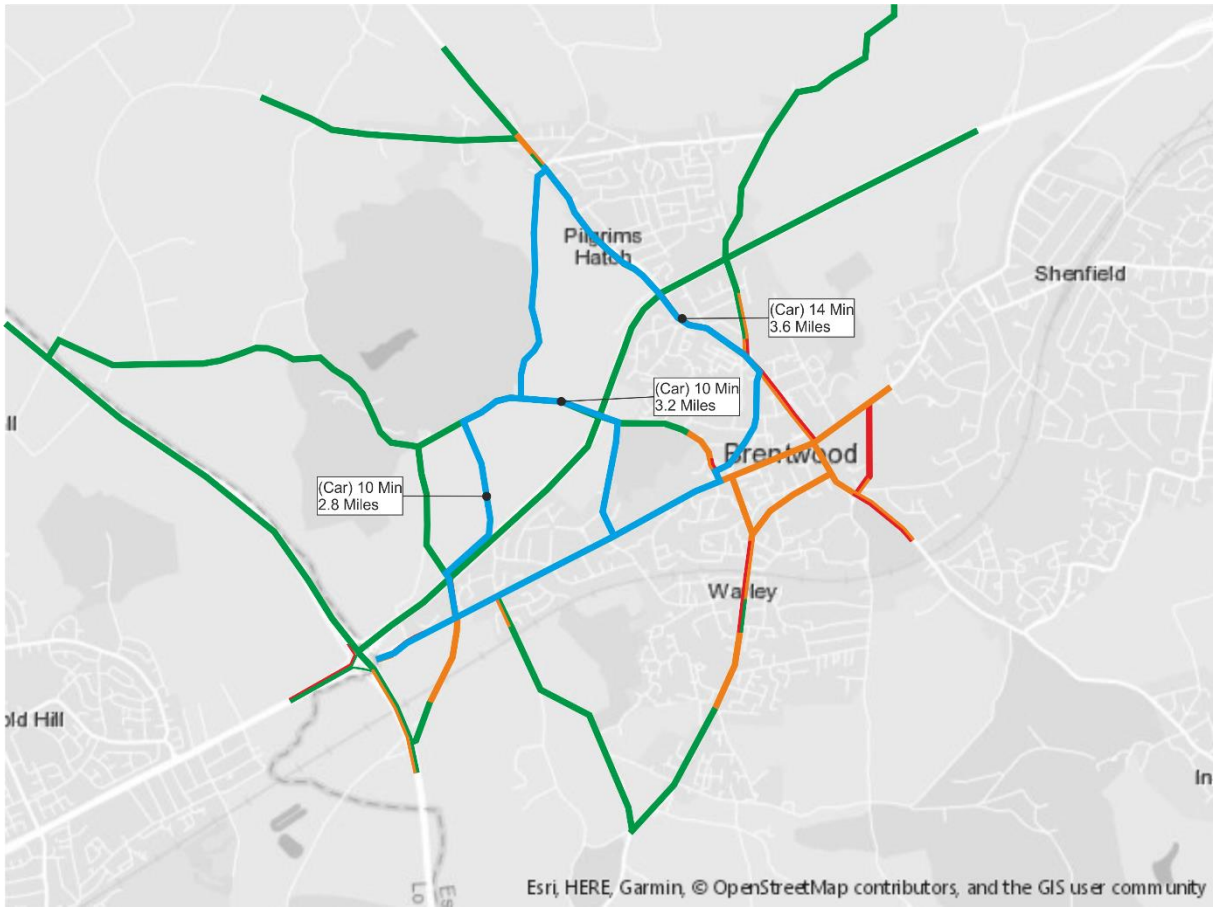


Figure 4-2: Existing Journey Times



4.1.5 As can be seen in Figures 4-1 and 4-2, the shortest route from Ongar Road to Junction 28 is via Sandpit Lane or Honeypot lane. The Community Link Road will therefore help reducing the traffic through Sandpit Lane.

4.1.6 The proposals also include downgrading and implementing traffic calming measures on Sandpit Lane and Honeypot Lane. Therefore the scheme has the potential to reduce through traffic via Honeypot Lane.

4.1.7 It will also result in avoiding the AQMA No 7 to the south (A128/A1023 Junction) and would enable Sandpit Lane along the western boundary of the site to be downgraded and relieved of existing "rat-running" traffic, allowing for a more appropriate use of this route including for sustainable modes of travel.

4.1.8 For sustainable access and movement, the scheme will include provision of pedestrian and cycle priority routes through the site helping to make these mode travel choices viable options for future residents of the scheme. The existing access road to Calcott Hall Farm would provide a further pedestrian/cycle only connection to Ongar Road and connectivity would be made, via and across Sandpit Lane, to Weald Country Park and the leisure-focussed Public Rights of Way to the west.

4.1.9 In addition to providing priority to pedestrian and cycling access, the scheme will provide a robust public transport strategy which would include either extension of current bus services on Ongar road to extend within site or introduction of new services providing direct links to the town centre and train station. This will be supported by dedicated infrastructure within the site. Apart from improving accessibility and permeability of the scheme, it will actively encourage sustainable travel mode share options thus reducing dependency on car-based travel choice.

4.1.10 The site has capacity to provide land for a primary school. This could be located at the heart of the site for the benefit of both future residents of the scheme and existing residents of surrounding communities and would be connected through a network of traffic-free walking and cycling routes.

4.1.11 The scheme is currently envisaged to be delivered across 4 distinctive phases:

- **Phase 1:**
  - Both north and south access points built
  - Residential units to the north and south of site adjacent to access points built

- **Phase 2:**
  - New north-south Link Road through the site complete
  - Residential units adjacent to new Link Road built

- **Phase 3:**
  - Further residential units across the site built
  - Option to bring forward primary school site

- **Phase 4:**
  - Further residential units across the site built

4.1.12 The key principle of this masterplan phasing strategy is built out from the northern and southern access points simultaneously, therefore speeding completion of the north-south community highway Link Road, delivering sustainable travel choices (including provision of public transport strategy, pedestrian and cycling links) and delivery of residential units.

5 Forecast Trip Generation and Link Impact Assessment

5.1 Overview

5.1.1 As part of this feasibility study, forecast trip generation (of an 800-dwelling site) has been calculated and potential impact that the scheme would have on the local highway network has been undertaken at a high level.

5.1.2 This assessment is in accordance with Paragraph 108 of the NPPF which states that any significant impacts of a development scheme on the local highway network need to be understood as part of Local Plan site allocation. Further, the sustainable transport measures, public transport strategy and the access strategies that form the key theme of the masterplan have been considered to form a holistic assessment of impacts of trip generation from the scheme.

5.2 Origin and Destination of Trips from Brentwood

5.2.1 Census 2011 is also interrogated to understand the destinations of the trips generated in Brentwood. Table 5-1 presents the percentage distribution of trips from Brentwood to London and other locations by mode.

Table 5-1: Percentage of Trips from Brentwood by Mode

Mode/	East Including Shenfield, Chelmsford, Brentwood	London	All others
Underground, metro, light rail or tram	9%	91%	0%
Train	10%	90%	1%
Bus, minibus or coach	82%	18%	0%
Taxi	87%	13%	0%
Motorcycle, scooter or moped	35%	64%	0%
Driving a car or van	69%	30%	1%
Passenger in a car or van	78%	21%	0%
Bicycle	80%	20%	0%
On foot	96%	4%	1%

5.2.2 As can be seen in Table 5-1, trips for most modes of transport are made locally within the region including Shenfield, Brentwood, Chelmsford and other parts of Essex. Further it is clear that most car trips are more local. It also highlights that most trips to London are by public transport modes.

5.3 Trip Generation

5.3.1 TRICS database of comparable existing developments, has been used to determine the number of person trips to and from the scheme and Journey to Work data from the 2011 Census to identify the trip generation by mode. The TRICS parameters below have been used

to select relevant sites to derive the person trip rate which are comparable to the proposed site.

- Land Use: 03 – Residential
- Category: M – Mixed Private/Affordable Housing
- Regions: Greater London & South East
- Parameter: Number of Dwellings
- Range 200 – 1,000
- Survey Days Tuesday to Thursday

5.3.2 The trip rates are presented in Table 5-2 and the TRICS outputs are included in **Appendix A**.

Table 5-2: Person Trip Rates from TRICS

Time Periods	Trip Rate per Unit		
	Arrivals	Departures	Two-Way
08:00-09:00	0.179	0.803	0.982
17:00-18:00	0.457	0.209	0.666
Daily (07:00-19:00)	3.199	3.445	6.644

5.3.3 Table 5-3 presents the person trips generated by the full development of 800 units during the morning, evening peak hours and throughout a 12-hour day.

Table 5-3: Total Person Trip Generation

Time Periods	Trip Generation		
	Arrivals	Departures	Two-Way
08:00-09:00	143	642	786
17:00-18:00	366	167	533
Daily (07:00-19:00)	2,559	2,756	5,315

5.3.4 To ensure the trip generation by mode to/ from the site reflects the characteristics of the area where the site is located, the 2011 Census mode share has been applied to the total trips presented in Table 5-3. A plan of these output areas, as well as the 2011 Census Journey work data used for trip generation, is included in **Appendix B**.

5.3.5 It should be noted that the car driver mode share for the proposed development is expected to be lower than the 2011 Census car driver mode share for Brentwood due to the following reasons:

- The close proximity of the site to the town centre
- Accessibility of the proposed development to public transport services which will be enhanced as part of the proposed transport strategy, as set out in Section 6
- Provision of a potential car parking management strategy which will be included as part of the proposed transport strategy, as set out in Section 6.

5.3.6 In addition to the above, the potential adoption of School Clear Zone, as set out in Section 2, could result in a significant reduction of vehicle trips given that the existing home-based education vehicle trips in Essex during the morning peak period is approximately 10% according to the National Trip End Model Dataset (NTEM). It should be noted that the existing education related vehicle trips within Brentwood is expected to be higher than that for Essex due to the large number of schools present relative to its population. Therefore, the reductions in vehicle trips could potentially be higher in Brentwood following a School Clear Zone.

5.3.7 The 2011 Census mode share and an adjusted mode share which includes the Public Transport strategy and reduced car usage from the site is provided in Table 5-3 below. It should be noted that the 2011 Census mode share (without adjustments) has been used for the assessments presented in subsequent sections of this report.

Table 5-4: Census 2011 Mode Share and Adjusted Mode Share

Mode	Census % Mode Share	Adjusted Census % Mode Share
Train	14.6%	26.9%
Bus	4.1%	11.0%
Taxi	1.2%	1.2%
Two-wheeler	1.1%	1.1%
Car Driver	65.1%	44.5%
Car Passenger	4.8%	4.8%
Bicycle	1.6%	3.0%
On Foot	7.5%	7.5%
Total	100%	100%

5.3.8 Based on the 2011 Census mode shares (without adjustments) presented above, the AM and PM peak hour and daily (07:00-19:00) trip generation has been calculated and presented in Table 5-5 below.

Table 5-5: Trip Generation by Mode (Based on 2011 Census Mode Share)

Trip Gen	AM Peak Hour			PM Peak Hour			Total Daily		
	Trips In	Trips Out	Two-Way	Trips In	Trips Out	Two-Way	Trips In	Trips Out	Two-Way
Train	21	94	115	53	24	78	373	402	776
Bus	6	26	32	15	7	22	104	112	217
Taxi	2	8	10	4	2	6	31	34	65
Two-wheeler	2	7	8	4	2	6	27	29	56
Car Driver	93	418	511	238	109	347	1,666	1,794	3,459
Car Passenger	7	31	38	18	8	26	123	133	256

Trip Gen	AM Peak Hour			PM Peak Hour			Total Daily		
	Trips In	Trips Out	Two-Way	Trips In	Trips Out	Two-Way	Trips In	Trips Out	Two-Way
Bicycle	2	10	13	6	3	9	41	44	85
On Foot	11	48	59	28	13	40	193	208	400
Total Daily	143	643	786	366	167	533	2,559	2,756	5,315

5.4 Link Impact Assessment

5.4.1 As part of this feasibility study, the predicted impact of the 800-unit scheme on the local highway network, primarily Ongar Road and A1023 Brook Street, has been assessed.

5.4.2 At this stage only link impacts have been assessed. A junction modelling exercise will be conducted during the next stages based on up-to-date traffic survey information.

5.4.3 Based on the daily trip generation by car mode (Table 5-5), trips have been forecasted for the two main routes, Ongar Road and A1023 Brook Street. These have been presented along with the existing daily traffic flows from DfT count locations in Table 5-6 below. Figure 5-1 presents the location of the DfT counters.

Table 5-6: Existing Daily Traffic (Based on DfT Counts) and Development Traffic

Direction of All Motor Vehicles	Existing Daily Traffic	Daily Development Traffic
Westbound on Ongar Road	8,371	615
Eastbound on Ongar Road	8,667	267
Westbound on A1023	7,798	1124
Eastbound on A1023	7,899	1453

5.4.4 Further, the capacities of the links have been assessed to guide whether the traffic generated from the development could be accommodate. Ongar Road and A1023 Brook Street have been assessed against DMRB Volume 5 section 1 Part 3 TA 79/99 Table 2 and represent the UPA2 and UPA4 category of road classification which have a peak one-way hourly capacity of 1470 and 1140 vehicles respectively.

5.4.5 The existing daily traffic and the daily forecast traffic from the development have been converted to peak hourly flow, which has been assumed to be 10% of the daily flow.

