



LAND WEST OF TYE LANE, WALBERTON

TRANSPORT ASSESSMENT

December 2021

David Wilson Homes

RESIDENTIAL DEVELOPMENT
LAND WEST OF TYE LANE
WALBERTON

TRANSPORT ASSESSMENT

CONTROLLED DOCUMENT

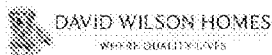
<i>Document No:</i>		041.0071/TA/3	
<i>Status:</i>	Final	<i>Copy No:</i>	
	<i>Name</i>	<i>Signature</i>	<i>Date</i>
<i>Prepared by:</i>	Tom Peters	[REDACTED SIGNATURE]	December 2021
<i>Checked by:</i>	Mark Smith		December 2021
<i>Approved by:</i>	Mark Smith		December 2021

<i>Revision Record</i>					
Rev.	Date	By	Summary of Changes	Chkd	Aprvd

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David Wilson Homes
Tollbar House
Tollbar Way
Hedge End
Southampton
SO30 2UH



Paul Basham Associates Ltd
The Bothy
Cams Hall Estate
Fareham
PO16 8UT

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1. INTRODUCTION

- 1.1 This Transport Assessment (TA) has been prepared by Paul Basham Associates on behalf of David Wilson Homes to support an outline planning application for a residential development comprising up to 131 dwellings with vehicular access via Tye Lane at land to the west of Tye Lane, Walberton. The site location is demonstrated in Figure 1, with the site layout included in Appendix A.

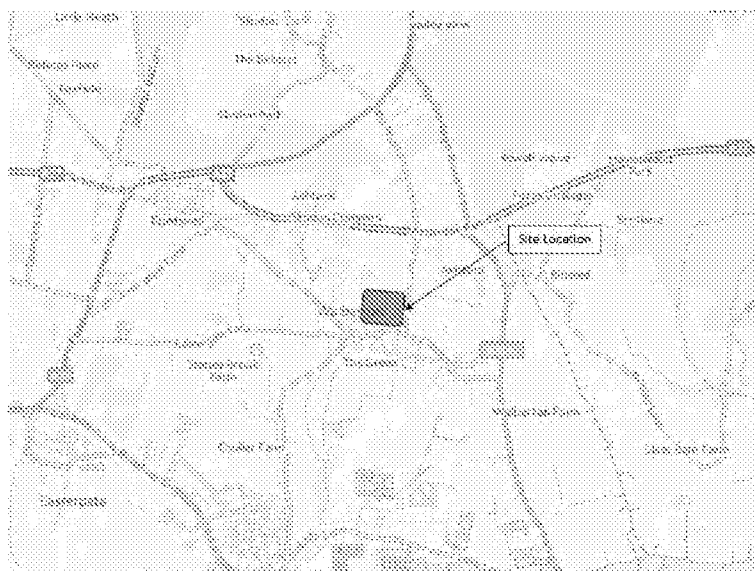


Figure 1: Site Location

- 1.2 A Walking, Cycling and Horse-Riding Assessment and Review (WCHAR) and Travel Plan (TP) have also been prepared to be read alongside this report. The WCHAR identified the existing opportunities for all non-motorised users in the development area as well as identifying and opportunities to improve the existing network. The TP identifies baseline modal splits and travel targets as well as setting out a series of measures to help promote the use of sustainable travel modes.
- 1.3 Site visits have been undertaken which covered walking along all available pedestrian and cycle routes within the vicinity of the proposed development, including routes to the local facilities within the Village and along Yorton Lane. The findings from the site visit have helped to inform this report.
- 1.4 The site has been identified within the Arun District Housing and Economic Land Availability Assessment (HELAA) as site 17WA1. It was identified as a deliverable site with a yield of around 146 units. Whilst the site lies outside the adjoining settlement boundary, it is considered suitable in principle for future housing because of its accessibility to facilities, job opportunities and public transport, and because there are no insurmountable constraints.
- 1.5 A pre-application was submitted to West Sussex County Council (WSCC) for an outline application for

around 150 residential dwellings. A pre-application response was received from WSCC on the 8th May 2020 with the main points summarised below:

- Any final TA should provide further detail about any existing accesses on Tye Lane and what they serve
- A detailed assessment of Tye Lane, covering road surfacing, road widths, walking and cycling provision, access to local services and employment and access with the A27
- Visibility splays to be provided in accordance with recorded 40mph and 41pmh vehicle speeds:
- A Stage 1 Road Safety Audit (RSA) should be undertaken for the site access, the Tye Lane/The Street junction and at access to the A27.
- Accident data should be for the latest 5-year period and should include all junctions requiring assessment:
- Trip rates to match those submitted as part of application WA/44/17/OUT:
- Committed developments to include those submitted in draft TA (prepared by Mayer Brown) and those included at the Yapton development off Bilsham Lane and Yapton Road (circa 500 homes).
- Route assignment to be revised and provided more in line with those identified in application WA/44/17.

1.6 A detailed junction capacity assessment is also to be undertaken within the report to determine the likely impact of the development on the local road network. The junction requiring assessment as identified through the pre-application are summarised below:

- Site Access:
- A29 Fontwell Avenue/A27 Arundel Road:
- Arundel Road (to the aforementioned junction):
- The Street/Yapton Lane junction:
- Tye Lane/The Street:
- Tye Lane/A27 Arundel Road:
- Yapton Lane/A27 Arundel Road:
- Lake Lane/Yapton Lane: and
- Impact on the railway crossing on Yapton Lane/Lake Lane/North End Road

1.7 The site and adjacent site to the east of Tye Lane have been subject to various recent planning applications. The site itself has a recent outline planning application for up to 155 residential dwellings (planning ref: WA/68/20/OUT), however this was refused primarily due to further information being required, on highways specifically regarding the impact upon the Fontwell East/West junctions, as well as, WSCC requesting information on the impact the A27 scheme would have upon the capacity of local



junctions. Both of these points have been addressed prior to this application with WSCC determining the information provided in the supporting Highway Response Note (attached at Appendix B) that their concerns had been addressed, whilst feedback from National Highways is still outstanding on the impact upon the Fontwell East and West A27 junctions.

- 1.8 Land to the East of Tye Lane was approved for 175 dwellings in 2017 (planning ref: WA/44/17/OUT) with work started on site, whilst a revised application (planning ref: WA/63/21/PL) for a vehicular access onto Tye Lane (required as a result of any potential A27 link) was refused earlier this year although WSCC in their role as highway authority and National Highways were satisfied and did not recommend refusal. This TA refers to these applications as relevant in order to maintain consistency in approach and also for context.
- 1.9 The scope of this TA therefore reviews existing site conditions and site accessibility, Personal Injury Accident (PIA) data, the proposed accommodation schedule, car and cycle parking requirements, visibility and access arrangements, servicing, trip generation, traffic impact and capacity assessment on the local road network (LRN), makes recommendations for any mitigation measures and draws conclusions from the overall assessment.



2. POLICY

2.1 This section of the report identifies the planning policy set out at national, regional and local levels that the development would adhere to:

- National Planning Policy Framework (NPPF)
- West Sussex County Council's Local Transport Plan (LTP3) (2011 – 2026)
- West Sussex County Council's Walking and Cycling Strategy (2016 – 2026)
- Arun District Local Plan (2011 – 2031)
- Arun Housing and Economic Land Availability Assessment (2019)
- Walberton Neighbourhood Development Plan (2015 – 2035)

National Planning Policy

2.2 The revised National Planning Policy Framework (NPPF) was adopted in July 2021 and acts as the central guidance for development planning, replacing all National Planning Policy guidance. The following NPPF paragraphs are relevant to this TA:

Transport issues should be considered from the earliest stages of plan-making and 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.
- 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.

(NPPF Para. 104)

Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.

(NPPF Para. 105)

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

(NPPF Para. 113)



Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

(NPPF Para. 111)

2.3 This TA and accompanying TP accord with these principles. The NPPF also cites the following as key considerations with regards to transport and development planning to which this proposal's highway approach adheres:

- *The development gives priority to pedestrian and cycle movements, and has access to public transport facilities;*
- *The development has a safe and secure layout which minimises conflicts between traffic and cyclists or pedestrians, avoids street clutter, and where appropriate, establishes home zones; and*
- *The development considers the needs of people with disabilities.*

Regional Planning Policy

West Sussex County Council's Local Transport Plan (LTP3) (2011 – 2026)

2.4 The West Sussex Transport Plan 2011-26 (LTP3) sets the strategy for guiding investment in highways and transport infrastructure and sets a framework for considering transport infrastructure requirements associated with future development.

2.5 The overall vision of LTP3 is "to achieve efficient, safe and less congested transport networks, which contribute towards:

- A more competitive and thriving economy
- Reductions in emissions
- Improved access to services
- Jobs and housing, especially for those in need
- Improved quality of life for all those who live and work within our beautiful and unique County."

2.6 For the Arun district specifically, the implementation plan (section 2.2.1) comprises:

- Increasing use of sustainable modes of transport
- Improving network efficiency in order to improve journey times and air quality
- Improving safety for all road users
- Discouraging HGVs from using unsuitable roads
- Improving accessibility between communities within the District.



West Sussex County Council's Walking and Cycling Strategy (2016 – 2026)

- 2.7 The strategy outlines the design and safety principles for walking and cycling that the County Council will follow, and developers will be expected to follow when implementing infrastructure schemes. It also provides a mechanism by which schemes can be identified and prioritised, enabling the council to direct future investment.
- 2.8 A number of schemes have been identified in the vicinity of the proposed site, which are demonstrated later in this report.

Local Planning Policy

Arun District Local Plan (2011 – 2031)

- 2.9 The Arun District Local Plan was adopted in July 2018 and sets out the spatial vision, objectives and a sustainable strategy for delivering the needed growth of the district over the period 2011 – 2031. The purpose of the Local Plan is to encourage sustainable development and manage future growth whilst ensuring that change across the district is appropriate to meet local need.
- 2.10 Chapter 15 of the Local Plan sets out strategic objectives specifically for Transport in Arun. Those relevant to this TP are outlined below:
- Reduce the need to travel and promote sustainable forms of transport;
 - Plan for climate change and work in harmony with the environment to conserve natural resources and increase biodiversity;
 - Promote strong, well integrated and cohesive communities, through the promotion of healthy lifestyles, provision of good quality accessible community facilities and a safe environment, which delivers and enhanced quality of life to all.
- 2.11 Policy T SP1 'Transport and Development' also states that the council will support transport and development which:
- Is designed to reduce the need to travel by car by identifying opportunities to improve access to public transport services;
 - Gives priority to pedestrian and cycle movements;
 - Incorporates appropriate levels of parking in line with WSCC guidance: and
 - Is supported by an effective and deliverable Transport Assessment which demonstrates that the transport effects of development on the local and strategic road network can be satisfactorily mitigated and a Travel Plan which is effective and deliverable.
- 2.12 Policy T DM1 'Sustainable Travel and Public Rights of Way also states that 'New developments must



ensure ease of movement, prioritising safe pedestrian and cycle access to the green infrastructure network and access to public transport and community transport services where a need has been identified. Access to alternative modes of transport including public transport services, the public right of way and cycle networks, must be available and accessible to all members of the community’.