5.4.6 These peak hourly flows for existing and forecast traffic have been compared against the capacities advised by DMRB and the results are provided in Table 5-7 below.

Table 5-7: Link based Traffic Capacity Assessment

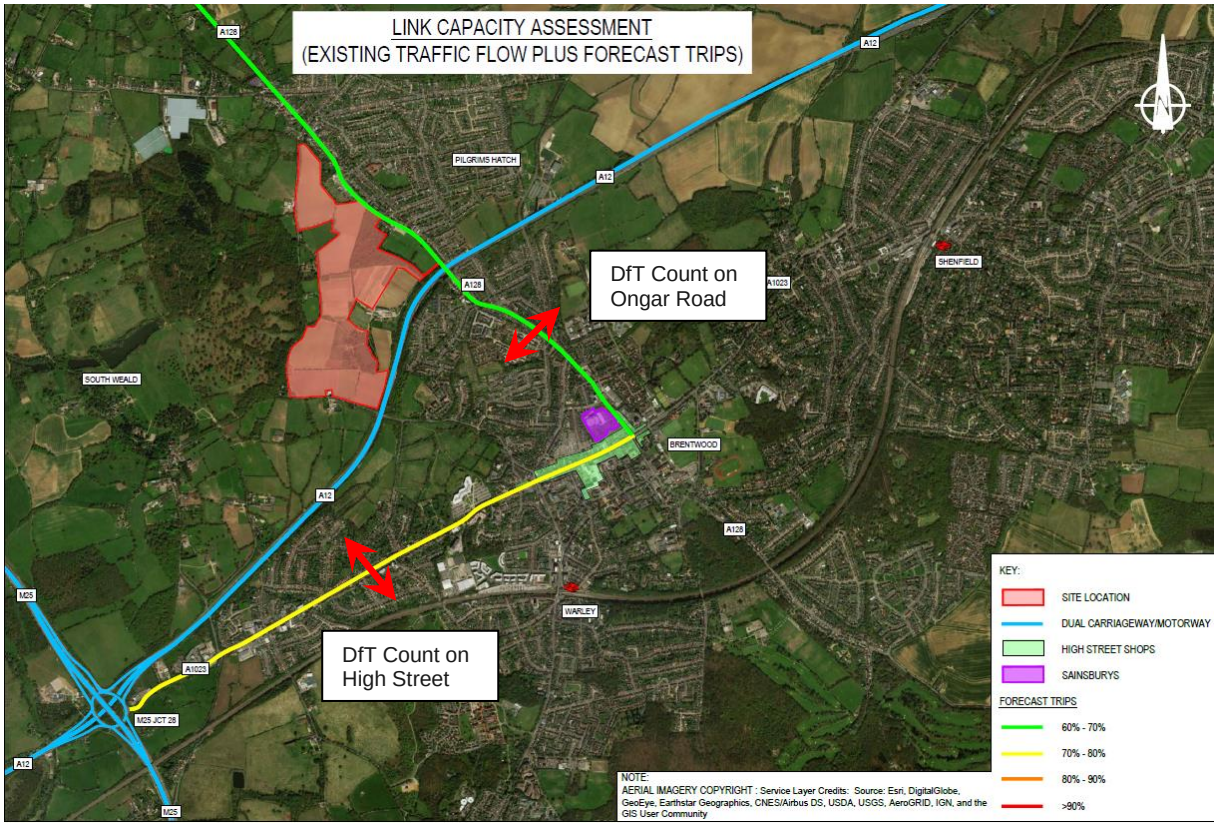
Direction of All Motor Vehicles	Road Capacity as per DMRB Volume 5 section 1 Part 3 TA 79/99	Existing Peak Daily Traffic (assumed 10% of the daily traffic)	Peak Development Traffic (assumed 10% of the daily traffic)	Resultant Capacity on link
West on Ongar Road	1470	837	55	61%
East on Ongar Road	1470	867	33	61%

Direction of All Motor Vehicles	Road Capacity as per DMRB Volume 5 section 1 Part 3 TA 79/99	Existing Peak Daily Traffic (assumed 10% of the daily traffic)	Peak Development Traffic (assumed 10% of the daily traffic)	Resultant Capacity on link
West on A1023	1140	780	143	81%
East on A1023	1140	790	115	79%

5.4.7 As can been seen from Table 5-7, both the proposed primary routes from the site, Ongar Road and A1023 Brook Street, have sufficient capacity to accommodate the traffic being generated from the proposed site.

5.4.8 It should be noted that for purpose of this feasibility study, only link based assessment has been undertaken to prove feasibility of the scheme and following further discussions with Essex Highway Authority, further impact assessment may be required.

Figure 5-1: Link Capacities



5.5 Further Assessment Required

5.5.1 2011 Census journey to work data has been used to calculate mode shares and the TRICS database for comparable sites has been used to forecast trips generated from the site.

5.5.2 A link-based assessment has been undertaken for Ongar Road and A1023 Brook Street against road capacities suggested by DMRB Volume 5 section 1 Part 3 TA 79/99 Table 2. Both these links represent the UPA2 and UPA4 category of road classification which have a peak one-way hourly capacity of 1470 and 1140 vehicles respectively.

5.5.3 With the addition of vehicular trips generated by the site to the existing traffic, the primary proposed routes from the site, Ongar Road and A1023 Brook Street operate at approximately 61% and 80% capacity.

5.5.4 Further assessments will be conducted to understand the impacts of the development on the following junctions as a minimum:

- Access junctions;
- Ongar Road/ Western Avenue;
- Ongar Road/ William Hunter Way;
- Wilsons Corner;
- High Street/ Wigley Bush Lane.

5.5.5 Further data collection will be required including:

- Automatic Number Plate recognition to determine the M25 bound traffic on the Ongar Road.
- Journey time surveys on High Street and Ongar Road.
- Classified turning counts at the junctions to be modelled.
- Automatic traffic counts to provide speeds, daily flows and to feed into air quality and noise assessments.

6 Transport Strategy

6.1 Transport Strategy

6.1.1 The transport and access strategy proposed for the site would sit alongside the masterplan and would guide the delivery of transport infrastructure, sustainable travel measures and implementation of Travel Plan to manage the demand for travel to and from the site, in particular vehicular traffic using the local highway network. Additionally, these measures would complement and align with the measures identified in the emerging Brentwood Local Plan.

6.2 Access Strategy

6.2.1 The access to the site would be from the north along Ongar Road and the south along Weald Road. In order to discourage development traffic from routing via Ongar Road and A1023 High Street, where an AQMA (junction of Ongar Road and A1023 High Street) has been declared, the access arrangements set out below are proposed.

- **Northern access from Ongar Road**: 3-arm signalised junction, as shown on **PBA Drawing Number 42579/2001/001** in **Appendix E**.
- **Southern access from Weald Road**: 3-arm signalised junction, as shown on **PBA Drawing Number 42579/2001/002** in **Appendix E**, with adjacent improvements to pedestrian and cycle infrastructure and an upgraded walking and cycling route between Weald Road (to the east of the A12 overbridge) and A1023 London Road.
- A new **north-south community link road** through site between the northern access along Ongar Road and the southern access along Weald Road, allowing through movements to reduce traffic routeing via A1023 High Street. This link road will be accompanied by adjacent off-carriageway pedestrian and cycle provision and enabling bus priority where suitable.

6.2.2 With provision of the new link road, Sandpit Lane which is currently used as a rat run by vehicles traveling towards J28 M25 will have vehicular access restricted to properties and no through traffic allowed. It would be used as a pedestrian and cyclist route thus enhancing the permeability of the site and connecting to the wider cyclist/pedestrian route network.

6.2.3 These potential access arrangements are described in detail in the following paragraphs. They would be designed to adoptable standards and required visibility splays in accordance with Essex County Council standards, Manual for Streets and Design Manual for Roads and Bridges as appropriate. It should be noted that there is potential to investigate further measures to manage the vehicular flow through the site however these are subject to further site investigation and assessment of the scheme.

Northern Access – Ongar Road

6.2.4 As shown on PBA Drawing Number **42579/2001/001**

- The 3-arm signalised junction can be delivered within public highway land or the site boundary.
- A shared footway/cycleway on the eastern side of the internal Link Road connecting to the existing footway/cycleway on Ongar Road to the south of the access junction.
- A pedestrian crossing island to be provided as part of the junction.

6.2.5 It would be necessary to culvert the existing drainage channel which runs between the southern boundary of Ongar Road and the site boundary in order to deliver the northern site access.

Southern Access – Weald Road

6.2.6 As shown on **PBA Drawing Number 42579/2001/002**

- A proposed speed limit change along Weald Road from national to 40mph is proposed, beginning to the west of the junction on Weald Road and continuing to meet the existing 30mph speed limit east of the bridge over A12.
- The 3-arm signalised junction can be delivered within public highway land or the site boundary.
- A shared footway cycleway facility would be delivered alongside the site access road, crossing Weald Road to the east of the proposed southern access junction to link with the existing pedestrian and cycle route to the east of the A12 over bridge which links Weald Road to London Road.
- 120m forward visibility along Weald Road (40mph) is achievable.
- 90m forward visibility along the Link Road within the site (30mph) is achievable.

6.2.7 For continuity of the proposed footway/cycleway, the available road space over the A12 bridge to accommodate this link would need to be considered. Footway/ cycle track will be provided along Weald Road, over the existing bridge. It should be noted that space may need to be reallocated, slightly reducing the width of the carriageway to accommodate full width footway/cycle track or having the footway/cycle track reduced to 2.5m width at the bridge.

6.2.8 PBA has identified a strip of land between the southern site boundary and Weald Road which is potentially in the ownership of Highways England / Secretary of State for Transport. It would be necessary, at an early stage, to fully understand the nature of this land ownership and confirm/agree right of access to the site across it.

6.2.9 In order to deliver this access, it is proposed to reduce the speed limit on Weald Road to 40 mph from the national speed limit in the vicinity of the site. It is recommended that this speed limit reduction is applied eastwards to the point where the existing 30mph speed limit begins to the east of Honeypot Lane. This would effectively provide a transitional speed limit of 40mph between the remaining national speed limit section of Weald Road to the west of the site and the existing 30mph speed limit section of Weald Road to the east of Honeypot Lane, in accordance with Department for Transport circular 01/2013 ‘Setting Local Speed Limits’. Potential need for traffic calming measures to ensure that the speed limit is self-enforcing would need to be investigated.

New North-South Community Link Road (CLR)

6.2.10 The scheme would provide an opportunity to deliver a new CLR through the site between the northern access along Ongar Road and the southern access along Weald Road.

6.2.11 In accordance with Essex County Council guidance, the Link Road would be designed as follows:

- Street Type B – Link Road.
- A carriageway width of 6.75m with a 2.0m wide footway along one side and a 3.5m wide shared footway/cycleway along the other side, both separated by a 3.0m wide grass verge.
- A public transport route with buses either using half laybys or stopping on the carriageway. Bus priority would be provided where feasible to do so, given internal road and junction layouts.
- No on-carriageway vehicle parking would be permitted along the main Link Road route;

- Pedestrian and cycle crossings would be provided on identified desire lines and to connect residential areas to on-site facilities and links to off-site pedestrian and cycle routes.

- Subject to a speed restriction of 30mph, with junction and forward visibility splays in compliance with Essex County Council standards and Manual for Streets, as appropriate.

6.2.12 Residential roads and connecting side-roads within the development would be subject to a 20mph speed limit and consider Home Zone principles, to encourage sustainable modes of travel within the development.

6.3 Walking and Cycling Strategy

6.3.1 A dedicated pedestrian and cycle access would be provided to Ongar Road through the improved existing access road to Calcott Hall Farm to enable pedestrian and cycle access to the site, closer to the town centre than the site's primary vehicular access to Ongar Road. In terms of pedestrian and cycle movements from the south, there is the potential to improve the off-site pedestrian and cycle infrastructure and connect with an upgraded route between Weald Road (to the east of the A12 overbridge) and A1023 London Road

6.3.2 Within the site, pedestrian and cycle facilities would be provided alongside the CLR through the site and would connect with the existing shared footway/cycleway provided alongside the westbound carriageway of Ongar Road at the new northern access and a new footway/cycleway along Weald Road. Residential roads and connecting side-roads within the development would be subject to a 20mph speed limit and would be designed in accordance with Home Zone principles, to encourage the use of active modes of travel within the development.

6.3.3 LIDAR height information across the site and wider area has been reviewed and this is displayed as a graphical output in **Appendix F**. This data indicates that the site is higher in the central area and lower towards Ongar Road to the north and Weald Road to the south. It would therefore be most effective to provide walking and cycling routes towards the town centre and railway station from both the north and south of the site, thus helping to encourage travel by these sustainable, active modes.

6.4 Public Transport Strategy

6.4.1 The proposed public transport strategy to serve the site, once the link road is complete, is to provide a bus service between the site and Brentwood railway station routed via Ongar Road and A1023 High Street in both directions. A number of alternative options for public transport access to the site have been considered, taking into account existing services and bus stop locations, including the location of the primary bus stops for the town centre, located on A1023 High Street to the west of the junction with Ongar Road.

6.4.2 Following discussions with First Group and taking into consideration several bus service options, a route between Brentwood railway station and the development via High Street and Ongar Road in both directions, with the service terminating in the south of the site, is considered the most viable option, given the difficulties of serving both the High Street and railway station effectively by existing route (routes 21/X21, 71/71(c) and 72). Letter of support from First Group supporting the public transport strategy is provided in **Appendix G**.