Arun Housing and Economic Land Availability Assessment (2020)

- 2.13 The Housing and Economic Land Availability Assessments (HELAA) provides background evidence on the potential availability of sites (but does not set policy or specifically allocate land).
- 2.14 Site reference 17WA1 relates to the area of the proposed development site, as land north of North Pound and west of Tye Lane. Following a successful ‘Call for sites’ in 2017, the site has been listed as a ‘deliverable’ site and is recognised as having future potential for residential development due to *“its accessibility to facilities, job opportunities and public transport, and because there are no insurmountable constraints.”*
- 2.15 The site has been identified as suitable for the promotion of approximately 146 dwellings.

Walberton Neighbourhood Development Plan (2015 – 2035)

- 2.16 The Walberton Neighbourhood Development Plan has been implemented to not only give local people a say as to what goes on in their villages and towns, but it also sets out important guidance. The aims of the Plan are:
- “Locate the new development and extend the choice and quality of housing
 - Help improve safe connections to local amenities and to the SDNP
 - Improve safe access to the Parish’s open spaces
 - Improve availability of other community amenities, such as public transport and health services
 - Enhance the character and image of the Parish
 - Identify steps to an environmentally, socially, and economically sustainable future”
- 2.17 The Plan also sets out a number of transport aims which are listed below:
- “Provide more sustainable transport links
 - Endeavour to solve current congestion and “rat running” problems
 - Address parking issues
 - Avoid increasing access by HGVs”
- 2.18 Policy GA2, Footpath Bridleway and Cycle Path Network, states that “Support will be given to proposals that improve and extend the existing footpath, bridleway and cycle path network, allowing easier and safer safe access to the local amenities and services, to green spaces, to any new housing and to the



open countryside. The loss of existing footpaths, bridleways and cycle paths will be resisted.”

- 2.19 Policy GA5, Traffic Management, states that “Proposals that significantly increase the level of traffic within the villages will be resisted particularly in the case of HGV movements.”



3. EXISTING LOCAL CONDITIONS

- 3.1 The development site, located on the north-western side of the village of Walberton, is approximately 14km east of Chichester and 6km west of Arundel. Located on greenfield land to the west of Tye Lane and north of the existing residential areas off The Street, the site is very well situated in relation to the facilities available in the village and for access to the A27. The site and its surroundings are demonstrated in Figure 2.



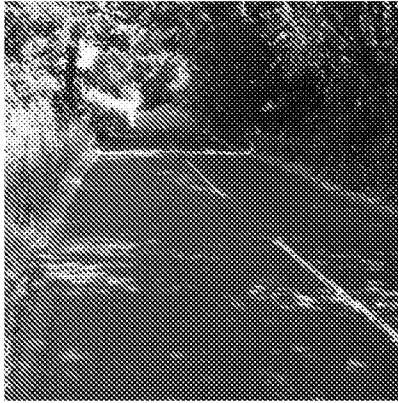
Figure 2: Site and Surroundings

Local Road Network

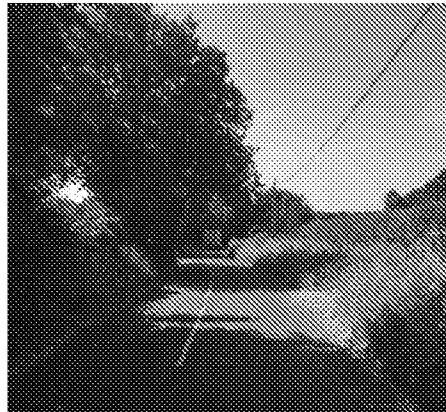
Tye Lane

- 3.2 Tye Lane is an unclassified, single carriageway road which runs north to south from the A27 Arundel Road to The Street, and therefore serves as a key route within the local area. Tye Lane has varying widths of between 4.8m and 6m, with the width outside the site frontage measuring approximately 5m.
- 3.3 Tye Lane is subject to a 60mph speed limit outside the site frontage and up to the junction with the A27. To the south, Tye Lane is subject to a 30mph speed limit for the first 100m from the junction with The Street. To determine the actual vehicle speeds along Tye Lane in the vicinity of the site access, an Automated Traffic Count (ATC) survey was undertaken on Tye Lane between 24th February and 6th March 2018 which demonstrated 85th percentile speeds of 40mph (SB) and 41mph (NB). The requirements for visibility splays are assessed further within the TA.

- 3.4 As part of the pre-application response from WSCC, further details into the suitability of the carriageway along Tye Lane was requested, particularly in relation to surfacing and the varying road widths. The condition of the carriageway was observed to be of a good standard with no potholes encountered and vegetation maintained. The existing conditions along Tye Lane are demonstrated in Photographs 1 and 2.



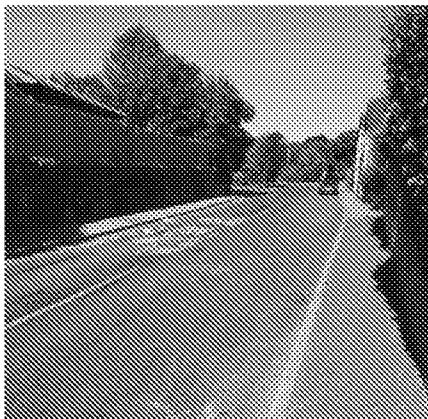
Photograph 1: Tye Lane



Photograph 2: Tye Lane Conditions

The Street

- 3.5 Tye Lane connects to The Street via a T-junction approximately 200m south of the proposed site access. The Street, which runs east to west from Yapton Lane to West Walberton Lane where it continues as Barnham Lane, provides the main vehicular route between the site and the local facilities and amenities within the village centre. The street is subject to a 30mph speed limit and is typical of a local village route, with on street parking prevalent for its duration.
- 3.6 Whilst on site it was observed that vehicles travel in accordance with the speed limit given the village environment and the presence of cyclists within the carriageway. The existing conditions along The Street are demonstrated in Photographs 3 and 4.



Photograph 3: The Street



Photograph 4: The Street Conditions

Wider Road Network

- 3.7 In the wider vicinity, the site is situated approximately 500m south of the A27 which provides a direct route between Portsmouth and Chichester to the west to Eastbourne to the east. The section of the A27 near the development site provides a link to the A29 to the west. In addition, the B2132 and A284 are accessible to the east, albeit with access to the A284 from turning left out of Tye Lane and doubling back along the A27.
- 3.8 The A29 provides access north to Pulborough and Billingshurst and links to the A272. The A284 provides a link between the A29 and the A27.
- 3.9 Highways England are currently undergoing a further review period on the A27 Corridor Feasibility Study which, if successful, will provide improvements in and around Arundel to relieve congestion.

Personal Injury Accident Data

- 3.10 Personal Injury Accident (PIA) data has been obtained from the West Sussex Safer Roads Partnership to assess and consider the existing safety situation on the local road network along Tye Lane and at the local junctions in the vicinity of the site. At the pre-application stage, the scope of the PIA assessment was agreed, and therefore the covers the following area.
- Tye Lane:
 - Tye Lane/A27 junction:
 - Tye Lane/The Street junction:
 - The Street/Yapton Lane roundabout:
 - Yapton Lane/A27 junction:
 - A27 Arundel Road slip road:
 - A27/A29 roundabouts:
 - Lake Lane/Yapton Lane junction
- 3.11 The patterns displayed in the data have been assessed with regards to the proximity, frequency and severity of incidents that have occurred that may require further in-depth consideration. The PIA data has been collected for a period of 5 years from June 2015 to May 2020. The red marker indicates 'fatal' accidents, the blue marker indicates accidents that were classified as 'serious' in nature and the green markers represent accidents that were classified as 'slight' in nature.



Tye Lane

- 3.12 The PIA data assessment undertaken on Tye Lane has identified that there have been no recorded incidents in the vicinity of the proposed site, or on Tye Lane for its duration. The data is provided in Figure 3.

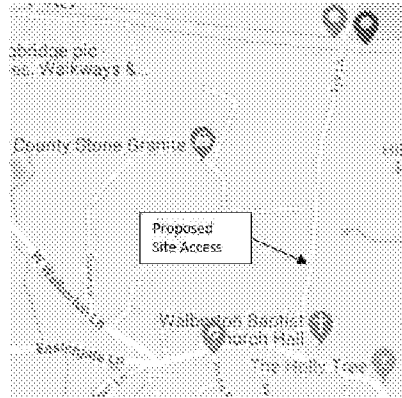


Figure 3: PIA Data – Tye Lane (Source: WSCC Safer Roads Partnership)

- 3.13 The data in Figure 3 does therefore not indicate a specific highways or safety concern that would worsen as a result of the development. It is also important to note that currently pedestrians walk within the carriageway on Tye Lane (and a number may continue to do so as a result of the development) and no incidents have been recorded.

Tye Lane/A27

- 3.14 Figure 3 also demonstrates that there have been two incidents recorded on the A27 in what appears to be the vicinity of the Tye Lane/A27 junction. However, both of these incidents have occurred on the eastbound carriageway, and therefore, again, there is no specific highways safety concern that would worsen as a result of the development.

Tye Lane/The Street

- 3.15 Figure 3 indicates that there have been no incidents recorded at the Tye Lane/The Street junction, with the closest incident recorded approximately 200m west of the junction which was classified as 'slight' in nature.

The Street/Yapton Lane Roundabout

- 3.16 The Street/Yapton Lane roundabout is located approximately 950m east of the proposed site. The PIA data demonstrated in Figure 4 has identified that only 1 incident has been recorded in the vicinity of the roundabout (albeit not on the roundabout itself) and therefore there are no highways safety concerns that would worsen as a result of the development.

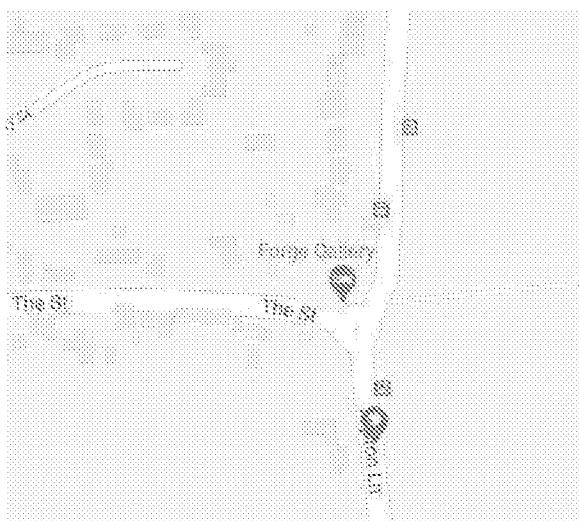


Figure 4: PIA Data – The Street/Yapton Lane (Source: WSCC Safer Roads Partnership)

Yapton Lane/A27 Junction

- 3.17 The Yapton Lane/A27 junction, like the Tye Lane/A27 junction provides a 'left turn only' onto the A27. Given the location of the site, it is anticipated that all vehicles turning left onto the A27 will utilise the Tye Lane/A27 junction and therefore the number of site vehicles using the Yapton Lane/A27 junction is likely to be low. None-the-less, the junction has been assessed for its safety, with the result of the PIA investigation demonstrated in Figure 5.

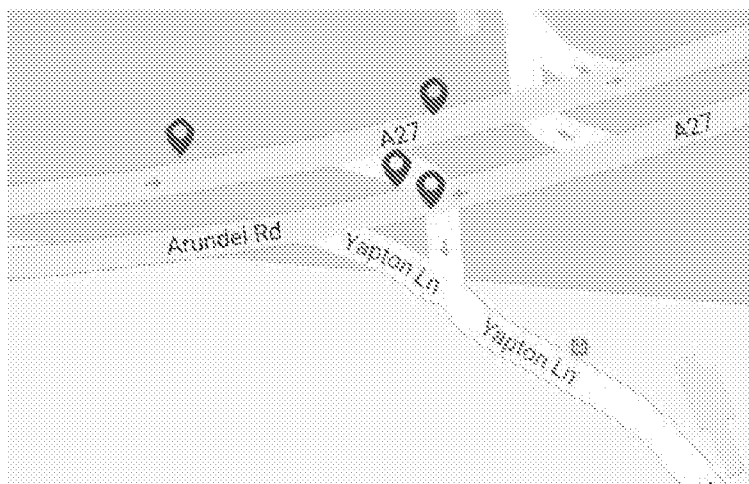


Figure 5: PIA Data – Yapton Lane/A27 (Source: WSCC Safer Roads Partnership)

- 3.18 Figure 5 demonstrates that only 2 incidents have been recorded on the westbound carriageway/at the turning into Yapton Lane. Whilst these were classified as 'serious' in nature, the number of incidents is low when considering the likely number of vehicle movements through this junction, and therefore there is no specific highways concern that would worsen as a result of the proposed development.

Lake Lane/Yapton Road

- 3.19 Lake Lane/Yapton Road is situated approximately 2.4km south east of the site. Yapton Road connects the A27 to the north to Yapton to the south, whilst Lake Lane provides a route to the industrial estates and into Barnham. The PIA data at this junction is demonstrated in Figure 6.

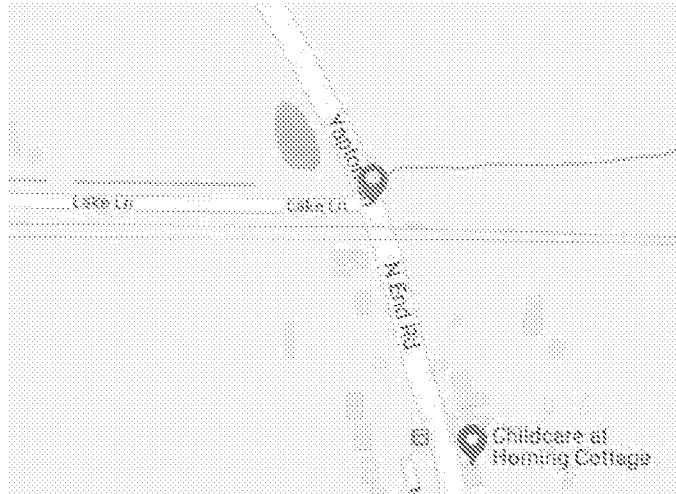


Figure 6: PIA Data – Yapton Lane/Lake Lane (Source: WSCC Safer Roads Partnership)

- 3.20 The PIA data at the Lake Lane/Yapton Road junction does not identify any specific highways concern that would worsen as a result of the development or pose a safety concern for future site users.

A27 Arundel Road Slip-road

- 3.21 The A27 Arundel Road junction situated approximately 1.4km west of the site provides a 'left turn' only slip road onto the A27. The PIA data demonstrated in Figure 7 below has identified only 2 incidents occurring at the junction itself, which, when considering the number of vehicles likely to be utilising the junction, is minimal.

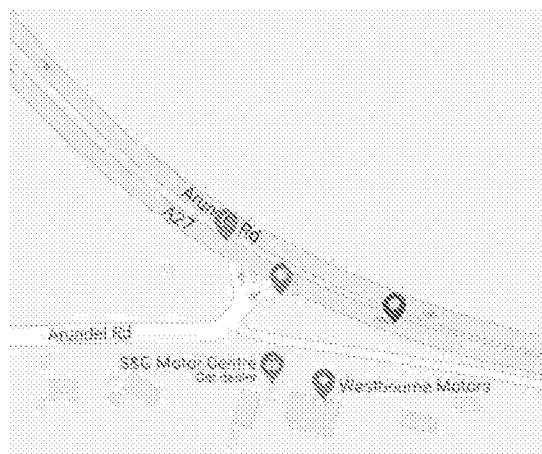


Figure 7: PIA Data – A27 Arundel Road (Source: WSCC Safer Roads Partnership)

A27/A29 Roundabouts

- 3.22 The A27/A29 roundabouts are located approximately 2-2.5km west of the proposed development site and provide key junctions in the local area. At the A27/A29 (Fontwell East Roundabout), a total of 6 incidents have been recorded either on the roundabout itself or on the approach arms. Of these, 2 were classified as 'serious' and 4 were classified as 'slight' in nature. The quantum of daily traffic movements at this junction is high, and the number of recorded PIA incidents is low and therefore there are no major safety concerns that would worsen as a result of the proposed development. The PIA data at the Fontwell East roundabout is demonstrated in Figure 8.

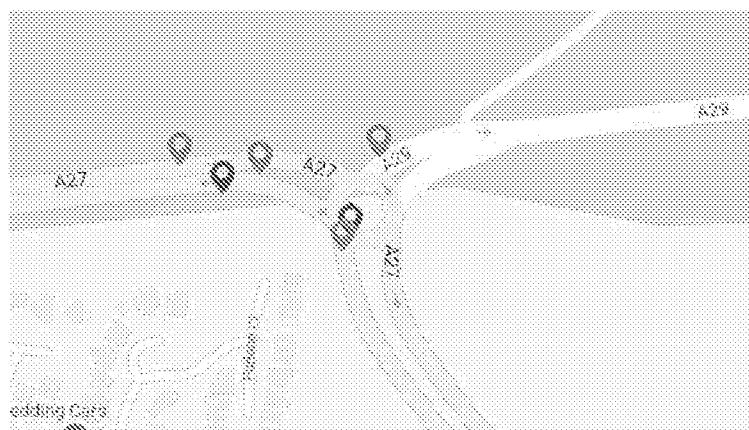


Figure 8: PIA Data – A27/A29 Fontwell East Roundabout (Source: WSCC Safer Roads Partnership)

- 3.23 The A27/A29/Arundel Road roundabout (Fontwell West Roundabout) demonstrates a cluster of incidents recorded on the roundabout. A total of 15 incidents were recorded on the roundabout itself, and of these, only 1 was classified as 'serious' in nature. The data is demonstrated in Figure 9.

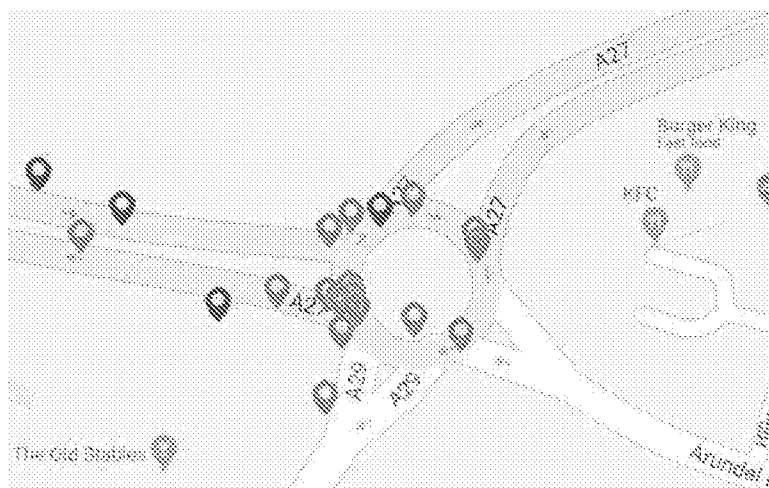


Figure 9: PIA Data – A27/A29 Fontwell West Roundabout (Source: WSCC Safer Roads Partnership)

- 3.24 Whilst any PIA is regrettable, the number of incidents recorded is low in comparison to the number of

daily and annual vehicle movements in this location. Improvements at this junction have also been made in the recent past and due to be made as a result of the Dandara development adjacent to this junction. The result of the PIA investigation does therefore not highlight or identify any existing safety concern that would worsen as a result of the proposed development.

Summary of PIA Data Assessment

- 3.25 The local junctions in the vicinity of the site which are likely to see an increase in vehicle traffic as a result of the proposed development have been assessed, with the scope of assessment identified by WSCC at the pre-application stage. The main summary point of the investigation is provided below:
- No incidents were recorded on Tye Lane itself, with no incidents recorded on The Street between Tye Lane and the village centre:
 - The local junctions have recorded low numbers of incidents, specifically at the key junction onto the A27 from Tye Lane: and
 - Whilst the A27/A29 roundabouts have higher number of recorded incidents, when compared to the daily and annual flows likely to be occurring, the figures are low.
- 3.26 The results of the PIA investigation have therefore not identified any accident hotspots that the development would need to provide specific mitigation for.



4. LOCAL ACCESSIBILITY

- 4.1 The application site access is approximately 500m from the village centre. The site's proximity to existing local amenities, pedestrian, cycle, public transport and equestrian networks, presents a good opportunity to encourage the use of sustainable transport and create a sustainable development.
- 4.2 A summary of the local facilities and amenities in the vicinity of the site and their associated walking/cycling distances measured from the site access is shown in Table 1 and illustrated in an 'Accessibility Map' included in Appendix C.