6.4.3 Circular services were discounted on the basis that serving the town centre adequately in both directions would lead to an unnecessarily circuitous route to/from the railway station, particularly in the peak periods. A linear route offers a number of benefits including ease of understanding for passengers, significant residential frontage on the route and a two-way route along A1023 High Street, which would minimise additional pressure on town centre bus stops.

6.4.4 The level of frequency at full site build out would be subject to a viability assessment, but at this stage it is anticipated that a service of two buses per hour could be achieved with one vehicle. The proximity of the site to the town centre and railway station means that journey times are short, cycle times are minimised and longer-term commercial viability is easier to achieve.

6.4.5 There is potential to introduce a bus priority corridor through the site, giving priority over general traffic where possible. All stops within the site should have high quality shelters and buses should be high quality, such as with leather seats and air conditioning, to encourage the use of public transport to travel from the site to the town centre and railway station. The site lies within the Brentwood PlusBus area which facilitates integrated ticketing between bus and rail services.

6.5 Travel Planning and Sustainable Transport Promotion

6.5.1 The development would encourage sustainable travel wherever practical, not just to act responsibly with regards to the welfare of future residents and the environment, but also to improve accessibility and permeability of the site. This will help to limit traffic generation from the site thereby reducing impacts on the local highway network and minimising any adverse impacts on the AQMA (to the south junction of Ongar Road and A1023 High Street). The use of the local sustainable travel opportunities would therefore be encouraged as far as possible through travel planning.

6.5.2 Potential measures that could be introduced as part of travel planning and sustainable transport promotion to induce modal shift could include, subject to further discussion and commercial evaluation with Brentwood:

- Introduction of Car Club spaces to encourage a reduction in car ownership across the site with provision of multiple (potentially electric) Car Club vehicles on the site of different sizes, to cater for different needs. Discounts for new residents joining the Car Club should be encouraged.
- Introduction of electrically-assisted pool bikes at a number of locations across the site with docks in the town centre and at the railway station.
- Incentives to residents to use electric vehicles
- Personal travel planning undertaken with new residents after a short period of settling-in. This would aim to understand the travel needs of each household and provide information and advice on how the household's journey patterns could be catered for using sustainable modes of travel.
- High quality secure cycle storage provided for all new homes.
- Discounted tickets for new residents for the proposed bus service to Brentwood town centre and railway station.
- All new homes to receive a Travel Information Pack with site-specific sustainable travel information.
- A Travel Plan Co-ordinator to be appointed prior to the first occupation on this site, to work with residents to encourage sustainable travel behaviours from the outset. The Travel Plan Co-ordinator should provide regular sustainable travel events on the site, including activities such as Dr Bike, cycle training, guided walks, and information about the car club, pool bikes, and local bus and train routes and times.

6.6 Vehicle Parking Provision

6.6.1 Essex County Council parking standards require vehicle parking to be provided at a minimum of 1 space per 1-bedroom dwelling and 2 spaces for each dwelling with 2 or more bedrooms. While the development would seek to meet the minimum parking standards as state in the local plans, measure would be introduced to reduce the car usage from the site.

6.6.2 Some existing areas of Brentwood town centre have residential permit holders only parking. A car parking management strategy will be put in place which will monitor the uptake of parking including the use of cars during the morning peak hours. A similar approach could be developed

for the development, such as providing a Controlled Parking Zone with resident and visitor parking permits in operation. This will need to be discussed with ECC Highways and Parking in detail.

6.6.3 The car parking allocation and enforcement will be instrumental in a sustainable transport strategy for the development.

6.7 Summary

6.7.1 This Transport Feasibility Study has been undertaken to estimate the impacts of the development on the surrounding highways and transport network. The site is located in a sustainable location and identifies potential benefits to the wider community from a transport perspective for a potential residential scheme known as Land at Calcott Hall Farm in Brentwood.

6.7.2 The scheme is proposed to be delivered across 4 distinct phases with build-out from the northern and southern access points simultaneously, therefore speeding up the delivery of the CLR through the site, the proposed public transport strategy and the residential units.

6.7.3 Principle access to the site from the north will be along Ongar Road and from south along Weald Road. The access arrangements for the proposed masterplan are, as follows:

- A northern access from Ongar Road in the form of a 3-arm signalised junction.
- A southern access from Weald Road in the form of a 3-arm signalised junction allowing all movements, with adjacent improvements to pedestrian and cycle infrastructure and an upgraded walking and cycling route between Weald Road (to the east of the A12 overbridge) and A1023 London Road.
- A new north-south highway Link Road through site between the northern access along Ongar Road and the southern access along Weald Road, allowing through movements to reduce traffic routeing via A1023 High Street.

6.7.4 A dedicated pedestrian and cycle access would be provided to Ongar Road through the re-purposing of the existing access road to Calcott Hall Farm to enable pedestrian and cycle access to the site. In terms of pedestrian and cycle movements from the south, there is the potential to improve the off-site pedestrian and cycle infrastructure and connect with an upgraded route between Weald Road (to the east of the A12 overbridge) and A1023 London Road.

6.7.5 The proposed public transport strategy to serve the site, once the Link Road is complete, is to provide a bus service between the site and Brentwood railway station routed via Ongar Road and A1023 High Street in both directions. The level of frequency at full site build out would be subject to a viability assessment, but at this stage it is anticipated that a service of two buses per hour could be achieved with one vehicle.

6.7.6 The development will encourage sustainable travel, not just to act responsibly with regards to the welfare of future residents and the environment, but also to manage the site efficiently and not create excessive congestion on the local highway network or worsening of conditions within the AQMA (junction of Ongar Road and A1023 High Street). The use of the local sustainable travel opportunities would therefore be encouraged as far as possible through travel planning.

7 Liaison with Essex County Council Highways

7.1 Introduction

7.1.1 This chapter presents a summary of discussions held between Essex County Council Highways and the project team regarding the Land at Calcott Hall farm. More importantly it highlights what has been agreed with ECC Highways and the elements to be detailed as the scheme develops.

7.2 Meetings with Essex County Council

7.2.1 The project team has met with ECC Highways on the following dates:

- 7th December 2017 on site between Peter Glazebrook (Hallam Land), Ron Henry (PBA) and Brendan Johnston (ECC Highways); and
- 12th February 2019 at ECC's offices between Manu Dwivedi (PBA), Gary Stephens (Marron's Planning) and Brendan Johnston (ECC Highways).

7.2.2 ECC Highways had forwarded comments on the design development and impact assessment following the meetings.

7.2.3 This section summarises the comments received which have been classified as-

- Site Design
- Green travel measures including public transport strategy and travel plan
- Assessment for Planning application and related documentation.

7.3 Site Design

Design of the Community Link Road

7.3.1 ECC stated that the internal highway network should conform to the Essex Design Guide with the following broad principles-

- The spine road or the Community Link Road (CLR) should have a minimum width of 6.75 metres to accommodate bus movements.
- The footway on one side needs to be 2m and 3.5m combined footway/ cycle way on the other.

7.3.2 This is agreed and the present preliminary design of the Link Road follows these standards.

7.3.3 They further stated that Weald Road, Honeypot Lane, Weald Park Way and Wigley Bush Lane have constraints and, in their current arrangement, are not suitable for notable increases in traffic flows. These routes are being investigated further for more design and capacity. ECC highways will be consulted with any potential alterations/ solutions.

7.3.4 As part of the off-site proposals, Honeypot Lane is proposed to be downgraded to reduce instances of rat running through there. Similarly, Sandpit Lane will be downgraded to a pedestrian/ cycle priority access road. This could be through access controls, traffic calming or changes to highways material. The mechanisms to achieve this will be discussed with ECC highways.

Access Junctions

7.3.5 The visibility splays at junctions should comply with DMRB / Manual for Streets standards depending on the location.

7.3.6 This is noted and the preliminary junction design follow these standards.

Parking

7.3.7 The minimum standards set in the Essex County Council's Parking Standards, Design and Good Practice will need to be followed for the number of spaces and design of parking spaces.

7.3.8 This is noted. As the design progresses and the internal network and parking layout are developed, minimum standards from Essex Planning Officers' Association ECC guidance will be adhered to.

7.3.9 It should be noted that even though the development proposals will include compliant parking spaces, through mitigation and monitoring, the car use will be actively encouraged to be reduced.

7.4 Green Travel Measures

7.4.1 ECC stated that it is expected that any planning application will be heavily laden with sustainable transport initiatives both on and off-site, i.e. walk, cycle and public transport linkage. Given that the development is for more than 250 dwellings, a Travel Plan will need to be included in any planning application including residential travel packs for each dwelling.

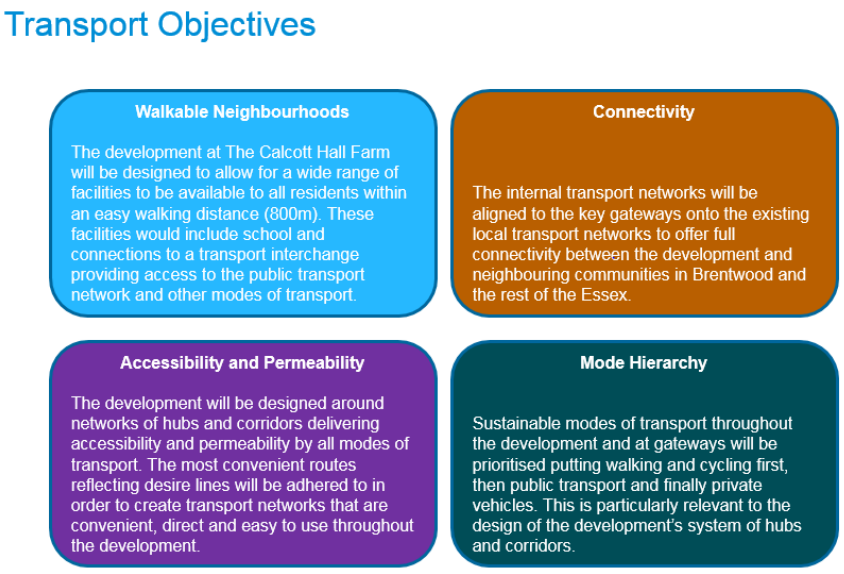
7.4.2 ECC further emphasised that walking, cycling and public transport initiatives are essential to a successful planning application. Full details of such proposals will need to be included in any Transport Assessment.

7.4.3 Hallam Land Management are committed to delivering a sustainable development. The transport objectives are to develop walkable neighbourhoods, prioritising internal and external connectivity by sustainable modes of transport and build areas which are accessible and permeable along key sustainable transport hubs.

7.4.4 A Travel Plan would be submitted with any planning application, along with Travel Information Pack for each new unit. The information pack will also include car club membership and discounted public transport tickets.

7.4.5 First Group Essex have also been consulted on the feasibility of a new dedicated public transport service from the site to Brentwood station via the High Street; FG have expressed support for the proposals. ECC have further queried if the bus route could be extended or adjusted to also connect Shenfield.

7.4.6 PBA passenger transport is liaising with FG Essex further to understand the implications of this and whether this is a feasible proposal.



7.5 Further Information Required to Support a Planning Application

7.5.1 ECC have suggested that all junctions are to be assessed where the development leads to an increase of more than 5% on approach links with particular focus on the impacts on Ongar Road to be considered.

7.5.2 The impact assessment will include a robust trip generation analysis and impact assessment analysis which will include all junctions where the impact of the development adds more than 5% to the base flows.

7.5.3 Suitable mitigation measures will be proposed in discussions with ECC highways and other relevant stakeholders.

7.5.4 The principle and design of the Link Road at this location is proposed to help alleviate some of the congestion on Ongar Road and Sandpit Lane.

7.5.5 The scope of surveys and indeed the scope of transport assessment will be discussed with ECC highways during scoping at the outset of the planning application process.

7.5.6 ECC also stated that with regard to link capacities, the TA will need to concentrate more on junction capacities. It is the junctions on the A128 and A1023 that govern highway performance and efficiency.

7.5.7 More up to date traffic data will be collected and junction modelling will be conducted to assess the impacts from committed development and proposed development. As above, suitable mitigation measures will be designed and tested in liaison with ECC Highways.

7.6 Agreed Aspirations

7.6.1 This section presents the collective agreed aspirations for the site and the off-site works to be considered in the design development stages:

- Design of the Community Link Road and the internal Highway network to follow the Essex design guide.
- Access junction design to follow DMRB standards.

- Parking standards to follow ECC Parking Standards, Design and Good Practice.
- Downgrade Sandpit Lane and Honey Pot Lane.
- Enhanced provision for pedestrian, cyclists and public transport users for new residents.
- Reduced congestion on Ongar Road and High Street.
- Travel Plan and green travel measures to be promoted from the first occupation.

7.7 Next Steps

- To conduct more detailed assessments to estimate the impact of the proposed development on the highway, public transport, walking and cycling network.
- Design of access junctions in accordance with DMRB standards with suitable visibility splays.
- Consideration needs to be given to Weald Park Way and Ongar Road and suitable mitigation measures will need to be put forward with consultation and liaison with ECC highways and other relevant stakeholders.
- PBA will continue discussions with First Group in agreeing suitable public transport measures for the site's new occupants and for the benefits of existing communities.

7.7.1 PBA will continue liaison with ECC highways through the local plan examination process and provide further updates as appropriate.