Amenity/Facility	Distance from Site Access	Walking Time (minutes)	Cycle Time (minutes)
Walberton Baptist Church	210m	3	1
Bus Stops	220m	3	1
The William Booker Yard (Industrial Units)	280m	4	1
Holly Tree Pub	350m	5	2
Walberton Play Centre	400m	5	2
Walberton and Binsted Primary School	450m	6	2
Walberton Village Hall	450m	6	2
Walberton Newsagent	550m	7	3
Walberton Post Office	550m	7	3
Walberton Dental Practise	550m	7	3
Flintcroft Surgery	550m	7	3
Walberton Cricket Ground	700m	9	3
Littlewoods Nursery	1.3km	20	5
Hilton Avisford Park Hotel and Golf Club	1.6km	20	6

Table 1: Local Amenities and Services

- 4.3 The Chartered Institution of Highways and Transportation (CIHT) outlines guidance for 'Providing for Journeys on Foot' (2000), which identified desirable, acceptable and preferred maximum walking distances for local amenities, as outlined in Table 2.

	Local Centre (m)	Commuting/Sight-seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred Maximum	800	2000	1200

Table 2: CIHT Guidance for Providing for Journeys on Foot (2000)

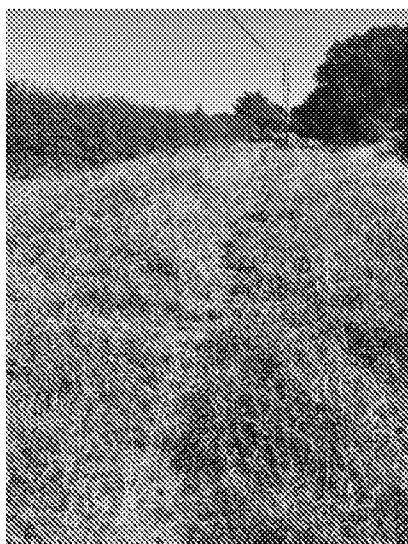
- 4.4 Table 2 demonstrates that there are numerous facilities within close proximity which are within the

desirable (bus stops, school, sports pitches, industrial estate), acceptable (doctors and dental practices) and the preferred maximum (local centre) walking distances for journeys on foot. This therefore highlights that there are realistic opportunities to promote and encourage sustainable travel for local journeys, particularly to school and to the local centre.

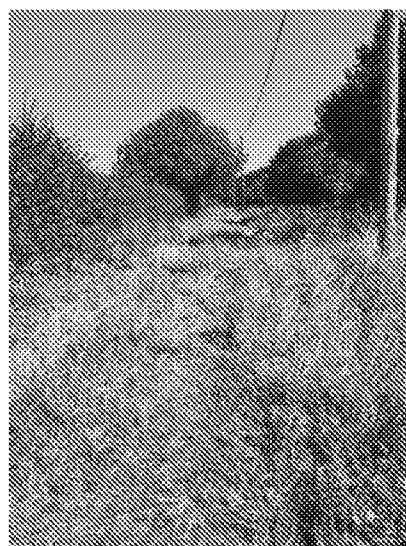
Local Pedestrian Network

Tye Lane

- 4.5 A footway flanks the western side of Tye Lane for approximately 10m from the junction with The Street, before this terminates, and pedestrians walk within the carriageway. In the immediate vicinity of the site, an informal pedestrian route was identified whilst on site. This included the use of the grass verge upon approach to the field access and subsequent Hooe Farm Industrial estate. This existing informal route is demonstrated in Photographs 5 and 6.



Photograph 5: Tye Lane Informal Pedestrian Route



Photograph 6: Tye Lane Informal Pedestrian Route

- 4.6 There is currently no formal pedestrian infrastructure in the vicinity of the site and therefore opportunities to both encourage walking from the site on Tye Lane and through alternative arrangements are explored later in this report. The existing pedestrian infrastructure on Tye Lane is demonstrated in Photograph 7.



Photograph 7: Tye Lane Footway

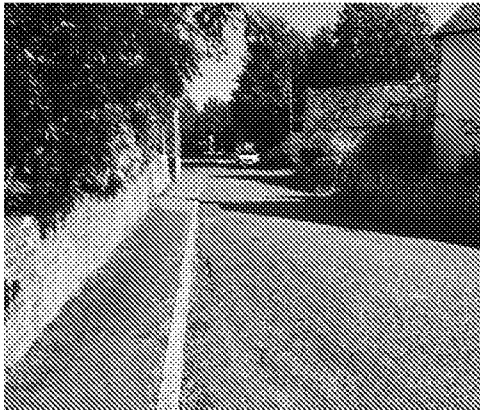
The Street

- 4.7 Tye Lane connects to The Street approximately 200m south of the proposed site. At this junction, The Street benefits from pedestrian footways on both sides of the carriageway which measure approximately 1.5m in width. Dropped kerbs are provided across Tye Lane to facilitate the safe and continuous movement of pedestrians in this area. The pedestrian infrastructure at this junction is demonstrated in Photograph 8.



Photograph 8: Tye Lane/The Street Junction

- 4.8 The Street provides the key pedestrian route through the village and towards the facilities and amenities. The Street is supported by a continuous pedestrian footway on the southern side of the carriageway, with northern footways provided intermittently. Dropped kerbs and tactile paving are provided where appropriate throughout the village, again ensuring a safe and continuous route for all non-motorised users in the area. The pedestrian infrastructure along The Street is demonstrated in Photographs 9 and 10.



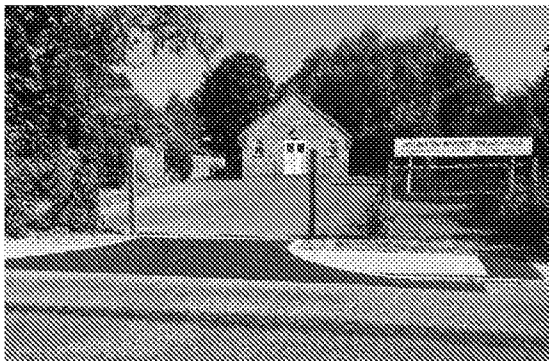
Photograph 9: The Street Footway



Photograph 10: The Street Pedestrian Infrastructure

Route to School

- 4.9 The Street provides the main pedestrian route to the local school (Walberton and Binsted Primary School). A continuous route between the site and the school is provided, albeit with pedestrians required to cross The Street a couple of times to ensure that they can walk on a footway. The route has been assessed; however, it is important to note that given the nature of the village, pedestrians and cyclists are already utilising the carriageway with vehicle speeds and volumes relatively low.
- 4.10 The Street benefits from a footway on the northern side for approximately 50m east of Tye Lane before it terminates at the bus stop. A new dropped kerb and tactile paving crossing has been implemented outside the Baptist Church in this location which provides a safe route to the bus stop for all non-motorised users, as demonstrated in Photographs 11 and 12.



Photograph 11: Crossing Facility Outside Baptist Church



Photograph 12: Termination of Footway at Bus Stop

- 4.11 Prior to the Baptist Church, there is an opportunity to cross pedestrians onto the southern footway, with a new dropped kerb crossing that can be provided through the proposed development. The location of this crossing is included in Appendix D.

- 4.12 Once pedestrians have crossed the carriageway and onto the southern footway, the remainder of the route to school can be taken from this footway, before crossing back onto the northern side at school. The footway is a minimum of 1.5m in width and is provided with dropped kerbs and flush crossings where appropriate. The conditions along The Street towards the school are demonstrated in Photographs 13 and 14.



Photograph 13: Southern Footway on The Street



Photograph 14: Southern Footway on The Street

- 4.13 A new dropped kerb crossing facility is provided at the junction with the William Booker Yard as demonstrated in Photograph 15.



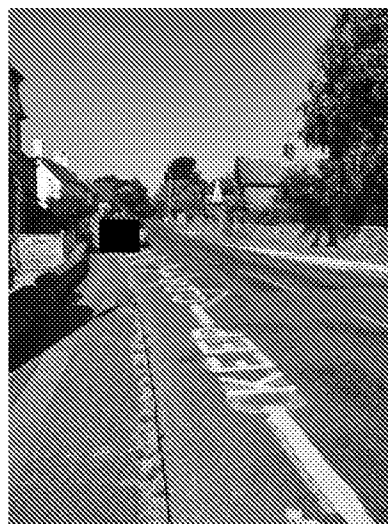
Photograph 15: Crossing facility at The Street/William Booker Yard Junction

- 4.14 Approximately 40m east of the William Booker Yard junction, students would need to cross the

carriageway in order to enter the school premises. Photographs 16 and 17 demonstrate the visibility from the southern footway at this location, enabling a safe route across The Street and into the school grounds.



Photograph 16: Primary Direction Visibility



Photograph 17: Secondary Direction Visibility

- 4.15 The route identified between the site and the primary school ensures that a safe and continuous route is provided for all non-motorised site users. The implementation of a new crossing facility will ensure that pedestrians don't need to walk within the carriageway (something that is common in the area already however), and therefore enhancing pedestrian safety in this area and on the route to both school and to the village centre.

Wider Pedestrian Network

- 4.16 A number of Public Rights of Way (PRoW) have also been identified within the study area, with footpath no.332 providing an alternative route between the site and the village centre (considered in greater detail later within this TA). The location of the local PRoWs is demonstrated in Figure 10.



Photograph 18: Shared Bridleway Conditions



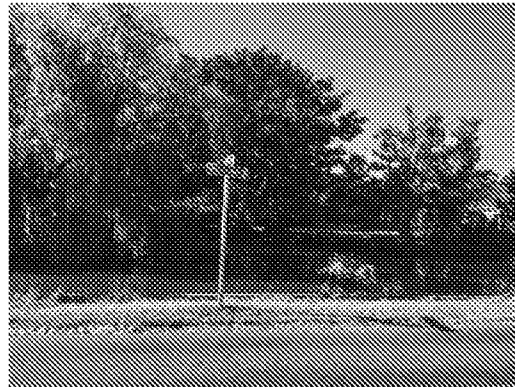
Photograph 19: Bridleway only Section

Cycle Network

- 4.20 There are currently no formal off-road cycle networks in the vicinity of the site, however, it is common for cyclists to cycle within the carriageway in and around the village. This is promoted using signage on the key cycle routes to make drivers aware and to help reduce vehicle speeds. The existing cycle infrastructure in the vicinity of the site area is demonstrated in Photographs 20 and 21.



Photograph 20: Cycle Routes



Photograph 21: Cycle Signage

- 4.21 As part of the West Sussex Walking and Cycling Strategy (2016 - 2026) a number of routes in the vicinity of the site were suggested and identified as potential improvement schemes. These include enhancing the links between Walberton and nearby villages of Barnham and Fontwell as well as Arundel. The location of the improvement schemes in relation to the proposed site is demonstrated in Figure 11.

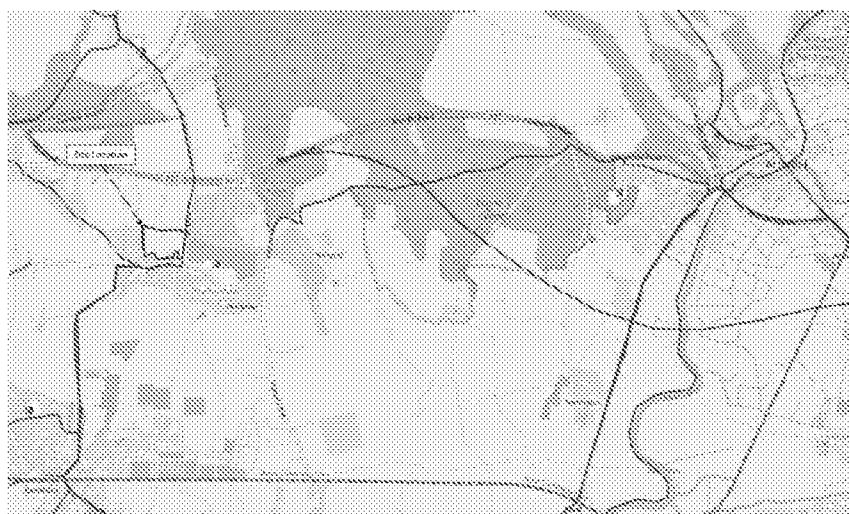


Figure 11: WSCC Cycle Improvement Schemes 2016 - 2026 (Source: WSCC)

Public Transport Provision

- 4.22 The closest bus stops to the site are situated on The Street. The eastbound bus stop is approximately 50m from the Tye Lane/The Street junction, with the westbound stop located approximately 70m from the junction. Both bus stops comprise a single pole and timetable. The services available from these bus stops are summarised in Table 3.

Service Number	Route	Frequency		
		Monday – Friday	Saturday	Sunday
85	Arundel – Walberton – Fontwell – Chichester	0808, 1208, 1608	No Service	No Service
85A	Arundel – Walberton – Barnham – Chichester	1008, 1408	No Service	No Service
66A (The Old Vicarage)	Bognor Regis – Barnham – Yapton – Walberton – Bognor Regis	0742, 1051, 1519, 1814	1051, 1519, 1814	No Service
66C	Bognor Regis – Barnham – Walberton – Yapton – Bognor Regis	0843, 1302, 1701	0843, 1302, 1701	No Service

Table 3: Local Bus Services

- 4.23 The bus services available present an opportunity to encourage bus travel by residents to local destinations, with journeys to Arundel taking approximately 15 minutes, journeys to Bognor Regis taking 40 minutes and journeys to Chichester taking approximately 30 minutes.
- 4.24 Barnham Station is located approximately 2.4km from the site and is accessible via cycle or bus. Bus service no. 66 presents an opportunity to encourage a bus-train-bus commuter journey, with bus journeys to the station taking 15 minutes.
- 4.25 Barnham Station is served by Southern Rail, with direct trains to destinations including Bognor Regis

Littlehampton, Brighton, Chichester, Portsmouth, Southampton and London. Journeys to Bognor Regis take approximately 7 minutes, journeys to Chichester take approximately 7 minutes and journeys to London take approximately 90 minutes.

Summary of Existing Conditions and Local Accessibility

- 4.26 The site is located on the eastern side of Tye Lane and within 500m of the village centre. The location of the site presents a good opportunity to encourage sustainable travel options for local journeys (specifically to school and the village centre), with the opportunity travel by bus and train realistic alternatives to the private car for destinations further afield.



5. DEVELOPMENT PROPOSALS

- 5.1 The proposed development would consist of up to 131 dwellings with associated car parking, and a proportion of the dwellings would be provided as affordable housing. Whilst the accommodation schedule is unknown at this stage, it is anticipated that a mixture of 1 – 5-bedroom properties will be provided. The indicative site layout is included in Appendix A.

Car Parking

- 5.2 Car parking will be provided in accordance with WSCC Guidance on Parking at New Developments (June 2020) which identified Walberton as forming part of Zone 1. The parking standards for Zone 1 are summarised in Table 4.

Number of Bedrooms	Number of Habitable Rooms	PZ1 (spaces per dwelling)
1	1 to 3	1.5
2	4	1.7
3	5 to 6	2.2
4+	7 or more	2.7

Table 4: WSCC Car Parking Standards

- 5.3 Car parking will be wholly contained on site to ensure that no overspill is placed on the local road network. The parking provided will ensure that an overprovision is not provided which would discourage the use of sustainable travel modes.
- 5.4 All parking spaces would measure 2.4m x 4.8m in accordance with Manual for Streets (MfS) design guidance with a 6m aisle width where appropriate. Where garages are provided, internal measurements of 3m x 6m will be provided in accordance with MfS design guidance. For parallel parking bays, the spaces will measure a minimum of 2.4m x 6m.
- 5.5 Visitor parking will also be provided in accordance with the guidance. National research suggests that 'no special provision should be made for visitors where at least half of the parking provision associated with the development is unallocated. In all other circumstances it may be appropriate to allow for additional demand for visitor parking of 0.2 spaces per dwelling'.
- 5.6 All houses on the development that are provided with a driveway and garage will be provided with active electric vehicle charging points in accordance with the ADC Parking Standards SPD (January 2020).

Cycle Parking

- 5.7 Cycle parking will also be provided in accordance with the standards which are summarised in Table 5.



Type	Dwelling Size	Cycle Provision (per unit)
Houses	1 & 2 Bed	1 space
	3+ Bed	2 spaces
	Multiple Occupation	1 space
Flats	1 & 2 Bed	0.5 spaces (if communal storage otherwise same as 1 & 2 Bed house)
	3+ Bed	1 space

Table 5: WSCC Cycle Parking Standards

- 5.8 For every house provided with a garage, the dimensions of the garage are at least 3m x 6m to accommodate the cycle parking requirements. All other houses would be provided with a secure shed within the rear garden of the property, with direct access to the rear garden either via a side gate or rear gate. Any flats or maisonettes on the development will be provided with secure cycle stores.

Internal Road Layout

- 5.9 The parameters of the site layout would be designed to create an attractive and permeable pedestrian and cycle environment. The development access road would measure 6m in width, after which the carriageways narrow and become more reflective of MfS design principles. A carriageway width of 4.8m is sufficient in accommodating a car and a larger vehicle to pass simultaneously. To summarise, the design principles on which the scheme will be based:
- Access road to measure 6m in width, before narrowing to 4.8m – 4.1m upon entry to cul-de-sacs.
 - 2m wide footways flanking either side of main estate roads throughout the site.
- 5.10 As the internal road moves towards the outskirts of the site into quieter cul-de-sacs, there will be shared-surface carriageways adopting 'home zone' principles.
- 5.11 In accordance with MfS design guidance and with an internal design speed of 20mph, internal junctions and forward alignments would be designed to achieve the required inter-visibility for vehicles travelling up to 20mph within the site. Any planting provided within the visibility envelope would be maintained to below 600mm in height.
- 5.12 The suitability of the internal layout would be assessed at the Reserved Matters stage.

6. TRIP GENERATION

- 6.1 This section of the report assesses the likely vehicular and pedestrian movements to be generated by the proposed development.

Vehicular

- 6.2 As part of the pre-application discussions, WSCC highway officers stated that the vehicular trip rates submitted as part of the draft TA compiled by Mayer Brown were too low when compared with those set out in the outline application adjacent (reference: WA/44/17/OUT). Trip rates derived from the adjacent application (ref: WA/44/77/OUT) were subsequently submitted alongside the previous application for up to 155 units, and have again been used for this revised application. These trip rates and subsequent trip generation are summarised in Table 6 and were found acceptable to WCC with the previous application.

Vehicular Trip Rates	AM Peak Period (0800 – 0900)		PM Peak Period (1700 – 1800)		Total Daily Trips
	Arrivals	Departures	Arrivals	Departures	
Trip Rate per Dwelling	0.143	0.401	0.364	0.212	4.944
Trip Generation (131 Dwellings)	19	53	48	28	648

Table 6: Approved Trip Rates and Subsequent Trip Generation (application WA/44/17/OUT)

- 6.3 Table 6 demonstrates that the proposed development would be anticipated to generate 72 vehicle movements in the AM peak period, 76 vehicle trips in the PM peak period and 648 vehicle trips across a 12 hour period.
- 6.4 The impact of the proposed development on the operation of the local and wider road network has been explored further later in this report.

Pedestrian

- 6.5 In order to calculate the pedestrian movements likely to be generated by the proposed development a TRICS assessment has been undertaken. The parameters applied to the assessment accord with those set out within the Land east of Tye Lane application (WA/44/17/OUT) for generating the vehicular trip rates. For reference, the parameters are provided below:

- TRICS v.7.7.2 database:
- Residential – Houses Privately Owned Use Class:
- Sites in England and Wales (Excluding Greater London):
- 50 – 500 dwellings:
- Weekday surveys only: and



- Suburban and Edge of Town Locations

6.6 The results of the TRICS survey are demonstrated in Table 7, with the full outputs included in Appendix E.

Pedestrian Trip Rates	AM Peak Period (0800 – 0900)		PM Peak Period (1700 – 1800)		Total Daily Trips
	Arrivals	Departures	Arrivals	Departures	
Trip Rate per Dwelling	0.032	0.080	0.050	0.025	0.879
Trip Generation (131 Dwellings)	4	10	7	3	115

Table 7: Pedestrian Trip Generation

6.7 Table 7 demonstrates that the proposed development would be anticipated to generate 14 pedestrian movements in the AM peak period, 10 pedestrian trips in the PM peak period and 115 pedestrian trips across a 12 hour period.

6.8 The existing pedestrian infrastructure in the vicinity of the site has been identified previously, with consideration to pedestrian access to the site discussed in the subsequent chapter.



7. ACCESS ARRANGEMENTS

Existing Tye Lane Accesses

- 7.1 As requested through the pre-application, commentary and assessment on the existing accesses being served from Tye Lane is provided.
- 7.2 An existing field gate access is provided within the red line boundary of the proposed site. This access will be closed off as part of the application given that the horses currently on site will be relocated. This access is demonstrated in Photograph 22.



Photograph 22: Existing Field Gate Access

- 7.3 To the north of the site, existing established accesses are present and currently serving an existing residential property and the Hooe Farm Industrial Estate. The proposed development and the location of its access will not cause a conflict with these existing accesses. The existing accesses are demonstrated in Figure 12.