Appendix A TRICS Output

Calculation Reference: AUDIT-706701-181120-1158

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:

01	GREATER LONDON		
	EN	ENFIELD	1 days
	HD	HILLINGDON	1 days
02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	HC	HAMPSHIRE	3 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
Actual Range: 214 to 500 (units:)
Range Selected by User: 200 to 1000 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/10 to 21/03/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	2 days
Wednesday	5 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	4
Edge of Town	4

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	7
Built-Up Zone	1
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	9 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	2 days
15,001 to 20,000	1 days
20,001 to 25,000	2 days
25,001 to 50,000	3 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	3 days
100,001 to 125,000	1 days
125,001 to 250,000	3 days
500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	6 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	6 days
No	3 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	7 days
1b Very poor	2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 EN-03-M-01 BLOCKS OF FLATS & TERRACED ENFIELD
CARTERHATCH LANE
ENFIELD

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 220
Survey date: WEDNESDAY *22/06/16* *Survey Type: MANUAL*

2 ES-03-M-11 MIXED HOUSES & FLATS EAST SUSSEX
HEMPSTEAD LANE
HAILSHAM
UPPER HORSEBRIDGE
Edge of Town
Residential Zone
Total Number of dwellings: 354
Survey date: WEDNESDAY *13/07/16* *Survey Type: MANUAL*

3 HC-03-M-06 HOUSES & FLATS HAMPSHIRE
HUNTS POND ROAD
NEAR FAREHAM
TITCHFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 328
Survey date: WEDNESDAY *04/11/15* *Survey Type: MANUAL*

4 HC-03-M-07 MIXED HOUSES & FLATS HAMPSHIRE
ALDERMASTON ROAD
BASINGSTOKE

Edge of Town
No Sub Category
Total Number of dwellings: 236
Survey date: TUESDAY *21/03/17* *Survey Type: MANUAL*

5 HC-03-M-08 MIXED HOUSES & FLATS HAMPSHIRE
CHURCHILL WAY WEST
BASINGSTOKE

Edge of Town Centre
Built-Up Zone
Total Number of dwellings: 279
Survey date: THURSDAY *16/06/16* *Survey Type: MANUAL*

6 HD-03-M-05 TERRACED & FLATS HILLINGDON
JUDGE HEATH LANE
HAYES

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 261
Survey date: TUESDAY *27/06/17* *Survey Type: MANUAL*

7 SC-03-M-06 HOUSES & FLATS SURREY
ST ANNE'S DRIVE
REDHILL

Edge of Town
Residential Zone
Total Number of dwellings: 500
Survey date: WEDNESDAY *11/12/13* *Survey Type: MANUAL*

8 WS-03-M-04 HOUSES & FLATS WEST SUSSEX
SUMMERSDALE ROAD
CHICHESTER

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 214
Survey date: THURSDAY *08/05/14* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 WS-03-M-16 MIXED FLATS & HOUSES WEST SUSSEX
BROYLE ROAD
CHICHESTER

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 252
Survey date: WEDNESDAY *21/03/18* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BT-03-M-01	Development contains only flats
GR-03-M-02	Development contains only flats

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	294	0.090	9	294	0.463	9	294	0.553
08:00 - 09:00	9	294	0.179	9	294	0.803	9	294	0.982
09:00 - 10:00	9	294	0.194	9	294	0.248	9	294	0.442
10:00 - 11:00	9	294	0.153	9	294	0.200	9	294	0.353
11:00 - 12:00	9	294	0.179	9	294	0.205	9	294	0.384
12:00 - 13:00	9	294	0.219	9	294	0.208	9	294	0.427
13:00 - 14:00	9	294	0.210	9	294	0.203	9	294	0.413
14:00 - 15:00	9	294	0.184	9	294	0.235	9	294	0.419
15:00 - 16:00	9	294	0.514	9	294	0.222	9	294	0.736
16:00 - 17:00	9	294	0.422	9	294	0.236	9	294	0.658
17:00 - 18:00	9	294	0.457	9	294	0.209	9	294	0.666
18:00 - 19:00	9	294	0.398	9	294	0.213	9	294	0.611
19:00 - 20:00	2	241	0.343	2	241	0.202	2	241	0.545
20:00 - 21:00	2	241	0.222	2	241	0.137	2	241	0.359
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.764			3.784			7.548

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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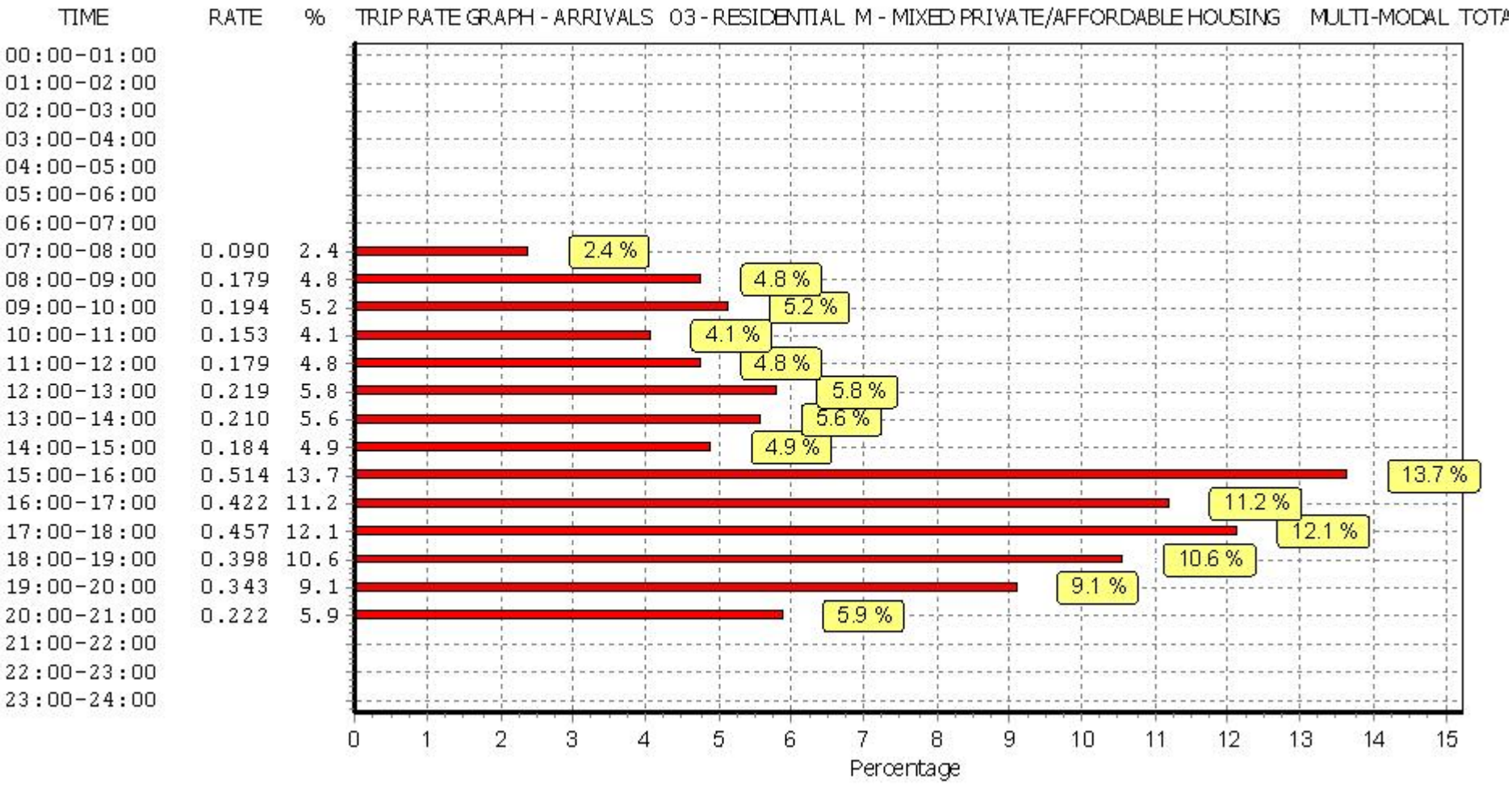

This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

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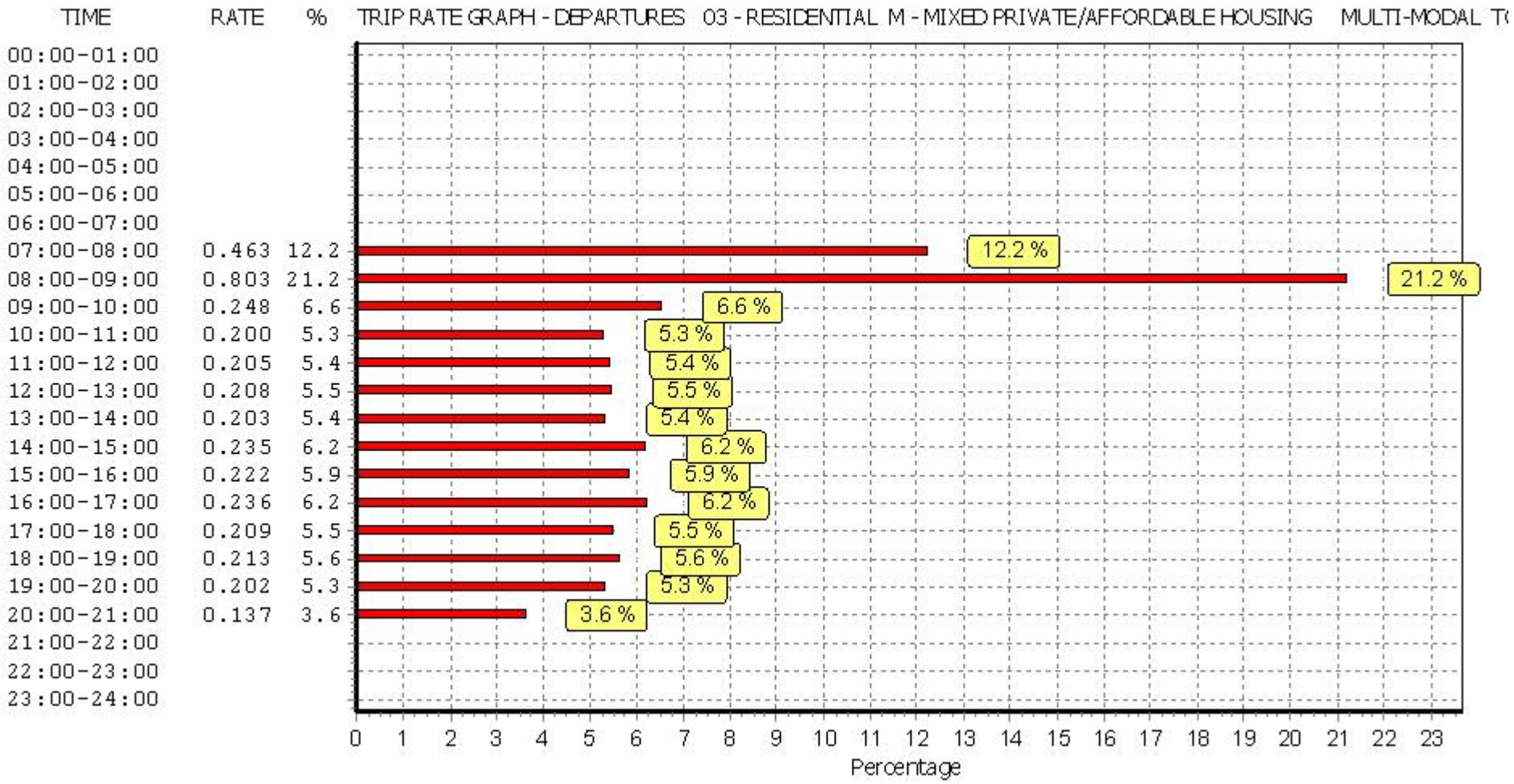
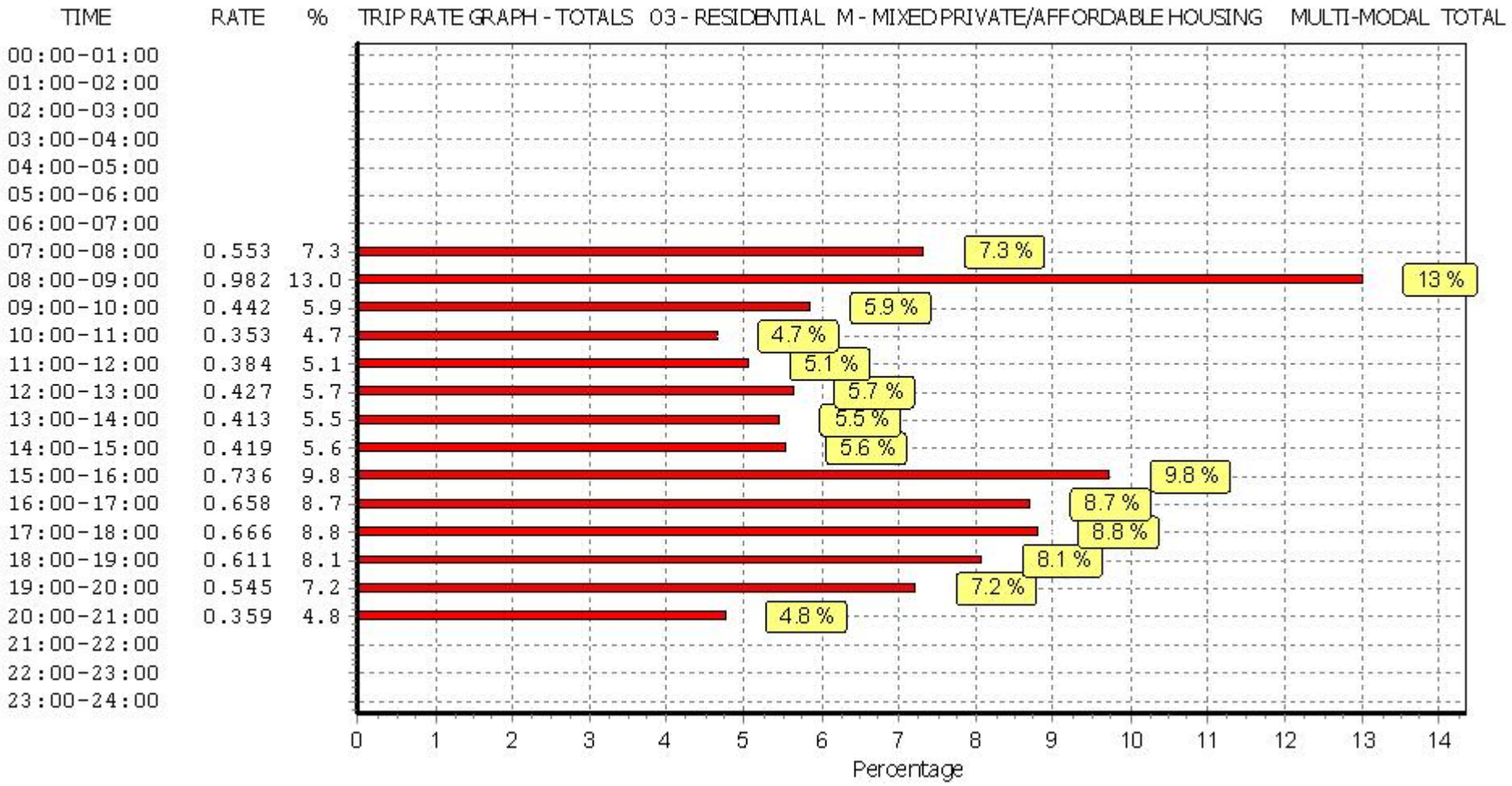