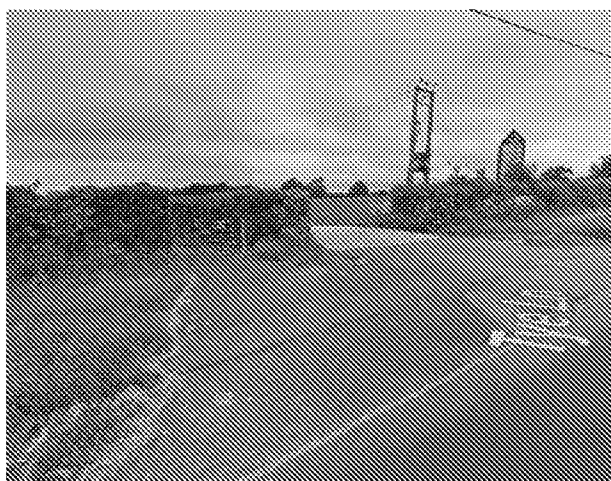


Figure 12: Existing Accesses on Tye Lane (Source: Google)

Vehicular Access

- 7.4 The proposed site would be served by a single vehicular access onto Tye Lane. The type of vehicular access required has been established using the likely trip generation for the site, the observed conditions whilst on site and the results of an Automated Traffic Count (ATC) survey undertaken along Tye Lane in the vicinity of the proposed site access between 24th February and 3rd March 2018.
- 7.5 The ATC results are provided in Table 8, with the full outputs included in Appendix F.

Tye Lane	Weekday AM (0800-0900) Volume	Weekday PM (1700-1800) Volume	Total Daily Flows (24hr, 5-day average)
Northbound	52	21	387
Southbound	28	47	389
Total	80	68	776

Table 8: Tye Lane Traffic Survey Summary

- 7.6 According to the CD 123 (Geometric design of at-grade priority and signal-controlled junctions), a ghost island right turn lane should be '*considered*' given the quantum of traffic generated by the site. However, as the flows on the 'major road' (Tye Lane) are low (776 vehicles per day), a simple priority junction would be suitable in serving the development.
- 7.7 The access would therefore be provided in the form of a bellmouth arrangement. The access road would measure 6m in width, would be supported by 6m corner radii and will be provided. The access design ensures that two vehicles can pass simultaneously when turning in and out of the access. The access design is included in Appendix G.
- 7.8 An existing verge is provided adjacent to the proposed site access which would be regraded and reduced in order to accommodate the access and the visibility splay requirements. At the centre of the proposed access, the gradient will be provided at 1:20, in accordance with design guidance.
- 7.9 An independent Stage 1 Road Safety Audit (RSA) was undertaken in September 2020 for the proposed access arrangement. The RSA identified a possible problem in relation to visibility and the presence of vegetation. The banking/vegetation will be cut back and maintained to below 600mm in height in accordance with MfS design guidance. The RSA output and designer's response are included in Appendix H for reference.

Visibility

- 7.10 Speed surveys were undertaken across the site frontage to establish the vehicle speeds and resultant visibility splays required at the site access. Tye Lane is subject to a 60mph speed limit across the site



frontage, however 85thile speeds of 40mph southbound and 41mph northbound were recorded. Through pre-application discussions with WSCC, the highway officer requested that visibility should be demonstrated to accord with these recorded speeds, and therefore are demonstrated to 120m.

- 7.11 In addition, it was also noted that through the pre-application discussions, a 2.4m 'X' distance would be a departure from standard and therefore a 4.5m 'X' distance has been applied. A visibility splay drawing from the site access is included in Appendix G.

Road Safety Audits

- 7.12 An additional independent Stage 1 RSA has been undertaken as requested at the pre-application stage for the Tye Lane/The Street Junction, albeit with the vehicular impact at the junction relatively limited. The Tye Lane/The Street RSA identified current concerns with the following:

- Restricted visibility from the junction by existing vegetation:
- A lack of pedestrian facilities across the junction:
- Insufficient inter-visibility could lead to rear end shunts or vehicle to pedestrian collisions: and
- Worn road marking could lead to side impact of rear end shunt collisions.

- 7.13 In response to the RSA concerns (albeit with no recorded in any PIAs in the previous 5 years), a number of junction improvements have been suggested, which are summarised subsequently.

- 7.14 At present, visibility is restricted at the junction given the alignment and vegetation present. The road widths also fluctuate between 5.7m and 7.4m through the junction. It is proposed that, given the majority of vegetation to the east of the junction is not within the highway ownership (although is overgrowing the highway), the give-way markings are brought forward by 0.7m to improve the available visibility. In doing so, the concern in relation to the suitability of the faded road markings will also be addressed with these re-provided as part of the junction improvements. This would retain a major road width of 6m at the junction, which would still be sufficient for larger vehicles travelling through the village.

- 7.15 It is also proposed that the eastern radius of the junction is tightened to provide an opportunity to implement a crossing facility across Tye Lane in this location, given that the bus stop is located to the east of the junction. This would provide a significant betterment to the existing arrangement, whereby no pedestrian provision is currently provided to access the bus stop. In addition, the tightening of the radius would provide a betterment to visibility for non-motorised users at this junction, especially those looking northbound on Tye Lane.

- 7.16 It is important to stress that there has been no accident history recorded at the junction in its current

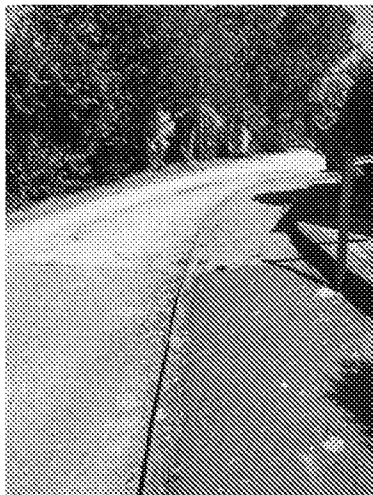


arrangement and therefore the proposed junction improvements will only enhance the opportunities and safety for all road users.

- 7.17 The full RSA output and designer's response (as signed off by WSCC) are included in Appendix I.

Pedestrian Access

- 7.18 Given the lack of infrastructure along Tye Lane, a suitable alternative pedestrian route has been assessed. It is noted that as part of the pre-application discussions, North Pound was to be considered however this is not within highways ownership and so has been discounted.
- 7.19 A second option through Field Close has been assessed, which is located in the south western corner of the site boundary. Whilst it is noted that the pre-application comments suggested that a route in this area is not favourable given the additional distance to the local facilities and amenities, the landowner has right of access through this route and therefore a safe alternative to Tye Lane can be provided.
- 7.20 Field Close is situated in the south-western corner of the proposed site, and currently provides access to 3 dwellings. The existing condition of the carriageway could be upgraded as part of the proposed development to make it suitable for pedestrians/shared surface. The existing condition are demonstrated in Photographs 23 and 24.



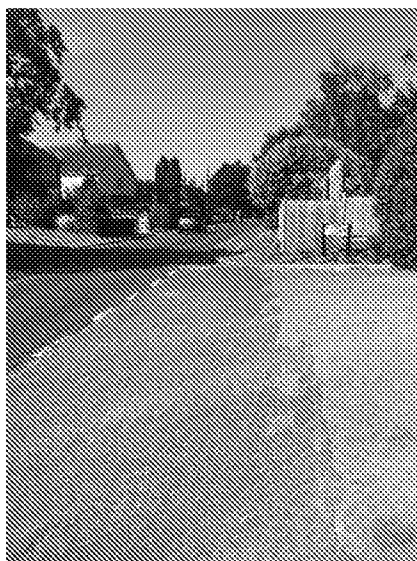
Photograph 23: Field Close Conditions



Photograph 24: Field Close connection to Site

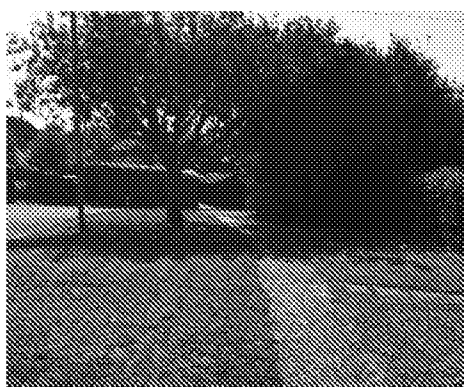
- 7.21 Field Close joins The Street via a priority junction approximately 50m south of the proposed pedestrian site access. An existing footway is provided on the northern side of The Street in this location which ensures a safe and continuous route is provided between the site and Tye Lane (where the route then becomes the same as previously identified for the route to school). Visibility from this junction is good (as demonstrated in Photograph 25) and therefore provides an opportunity for residents to cross onto

the southern footway.

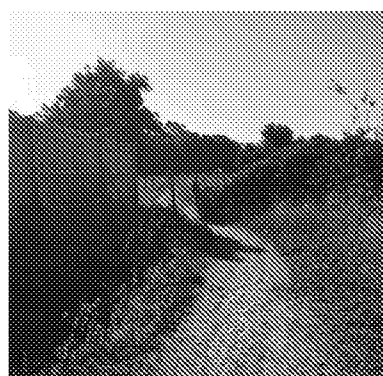


Photograph 25: Field Close Visibility

- 7.22 To the south of Field Close, Pound Road provides access to public footpath no. 332 which connects The Street to Church Lane. This provides an alternative route for pedestrians between the site and the village centre amenities. The footpath route is of a good condition for its duration, however additional advisory signage would be beneficial to illustrate the route to the village centre specifically on Pound Road and upon entrance to the fields (as two paths emerge). The footpath route is demonstrated in Photographs 26 and 27.



Photograph 26: Footpath on Pound Road



Photograph 27: Footpath route towards Church Lane

Off-site Highway Improvements

The Street

- 7.23 Through the WCHAR which has been submitted alongside this report, opportunities to improve the pedestrian network were identified. In particular, this has identified that a new crossing facility from the

northern footway on The Street circa 20m east of the junction with Tye Lane would be beneficial in order to ensure pedestrians can safely cross onto the southern footway to continue their journeys into the village centre.

- 7.24 The crossing will be provided with dropped kerbs and tactile paving, with a drawing demonstrating this crossing facility, complete with visibility splays provided in Appendix D.

Tye Lane

- 7.25 The highway comments received from WSCC on the previous application for 155 dwellings (planning ref: WA/68/20/OUT) detailed their preference for a footway to accompany the vehicular access along Tye Lane, continuing south and connecting into The Street.
- 7.26 As part of the application for vehicular access to Land to the East of Tye Lane submitted by Linden Homes, a vehicular access is proposed onto Tye Lane together with an accompanying footway which routes alongside the eastern edge of Tye Lane between the Linden Homes vehicular access and The Street. In response to this WSCC have indicated that their preference would be for the footway to route along the western edge of Tye Lane as there is a wider highway verge and therefore less need to restrict the width of the footway.
- 7.27 Having considered WSCC's comments, a footway design has been prepared which routes along the western edge of Tye Lane. The proposed footway maintains a 1.5m footway between the Land West of Tye Lane vehicular access and The Street. This footway proposes two alternative options to connect into the footway accompanying the Linden Homes site, depending on whether they construct the consented pedestrian only access or the currently proposed vehicular access onto Tye Lane (subject to planning consent). The arrangement for this footway, together with the two connection options, is shown at Appendix J.
- 7.28 As can be seen from the drawing at Appendix J, the footway measures a consistent 1.5m along its entire length, between the vehicular access to the north and The Street to the south, connecting into the existing section of footway along Tye Lane to the southern extent. As a result, the carriageway width is restricted in places to between 4.8-5.0m. The carriageway width of Tye Lane is currently c. 5m so this narrowing only takes place in certain places and is considered appropriate given the current characteristics of Tye Lane.
- 7.29 The only anomaly to the above is where, due to restricted land availability, the carriageway is reduced to a width of 4.1m (still sufficient for 2 cars to pass according to Manual for Streets) and as a result the footway is reduced to 1.3m. This narrowing takes place over a distance of c.10m towards the south of



Tye Lane and is considered necessary to provide a footway of acceptable width whilst maintaining a carriageway width suitable for two cars to pass. This footway link was found acceptable to WSCC with the previous 155 dwelling application, and we would therefore anticipate this to remain acceptable with the smaller quantum of development.

Refuse and Servicing

- 7.30 Servicing would take place internally within the site boundary in order to reduce the impact on the local road network. It is envisaged that kerbside collection would be undertaken for the properties and where shared surfaces terminate in a cul-de-sac, the carry and/or reversing distances would be in accordance with MfS best practice guidance of 30m for residents and 25m for refuse collectors.
- 7.31 Fire tender vehicles will be able to get within 45m of all dwellings in accordance with MfS design guidance. Swept path analysis of the site access has been undertaken, with internal analysis to be submitted at the Reserved Matters stage.
- 7.32 Tracking of the access has been undertaken to demonstrate that servicing vehicles can be accommodated, and is attached as Appendix G.



8. TRIP DISTRIBUTION AND ROUTE ASSIGNMENT

8.1 In order to assess the likely impact of the development on the local road network, the distribution of trips has been assessed using data obtained from the 2011 'Travel to Work' Census Data for Arun 003. Data set WF01BEW has been assessed to determine the likely destinations and route residents of the proposed development would use and by which proportion.

8.2 Table 9 summarises the main destinations of residents currently residing in Arun 003 (Walberton) along with the route most likely used. Table 10 then summarises each route by percentage of residents expected to use each one. The full Census data is included in Appendix K.

Destination	Percentage	Route Assignment
Chichester	34%	100% A27 westbound
Arun 003: Eastergate/Westergate	14%	100% The Street/ Eastergate Lane
Worthing	5%	100% A27 Eastbound
Arun 017: Bognor Regis	4%	50% North End Road, 50% Eastergate Lane
Arun 001: Arundel	4%	100% A27 Eastbound
London Districts	3%	100% A29 NB
Arun 014: North Bognor Regis	3%	50% North End Road, 50% Eastergate Lane
Horsham	3%	100% A27 Eastbound
Arun 006: Yapton	2%	100% North End Road
Portsmouth & IQW	2%	100% A27 westbound
Arun 012: North Bersted	2%	100% The Street/ Eastergate Lane
Havant	2%	100% A27 westbound
Arun 004: Toddington	2%	50% A27 EB, 50% North End Road
Arun 011: Littlehampton Central	2%	50% A27 EB, 50% North End Road
Brighton and Hove	1%	100% A27 Eastbound
Arun 009: Littlehampton East	1%	50% A27 Eastbound, 50% North End Road
Crawley	1%	100% A27 Eastbound
Adur	1%	100% A27 Eastbound
Arun 005: Angmering	1%	50% A27 Eastbound, 50% North End Road
Arun 016: Bognor Regis West	1%	50% North End Road, 50% Eastergate Lane
Arun 007: Rustington	1%	100% North End Road
East Hampshire	1%	100% A27 westbound
Guildford	1%	100% A29 NB
Fareham	1%	100% A27 westbound
Other	8%	1% North End Road, 1% Eastergate Lane, 1% A29 NB, 3% A27 WB, 2% A27 EB
TOTAL	100%	N/A

Table 9: Residents' Place of Work (2011 Travel to Work Statistics)

Route Assignment	Percentage
North End Road	11%
Eastergate Lane	21%
A27 Westbound	43%
A27 Eastbound	20%
A29 SB	0%
A29 NB	5%
TOTAL	100%

Table 10: Route Assignment by Percentage

- 8.3 The percentages submitted by Mayer Brown as part of the pre-application stage identified that 62% of development traffic was anticipated to travel northbound on Tye Lane to the A27 junction, with the remaining 38% travelling southbound; of which 14% were to travel east on The Street and 24% were to travel west. These distribution percentages were not considered robust for this assessment by WSCC at the pre-application stage and rather consideration should be given to those submitted as part of the outline application on land east of Tye Lane (application reference: WA/44/17/OUT). Therefore, a comparison has also been made with regards to the distributions for that application.
- 8.4 The outline application (reference: WA/44/17/OUT) identified that 68% of development traffic would travel northbound on Yapton Lane to the A27. From there, 50% would continue along the A27 westbound (albeit 6% would use A29 southbound), 13% would complete a U-turn and head eastbound along the A27 and 5% would travel northbound on the A29. Of the 32% travelling southbound from the site, 22% would use North End Road, 5% would use The Street and 5% would use Lake Lane.
- 8.5 The distributions from the proposed development site also suggest a 68/32 split north and southbound respectively. Of the 68% travelling along the A27, 43% is anticipated to continue along the A27 westbound, 5% is anticipated to travel northbound on the A29 and 20% are anticipated to complete a U-turn to continue eastbound. These figures are very similar to those submitted and approved as part of the Land east of Tye Lane application. For southbound traffic, 21% of development trips are anticipated to travel along Eastergate Lane (or Barnham Lane) with the remaining 11% anticipated to use North End Road.
- 8.6 These vary slightly to the Land east of Tye Lane application but are representative of the proposed site's location in relation to Eastergate Lane, which would be utilised for destinations including Eastergate/Westergate and Bognor Regis, whereas the Land East of Tye Lane application would have routed via the A27 and subsequently the A29 southbound. Similarly, the proposed development does not anticipate any vehicles utilising Lake Lane to access Barnham, or a percentage using the A29 southbound from the A27/A29 Fontwell West roundabout.
- 8.7 The distribution of the development traffic from the site access is summarised within the following



paragraphs of the report and subsequently demonstrated in the distribution diagram included in Appendix L, however it is felt that these proposed distributions are representative of the site's location and therefore some variation is necessary when compared to the Land East of Tye Lane application. The distributions outlined remain consistent with those found acceptable to WSCC and National Highways with the previous application.

Site Access

- 8.8 Using the data outlined in Table 10 and Appendix L, it is anticipated that 68% of the development traffic would turn left out of the site and head towards the A27. The remaining 32% are anticipated to travel southbound on Tye Lane.

Tye Lane/A27 Junction

- 8.9 Given that the Tye Lane/A27 junction is provided as 'left out' only, all 68% of development traffic will travel westbound along the A27 towards the Fontwell East roundabout, before continuing their journeys as appropriate (and discussed subsequently). As there is no right turn available back into the Tye Lane/A27 junction, vehicles arriving to the site from the west have been suitably distributed onto other junctions on the local road network. Traffic from the east can utilise the Tye Lane/A27 junction to enter the site.

A27/A29 Farmile Bottom Roundabout (Fontwell East Roundabout)

- 8.10 It is anticipated that of the 68% of development traffic utilising this roundabout, 20% are likely to complete a U-turn to continue eastbound along the A27 towards destinations including Arundel and Brighton. 5% of development traffic is anticipated to utilise the A29 (NB) arm towards Pulborough, areas of Chichester District and the South Downs National Park. The remaining 43% of traffic is anticipated to continue on the A27 westbound to the A27/A29 Fontwell West roundabout.
- 8.11 For vehicles arriving to the site, the 20% of vehicles who completed the U-turn back along the A27 eastbound will return to the site via the Tye Lane/A27 junction. For both the 5% travelling back from the A29 (NB) and the 43% continuing along the A27 towards the A27/A29 Fontwell West roundabout, these have been distributed onto the A27/A29 Fontwell West roundabout and specifically the A29 Fontwell Avenue (SB) arm which connects to Eastergate Lane and subsequently back onto The Street.

A27/A29 Fontwell Avenue Roundabout (Fontwell West Roundabout)

- 8.12 It is anticipated that of the 43% of development traffic utilising this roundabout, all are likely to continue straight across and continue on the A27 westbound. No vehicular traffic is anticipated to travel southbound on the A29 from this roundabout given the connection between the site and Eastergate Lane.



- 8.13 For vehicles arriving to the site, the 43% of vehicles travelling from the A27 are anticipated to enter the roundabout and exit via the A29 Fontwell Avenue in order to complete their journey via Eastergate Lane and The Street. They are also joined by the 5% arriving from the A29 Farmile roundabout.

Tye Lane/The Street Junction

- 8.14 Of the 32% of development traffic travelling southbound from the site, it is anticipated that 11% would turn left onto The Street and head towards the village centre and out to Yapton Lane. The remaining 21% of vehicles are anticipated to turn right onto The Street and subsequently onto either Eastergate Lane or Barnham Lane. For vehicles arriving at the site, the 11% arriving from the east will turn right into Tye Lane, whilst the 21% from the west will turn left in. The 21% of vehicles arriving from the west are also joined by the 48% associated with movements from the A29 (NB) road and the A27 from destinations such as Chichester and Portsmouth.

The Street/Yapton Lane/North End Road Roundabout

- 8.15 Of the 11% of development traffic travelling eastbound along The Street, all of the vehicles are anticipated to travel southbound at The Street/Yapton Lane/North End Road roundabout to continue their journeys.