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Peter Brett Associates Caversham Bridge House Reading Licence No: 706701



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Appendix B 2011 Census Journey to Work Data

QS701EW - Method of travel to work

population	All usual residents aged 16 to 74
units	Persons
date	2011
rural urban	Total

2011 output area	All categories: Method of travel to work	Work mainly at or from home	Underground, metro, light rail, tram	Train	Bus, minibus or coach	Taxi	Motorcycle, scooter or moped	Driving a car or van	Passenger in a car or van	Bicycle	On foot	Other method of travel to work	
E00109034	203	6	6	22	3	2	1	71	8	3	9	1	
E00109035	243	9	1	24	4	0	1	98	6	3	7	0	
E00109036	241	9	1	20	7	2	4	90	5	1	15	4	
E00109037	190	3	1	17	3	4	2	78	7	1	12	0	
E00109038	211	4	2	16	10	1	0	86	7	5	13	2	
E00109039	263	9	6	23	4	1	0	116	7	3	15	0	
E00109041	263	8	2	24	9	5	3	108	10	2	10	0	
E00109042	277	13	2	26	1	3	1	121	9	3	10	3	
E00109043	242	13	1	16	4	0	2	119	6	1	13	0	
E00109044	174	4	1	16	3	3	3	71	4	1	5	1	
E00109045	258	9	9	23	6	0	2	114	7	4	7	0	
E00109046	240	4	3	16	10	0	2	87	12	2	16	0	
E00109047	243	9	3	17	2	3	0	102	9	3	7	0	
E00109048	239	5	0	8	14	1	3	102	7	4	11	2	
E00109049	244	3	2	25	8	1	0	105	8	3	13	1	
E00109050	154	3	1	11	2	0	1	52	3	1	6	0	
E00109051	193	3	1	11	6	4	1	61	5	1	14	1	
E00109052	203	12	3	12	8	1	1	78	3	0	9	1	
Total	4,081	126	45	327	104	31	27	1,659	123	41	192	16	2,691
		4.68%	1.67%	12.15%	3.86%	1.15%	1.00%	61.65%	4.57%	1.52%	7.13%	0.59%	

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

Appendix C Trip Generation Analysis

Appendix G: Trip Generation

1.1.1 The peak period person trip rates are shown in **Table 5-1**.

Table 5-1: Peak Period and 12-Hour Person Trip Rates (per 1 Dwelling)

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)			12-Hour (07:00-19:00)		
	IN	OUT	2-WAY	IN	OUT	2-WAY	IN	OUT	2-WAY
Person Trip Rates	0.179	0.803	0.982	0.457	0.209	0.666	3.764	3.784	7.548

1.1.2 Using the person trip rates in **Table 5-1** and the 2011 census Journey to Work mode share data, AM and PM peak period and 12-hour trip generation by mode to/from the site has been calculated as shown in **Table 5-2**.

Table 5-2: Peak Period and 12-Hour Trip Generation by Mode (800 Dwellings)

Mode (Census % Mode Share)	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)			12-Hour (07:00-19:00)		
	IN	OUT	2-WAY	IN	OUT	2-WAY	IN	OUT	2-WAY
Train (18.51%)	27	119	145	68	31	99	474	510	984
Bus (5.46%)	8	35	43	20	9	29	140	151	290
Taxi (1.15%)	2	7	9	4	2	6	29	32	61
Driving a Car or Van (61.65%)	88	396	484	225	103	328	1578	1699	3277
Passenger in a Car or Van (4.57%)	7	29	36	17	8	24	117	126	243
Bicycle (1.52%)	2	10	12	6	3	8	39	42	81
On Foot (7.13%)	10	46	56	26	12	38	183	197	379
Total Person Trip Rate	**143**	**642**	**786**	**366**	**167**	**533**	**2559**	**2756**	**5315**

1.1.3 **Table 5-2** demonstrates that a residential scheme with 800 dwellings at the site could generate a total of 785 two-way person trips in the AM peak period and 533 two-way person trips in the PM peak period based upon the TRICS database and Journey to Work data from the 2011 census. Of this total, 484 two-way trips in the AM peak period and 328 two-way trips in the PM peak period are predicted to be undertaken by car/van without Travel Plan measures being implemented. Across a 12-hour period, an 800 dwelling scheme is predicted generate a total of 5,315 two-way person trips, of which 3,277 two-way trips are predicted be undertaken by car/van without Travel Plan measures being implemented.

1.2 Trip Distribution

1.2.1 As stated in Section 4.2, there is potential to access the site from both the north along Ongar Road and south along Weald Road, with restricted right-turn movements out of the site onto Ongar Road southbound at northern access.

1.2.2 To predict the local distribution of two-way trips undertaken by car/van from the site, Journey to Work data from the 2011 census has been reviewed to determine where people living in the area of the site travel for work based on the characteristics of the E02004469: Brentwood 006 ward. The distribution percentage across the highway network from both the northern and southern access points is shown in **Table 5-3**.

Table 5-3: Percentage Distribution of Traffic Undertaken by Car/Van on Local Highway Network

Direction of Car/Van Traffic	% of IN Traffic	% of OUT Traffic	% of 2-Way Traffic
West on Ongar Road	16%	16%	16%
East on Ongar Road	20%	0%	9%
West on Weald Road	41%	41%	41%
East on Weald Road	23%	43%	33%

1.2.3 Using the figures in **Table 5-3** for the total number of trips undertaken by car/van at peak times, the distribution of traffic on the local highway network has been calculated as shown in **Table 5-4**.

Table 5-4: Vehicle Distribution of Traffic Undertaken by Car/Van on Local Highway Network

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)			12-Hour (07:00-19:00)		
	IN	OUT	2-WAY	IN	OUT	2-WAY	IN	OUT	2-WAY
Ongar Road Westbound	14	63	78	36	17	53	253	272	525
Ongar Road Eastbound	17	0	17	44	0	44	311	0	311
Weald Road Westbound	36	163	200	93	43	135	651	701	1351
Weald Road Eastbound	20	169	190	52	44	96	364	726	1090

1.3 Vehicle Impact

1.3.1 To understand the potential impact an 800 dwelling scheme could have on the local highway network, this assessment considers the proportional increase in total vehicle movements along Ongar Road and A1023 High Street across a 12-hour period.

1.3.2 The existing Annual Average Daily Traffic flow along both Ongar Road and A1023 High Street recorded by Department for Transport count points as stated above has been compared with the predicted 12-hour traffic demand from the development, prior to Travel Plan measures

being considered. The proportional impact of the development on these routes is shown in **Table 5-5**.

Table 5-5: Percentage Impact Assessment of 800 Dwellings on Local Highway Network

	Recorded Annual Average Daily Traffic Flow	Development Traffic	% Impact
Ongar Road (Two-Way)	17,038	836	4.9%
A1023 High Street (Two-Way)	15,697	2441	15.6%

1.3.3 The proposed Link Road through the site would be designed to encourage through-traffic to route through the site, between Ongar Road and Weald Road, and therefore result in diversion of traffic away from Ongar Road southbound. Accordingly, the proportional impact of development traffic on Ongar Road and A1023 High Street in **Table 5-5** is likely to be off-site through diversion of existing traffic away from these routes. Overall, it is anticipated that the effect on Ongar Road and A1023 High Street of the combined development traffic and Link Road would be negligible, or potentially a minor reduction in traffic on these links, within the AQMA area.

Potential Reduction in Vehicle Impact

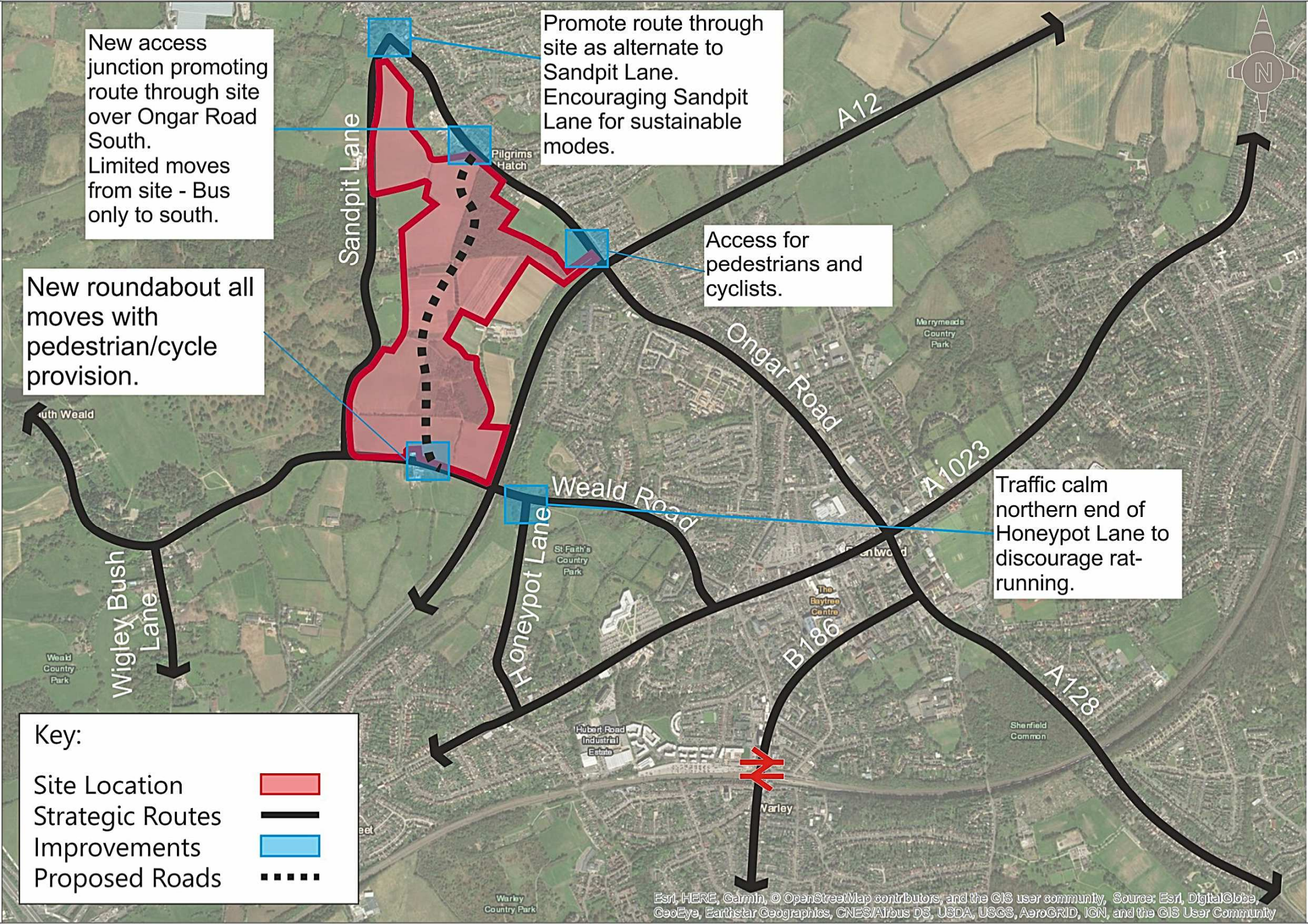
1.3.4 The proportional impact of an 800 dwelling scheme on the local highway network as shown in **Table 5-5** considers a development without any travel planning and sustainable transport promotion in place. With this in mind, the potential effect of the measures stated in paragraph 4.2.24, as well as proposed improvements to off-site sustainable transport infrastructure described in Section 3, on the vehicle impact of the development is presented in **Table 5-6**.

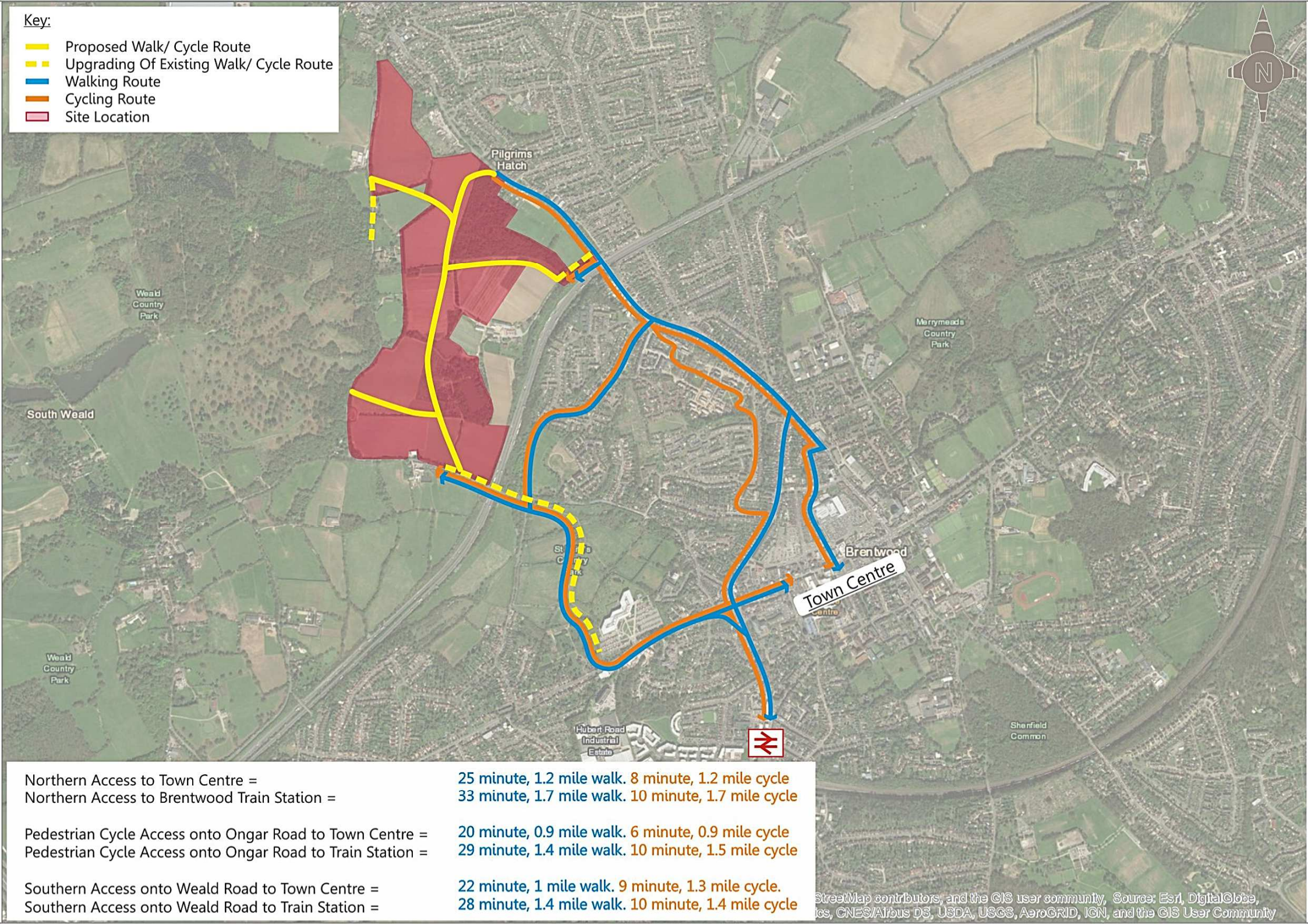
Table 5-6: Potential Vehicle Impact on Local Highway Network with Travel Planning and Sustainable Transport Promotion

Driving a Car / Van (Census % Mode Share)	Driving a Car / Van (Transport Planning & Sustainable Transport Promotion)	Highway Route	Potential % Impact
61.65%	40.5%	Ongar Road (Two-Way)	3.2%
		A1023 High Street (Two-Way)	10.2%

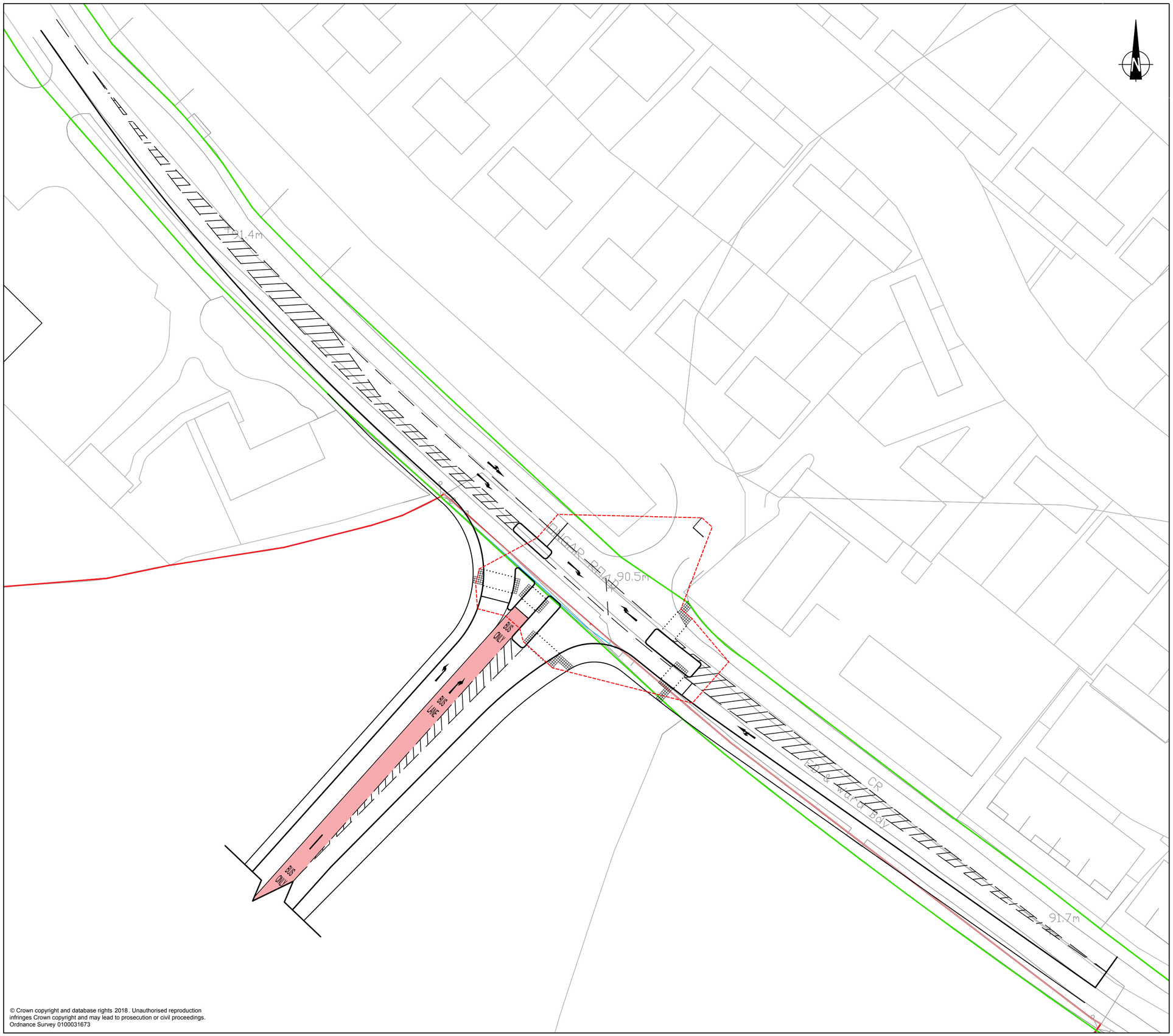
1.3.5 **Table 5-6** indicates that, with travel planning and sustainable transport promotion in place, the proportional impact of the development on the local highway network could reduce to 3.2% on Ongar Road and 10.2% on A1023 High Street.

Appendix D Preliminary Transport Strategy


New access junction promoting route through site over Ongar Road South.
Limited moves from site - Bus only to south.
Promote route through site as alternate to Sandpit Lane. Encouraging Sandpit Lane for sustainable modes.
Access for pedestrians and cyclists.
New roundabout all moves with pedestrian/cycle provision.
Traffic calm northern end of Honeypot Lane to discourage rat-running.
Sandpit Lane
Pilgrims Hatch
A12
Ongar Road
Weald Road
Honeypot Lane
Wigley Bush Lane
A1023
B186
A128
Merrymeads Country Park
St Faith's Country Park
The Baytree Centre
Hubert Road Industrial Estate
Shenfield Common
Warley
Weald Country Park
Warley Country Park
Key:
Site Location
Strategic Routes
Improvements
Proposed Roads
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Key:
Proposed Walk/ Cycle Route
Upgrading Of Existing Walk/ Cycle Route
Walking Route
Cycling Route
Site Location
N
Pilgrims Hatch
Weald Country Park
South Weald
Merrymeads Country Park
Brentwood
Town Centre
Hubert Road Industrial Estate
Shenfield Common
Weald Country Park
Northern Access to Town Centre = 25 minute, 1.2 mile walk. 8 minute, 1.2 mile cycle
Northern Access to Brentwood Train Station = 33 minute, 1.7 mile walk. 10 minute, 1.7 mile cycle
Pedestrian Cycle Access onto Ongar Road to Town Centre = 20 minute, 0.9 mile walk. 6 minute, 0.9 mile cycle
Pedestrian Cycle Access onto Ongar Road to Train Station = 29 minute, 1.4 mile walk. 10 minute, 1.5 mile cycle
Southern Access onto Weald Road to Town Centre = 22 minute, 1 mile walk. 9 minute, 1.3 mile cycle.
Southern Access onto Weald Road to Train Station = 28 minute, 1.4 mile walk. 10 minute, 1.4 mile cycle
StreetMap contributors, and the GIS user community, Source: Esri, DigitalGlobe,
ics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Appendix E Access Junction Drawings



KEY

- HIGHWAY BOUNDARY
- SITE BOUNDARY
- JUNCTION INTERVISIBILITY ZONE (ACCORDING TO DMRB TD 50/04)

Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status

FOR INFORMATION

LAND AT CALCOTT FARM, BRENTWOOD
PROPOSED SOUTHERN SITE ACCESS

Client		
Architect		
Date of 1st Issue	Designed JC	Drawn JC
A2 Scale	Checked -	Approved -
Drawing Number 42579/5501/SK02		Revision -

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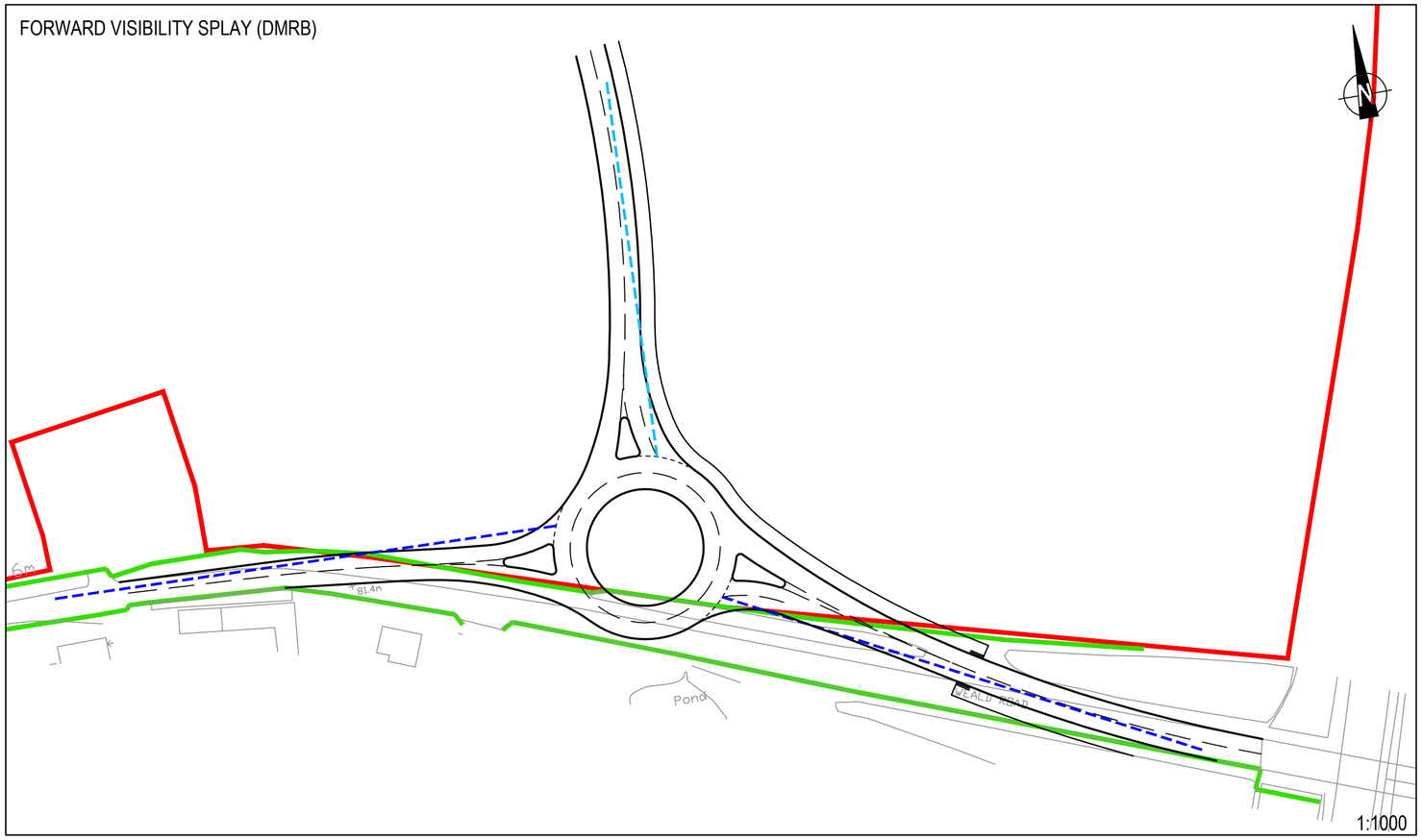
now part of Stantec
peterbrett.com

READING
Tel: 01189 500 761

FORWARD VISIBILITY SPLAY (DMRB)



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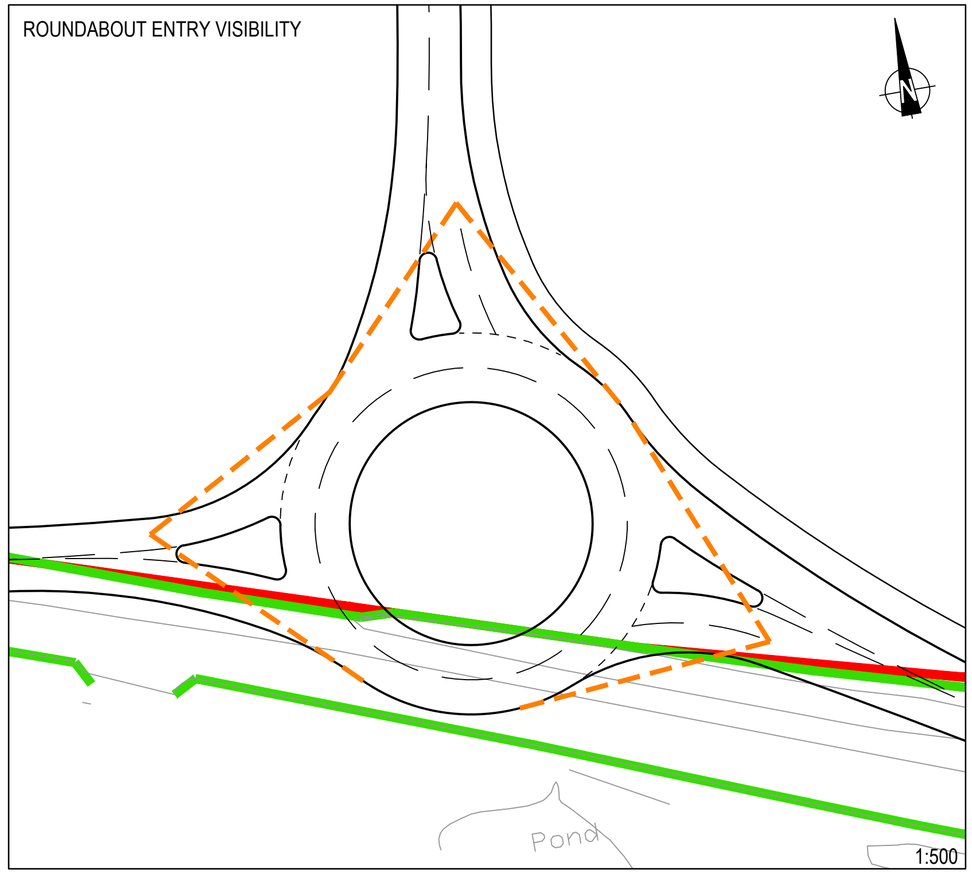
ROUNDABOUT ENTRY VISIBILITY



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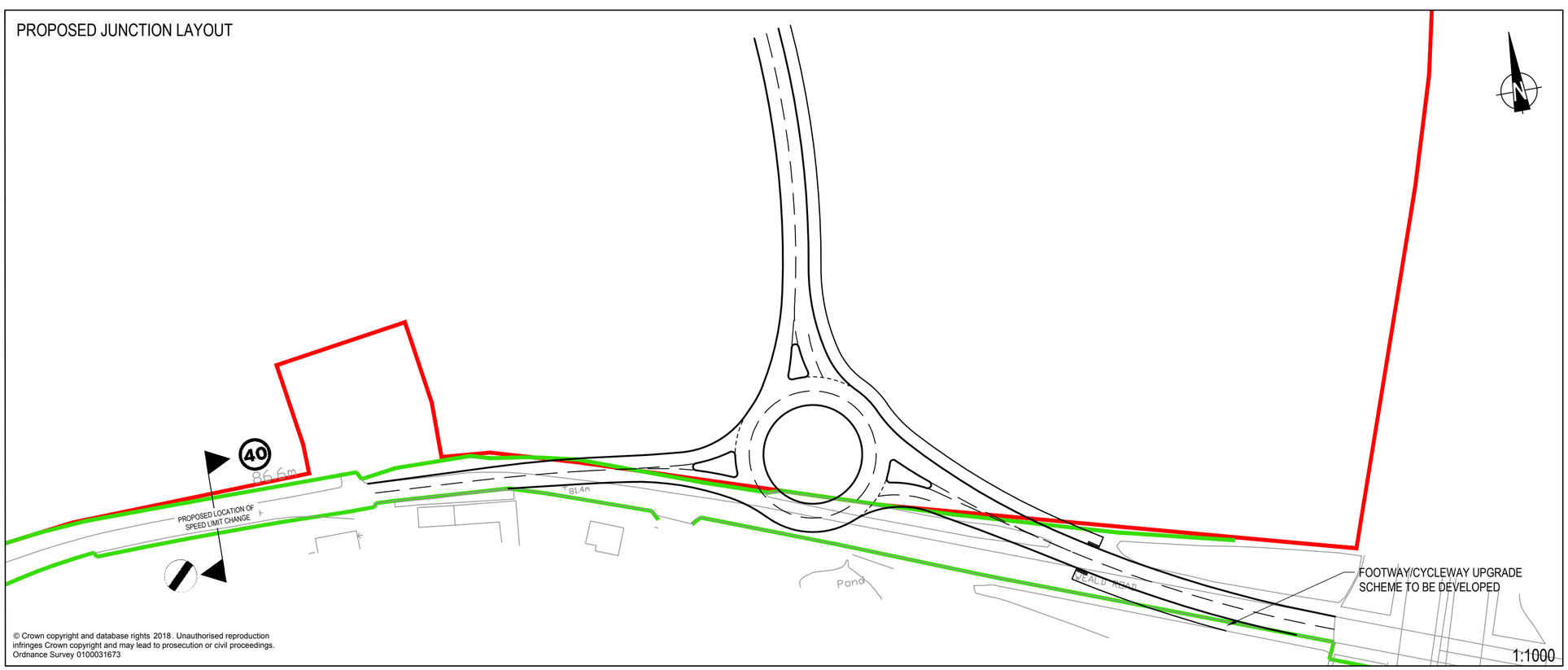
PROPOSED JUNCTION LAYOUT



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KEY

- 120.0M FORWARD VISIBILITY SPLAY (40MPH DMRB)
- 90.0M FORWARD VISIBILITY SPLAY (30MPH DMRB)
- ROUNDABOUT ENTRY VISIBILITY
- SITE BOUNDARY
- HIGHWAY BOUNDARY

Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Drawing Issue Status

FOR INFORMATION

LAND AT CALCOTT FARM, BRENTWOOD
PROPOSED SOUTHERN SITE ACCESS

Client

Date of 1st Issue	Designed	Drawn
	-	SB
A2 Scale	Checked	Approved
AS SHOWN	-	-

Drawing Number: 42579/5501/SK03

Revision: -

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READING
Tel: 01189 500 761

File Location: \\pba.int\npt\projects\42579 land at calcott hall farm, brentwood\transport\5. drawings & models\cad\transport\42579_5501_sk03.dwg

Appendix F LIDAR Mapping Information

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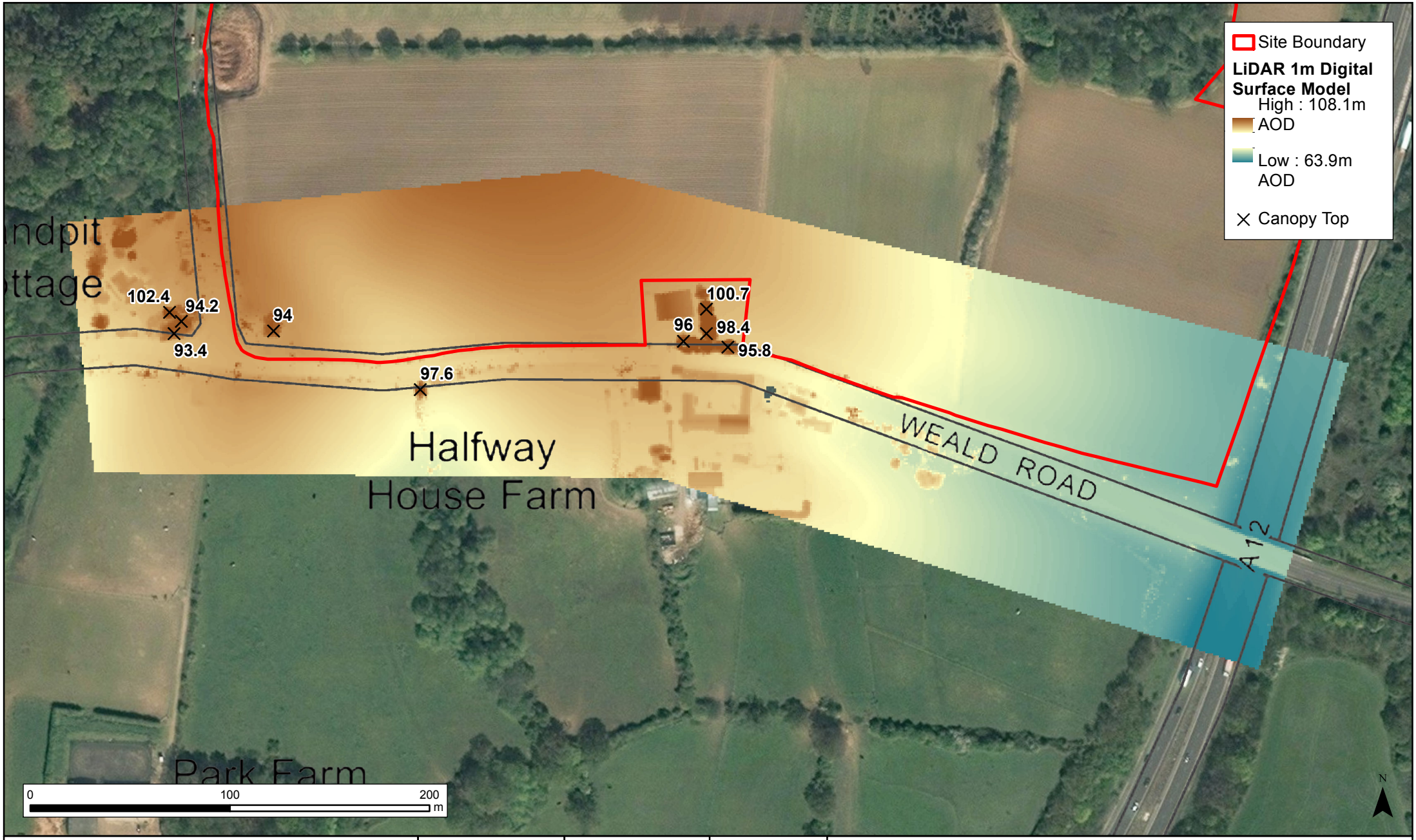

pba peterbrett

Client

Hallam Land Management Ltd.

1:2,440 @ A4

20/11/2018

Drawn: CM

Checked: AW

Land at Calcott Hall Farm, Brentwood

Inset 1 - Weald Road

Figure | Rev A

Document Path: \\pba.int\cbh\GIS\GIS_central\Projects\42579\02_mxd\42579_inset2.mxd

pba peterbrett

Client

Hallam Land Management Ltd.

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20/11/2018

Drawn: CM

Checked: AW

Land at Calcott Hall Farm, Brentwood

Inset 2 - A12/A128

Figure | Rev A

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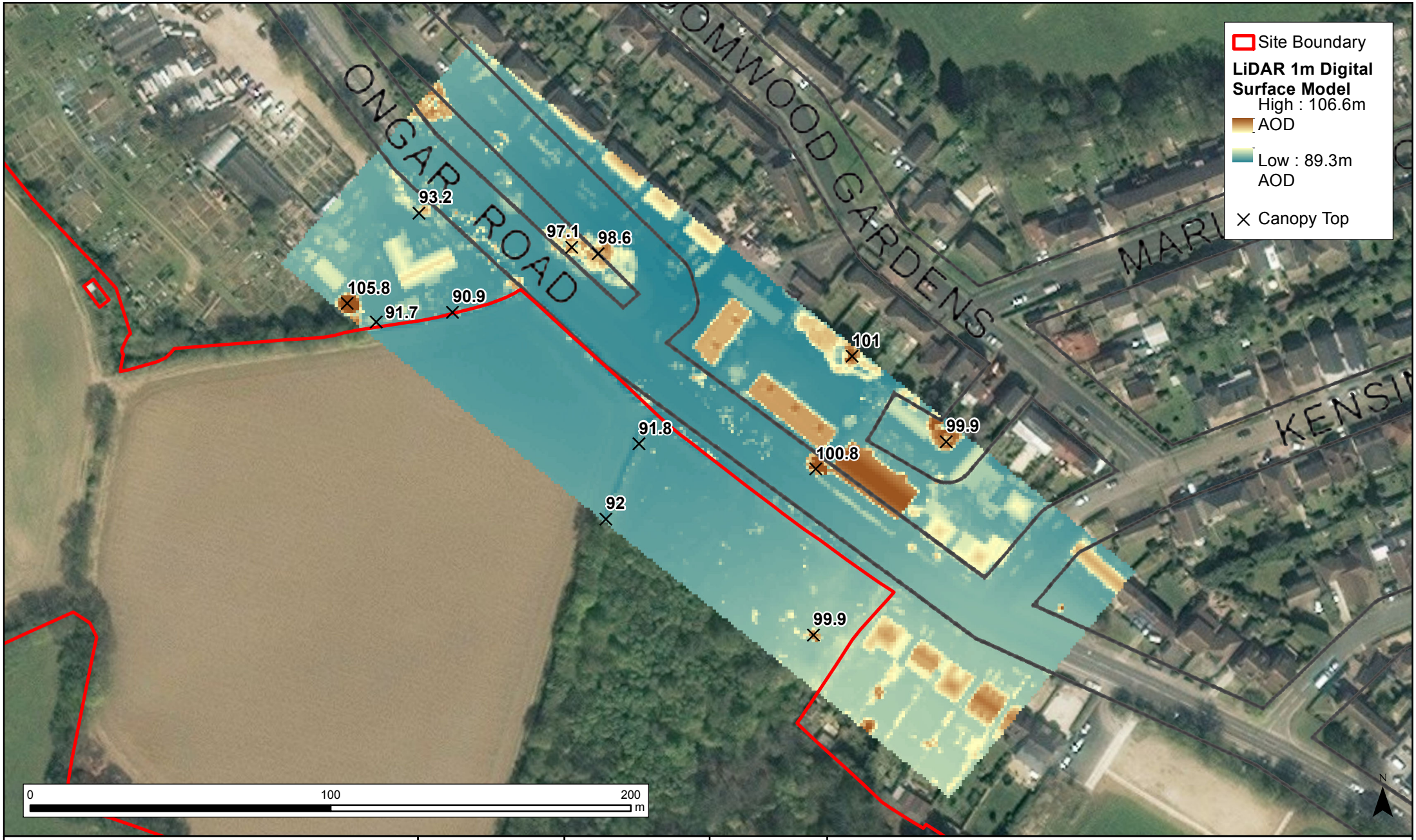


pba peterbrett

Client

Hallam Land Management Ltd.

1:1,622 @ A4

20/11/2018

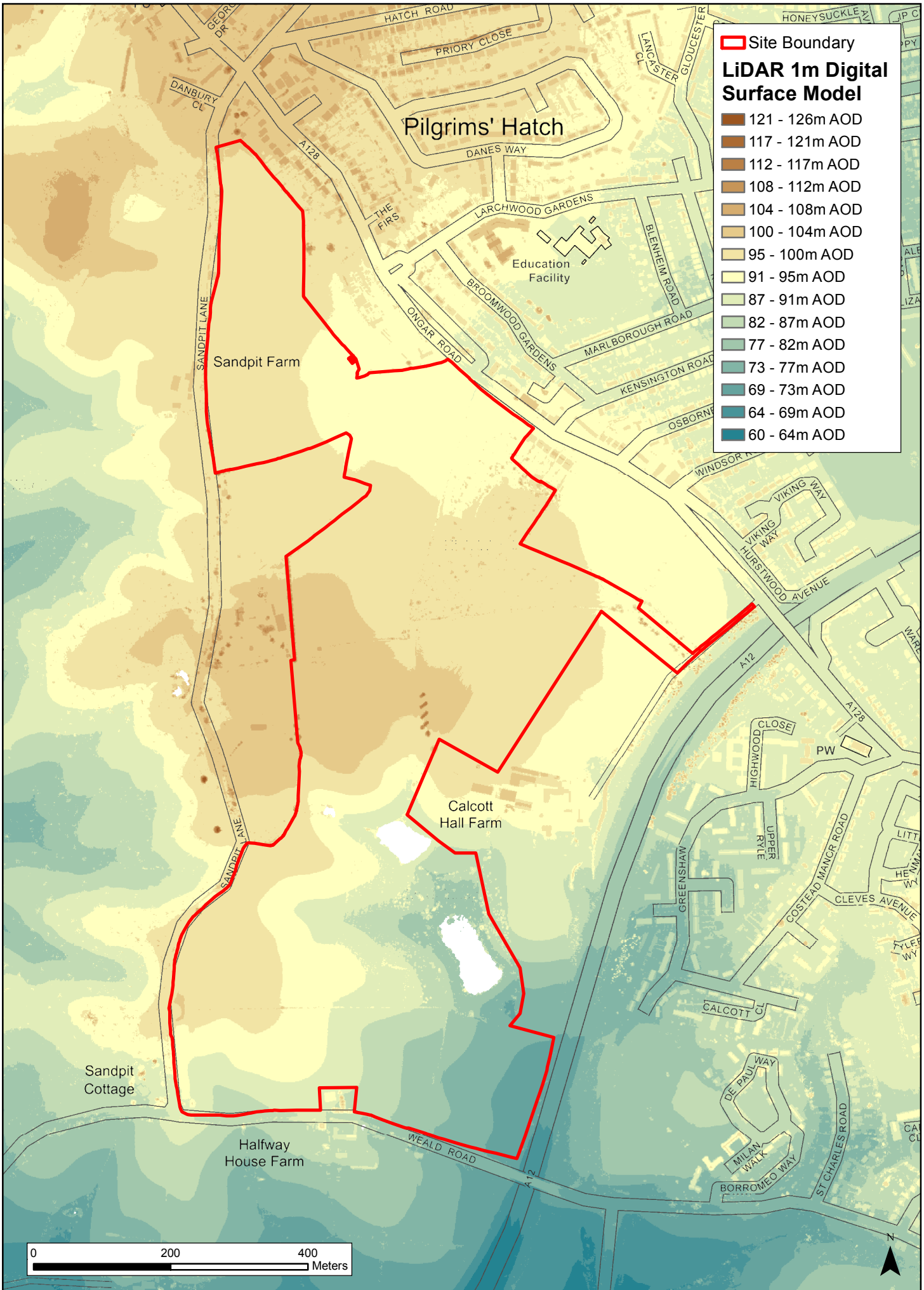
Drawn: CM

Checked: AW

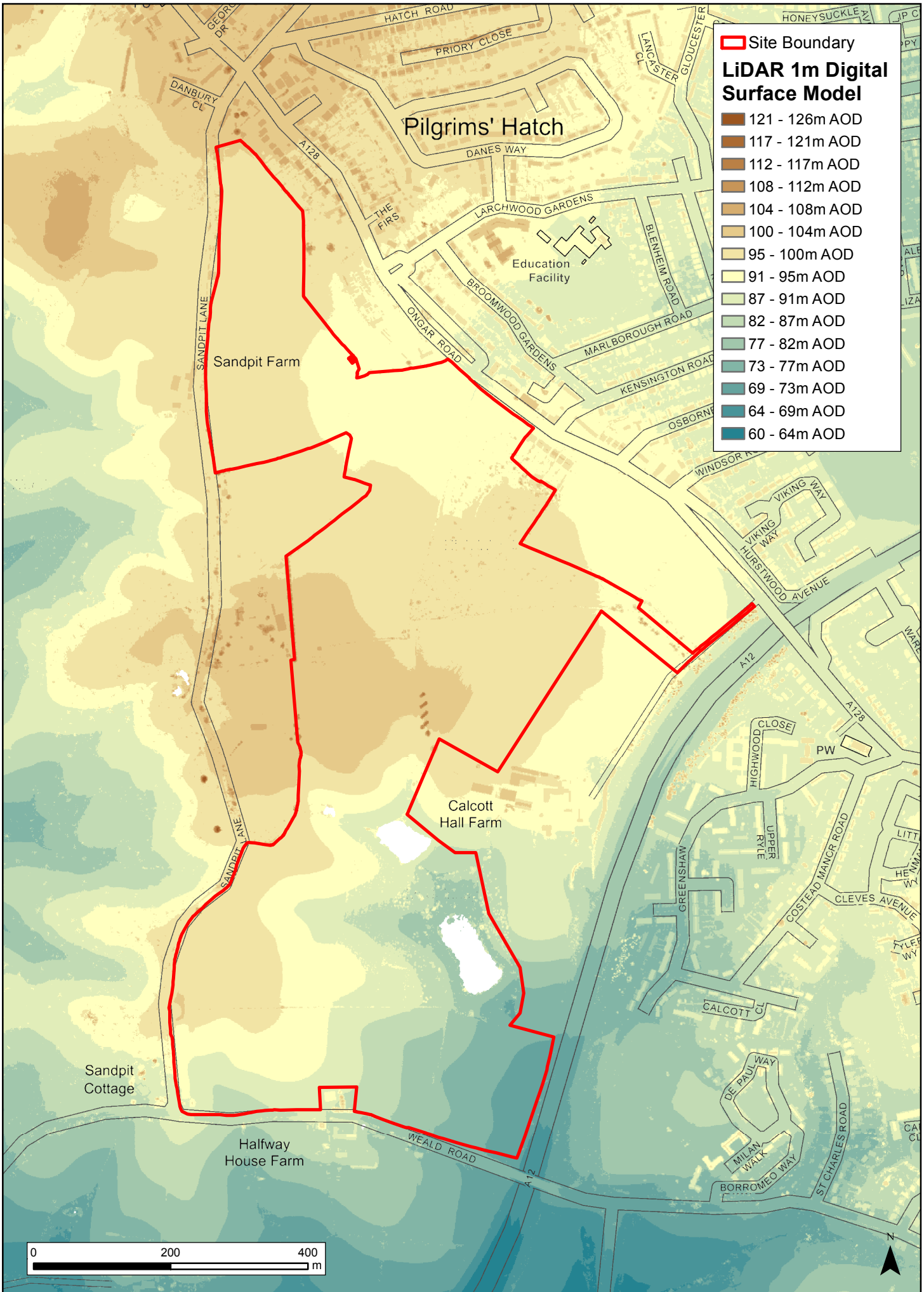
Land at Calcott Hall Farm, Brentwood

Inset 3 - Ongar Road

Figure | Rev A



pba peterbrett	Client: Hallam Land Management Ltd.		1:7,000 @ A4 20/11/2018 Drawn: CM Checked: AW	**Land at Calcott Hall Farm, Brentwood** Site Overview Figure 1 | Rev A



pba peterbrett	Client: Hallam Land Management Ltd.		1:7,000 @ A4 20/11/2018 Drawn: CM Checked: AW	**Land at Calcott Hall Farm, Brentwood** Site Overview Figure 1 | Rev A

Appendix G Letter of support from First Group

Westway
Chelmsford
Essex
CM1 3AR

JE TGH

6 February 2019

Mr D Harrison
Peter Brett Associates LLP
Caversham Bridge House
Waterman Place
Reading
RG1 8DN

Dear Dave

RE: CALCOTT HALL FARM, BRENTWOOD

Further to our meeting on 10 January 2019, I am writing to set out the position of First Essex regarding the indicative public transport strategy for the above development. We welcome the opportunity to engage early in the planning of sustainable access for this site.

We believe that the provision of a service operating every 30 minutes between the development, Brentwood town centre and Brentwood railway station is operationally feasible subject to a minor expansion of headways in the peak periods due to increased levels of traffic.

We are particularly pleased to see the proposal for a bus-only right turn between the development and Ongar Road, which will maximise the attractiveness of the bus service and reduce the potential impact on Wilson's Corner. There may be other potential opportunities for off-site infrastructure enhancements which can be explored at the appropriate time.

First Essex support the introduction of a new service at a time when sufficient units have been occupied to ensure that pump-priming funds do not expire until the development is substantially complete.

Overall, we consider that the proposed bus service would present an attractive and commercially viable opportunity to support the proposed development at Calcott Hall Farm.

I look forward to working with you to develop these proposals further.

Yours sincerely

J. A. Elliott

Julian Elliott
Commercial Manager
First Essex Buses Ltd

First Essex Buses Limited
Registered in England number 1961457
Westway, Chelmsford, Essex CM1 3AR