Traffic Surveys

- 8.16 In order to establish the baseline traffic flows on the local road network, ATC surveys were undertaken on Tye Lane (between 24th February and 3rd March 2018), as demonstrated in Table 8 (Section 6). In addition, turning count survey data was also obtained in March 2018 at the following junctions:
- Tye Lane/A27 junction: and
 - Tye Lane/The Street junction.
- 8.17 In order to establish the baseline traffic flows on the local road network at the required junctions for capacity assessments, the turning count data has been obtained from the outline application on land east of Tye Lane for the following junctions (reference: WA/44/17/OUT):
- The Street/ Yapton Lane Roundabout:
 - Yapton Lane Railway Crossing:
 - Yapton Lane/A27 junction:
 - A29 Fontwell Avenue/A27 Arundel Road Roundabouts
- 8.18 The suitability of using this data should be considered acceptable given that the surveys were undertaken between 2nd February 2017 and 21st March 2017 and are therefore around 4 years old.



TEMPRO Traffic Growth

- 8.19 As the baseline traffic surveys along Tye Lane and at the Tye Lane/The Street and Tye Lane/A27 junctions were undertaken in 2018, a growth factor has been applied to gain a 2020 baseline which can be used to assess the site access capacity for the application year.
- 8.20 In addition, the data obtained from the outline application (reference: WA/44/17/OUT) from 2017 has had growth factors applied which were set out within the TA that supported the application to establish the future impact of the traffic on the local road network and in accordance with the scope agreed at the pre-application stage. At the pre-application stage, it was suggested that the years of assessment reflect those set out within application WA/44/17/OUT.
- 8.21 The application at Land east of Tye Lane identified that a traffic impact assessment should be carried out for the projected 'Opening Year' of development, assuming full development occupation and full occupation of all relevant Committed Development sites along with background traffic growth, and the end of the local plan period (currently being 2031). Application WA/44/17/OUT presented the opening year to be 3 years after the base year, and therefore the same approach has been applied to this development. Therefore, the years of assessment are provided as follows:
- 2020 Baseline:
 - 2023 Opening Year + Committed Development:
 - 2023 Opening Year + Committed Development + Proposed Development:
 - 2031 Forecast + Committed Development:
 - 2031 Baseline + Committed Development + Proposed Development:
- 8.22 The TEMPRO growth rates are summarised in Table 11. It should be noted that the 2018 – 2020 and the 2018 – 2023 TEMPRO growth rates were submitted as part of the Draft TA prepared by Mayer Brown and were not query by WSCC at the pre-application stage.



TEMPRO	Growth Factor	
2017 – 2020 (as per application WA/44/17/OUT)	AM	1.0330
	PM	1.0320
2018 – 2020	AM	1.0215
	PM	1.0211
2017 – 2023	AM	1.0702
	PM	1.0720
2018 – 2023	AM	1.0629
	PM	1.0630
2017 – 2031 (as per application WA/44/17/OUT)	AM	1.140
	PM	1.143
2018 – 2031	AM	1.1191
	PM	1.1242

Table 11: TEMPPO Growth Rates

Committed Development

8.23 A number of committed developments in the area have been considered in order to establish the predicted traffic pressures on the local road network before the development traffic is added. At the pre-application stage, the 'Committed Developments' that would require consideration as part of an application were identified as those outlined within the Draft TA prepared by Mayer Brown and the developments which make up the SD7 strategic site set out within the Arun District Local Plan. The specific developments to be considered as Committed Development are summarised below:

- Land east of Tye Lane, Walberton (application reference: WA/44/17/OUT):
- Land east of Drove Lane, Yapton (Y/92/17/OUT) and Land at Bilsham Road, Yapton (Y/91/17/OUT) – SD7

8.24 The location of these sites in relation to the proposed development site (Site A) is demonstrated in Figure 13.



Figure 13: Location of Committed Developments

B: Land east of Tye Lane, Walberton

8.25 This application was submitted in 2017 for up to 175 dwellings and concluded that 109 trips would be generated in the AM peak period and 115 trips in the PM peak period (albeit the assessment was completed for up to 200 dwellings). Whilst a level of the development has already been constructed, given that the baseline surveys were undertaken in 2018, all of the traffic flows generated by the site have been added to the local road network. The resultant distributions are therefore reflected in the distribution diagrams included in Appendix L. Whilst an uplifted application with vehicle access onto Tye Lane has been submitted, this was refused and so the consented scenario has access onto Yapton Road.

C: Land east of Drove Lane and Land at Bilsham Road, Yapton

8.26 These applications were submitted in 2017 for a minimum of 500 dwellings, split between two applications. The land east of Drove Lane application (reference: Y/92/17/OUT) was submitted for approximately 300 dwellings, with the application at Bilsham Road (reference: Y/91/17/OUT) submitted for up to 250 dwellings. The accompanying TAs identified that a total of 280 vehicle trips would be generated in the AM peak period and 263 vehicle trips would be generated in the PM peak period. The resultant distributions on the local road network have been added to the distribution diagrams in Appendix L.

8.27 Within the TAs submitted to support the SD7 strategic site at Yapton, a number of additional 'Committed Developments' were also referred to that need to be considered. Specifically, these related to:

- Brookworth Homes (application reference: F/15/PL) for 45 dwellings:

- Land south of Fellows Gardens (application reference: Y/30/13) for 34 dwellings:
- Land north of Burndell Road (application reference: APP/C3810/A/11/2155343) for 173 dwellings:
- Land at North End Road (application reference: Y/93/14) for 38 dwellings:
- Land at Bonhams Field, Main Road, Yapton (application reference: Y/1/17/OUT) for 56 dwellings: and
- Land south of Burndell Road (application reference: Y/19/16/OUT) for 108 dwellings.

8.28 Aside from the two planning applications off Burndell Road, the listed committed developments above have not been considered further given the low quantum of traffic generated by the sites and the minimal volumes that would be placed through any junction in the vicinity of the proposed development.

8.29 The land north of Burndell Road application (Y/81/10) was submitted and refused in 2010, but subsequently approved at appeal in 2011. As this development was permitted 10 years ago, the traffic flows associated with the site are already on the local road network and would be recorded within the ATC surveys undertaken in 2018. As such, no further assessment of this application has been undertaken.

8.30 The land south of Burndell Road planning application (Y/19/16/OUT) was submitted and refused in 2016, but subsequently approved at appeal in 2017. As this application was permitted in 2017, and given the distance from the proposed development site, the associated vehicle flows are minimal through junctions we will be assessing and will therefore not be considered further as part of this application.



9. JUNCTION CAPACITY ASSESSMENT

9.1 To identify the highway impact of the development proposals, junction capacity analysis has been undertaken at a number of key local junctions.

Scope of Assessment

9.2 The spatial scope of the modelling assessment required to support the development was informed by the distribution of vehicular trips on the highway network and was agreed through pre-application discussions with WSCC. Therefore, the following junctions were identified as requiring assessment:

- Site Access:
- Tye Lane/The Street junction:
- Tye Lane/A27:
- Arundel Road (to the A29/A27 Fontwell West roundabout):
- A29 Fontwell Avenue/A27 Arundel Road (Fontwell East roundabout):
- A29 Fontwell Avenue/A27 Arundel Road (Fontwell West roundabout):
- The Street/Yapton Lane roundabout:
- Yapton Lane/A27 Arundel Road:
- Lake Lane/Yapton Lane: and
- Impact on the railway crossing on Yapton Lane/Lake Lane/North End Road

9.3 The location of the junctions in relation to the site access is demonstrated in Figure 14.

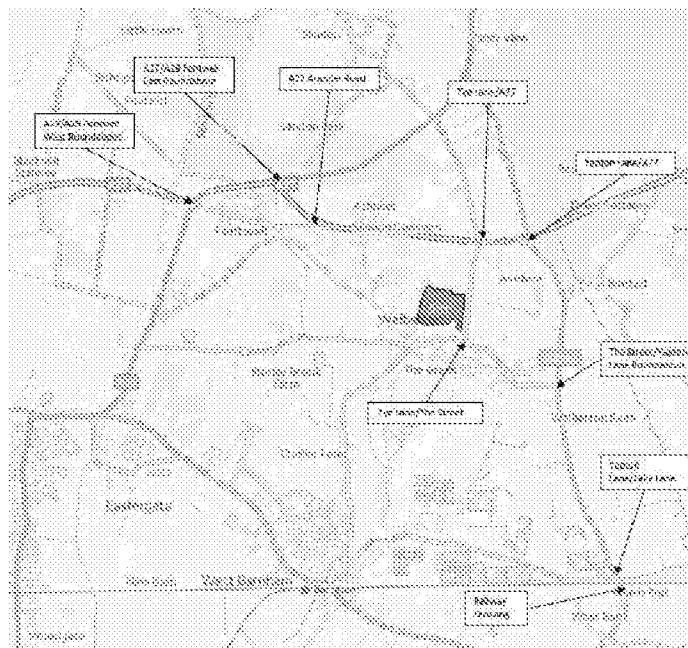


Figure 14: Location of Junctions Requiring Assessment

Junction Modelling Software

- 9.4 The capacity of local junctions has been assessed using Junctions 9 software. Junctions 9 is the industry standard software package for assessing roundabout and priority junctions and provides a Ratio of Flow to Capacity (RFC) value, which identifies what proportion of each arm's total capacity is currently being utilised. RFC values exceeding 0.85 signify the point at which the capacity of the arm is being approached, and the potential to improve capacity could be explored, whilst RFC values of 1.0 or greater represent a junction operating above capacity. Junctions 9 software also provides values for junction delay (in seconds) and queue length in vehicles.
- 9.5 All modelling has been completed using 'vehicle' values rather than PCUs and as such the appended traffic flow diagrams are also all in vehicles. In order to provide a robust assessment, a 10% HGV rate has been applied throughout.
- 9.6 The method used to estimate the traffic generation of the proposed development and the method used to account for the future years and committed development is a worst-case scenario for the following reasons:
- The trip rates used to assess the proposed developments traffic generation are for 'Private Houses' only which produce higher trip rates than mixed/affordable trip rates or mixed housing/flats trip rates. As the rate of affordable housing for this development is likely to be around 30%, in reality trips associated with the site are anticipated to be lower:
 - The modelling and traffic generation does not quantify the impact of a Travel Plan which could achieve a modal shift away from the private car with a sustainable transport strategy: and
 - The assessment does not take into account the impact of peak spreading, whereby individuals may exit the development onto the local road network earlier or later to avoid travelling in the peak period.

Modelling Results

Site Access

- 9.7 The site access has been modelled using the geometries provided within the access design included in Appendix G, and the topographical survey. The assessment has been undertaken for the '2031 baseline + Committed Development + Development' scenario.
- 9.8 The results of the modelling assessment are provided in Table 12, with the full outputs included in Appendix M.



Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2023 Opening Year + Committed Development + Proposed Development						
Tye Lane (SB)	0.0	6.58	0.01	0.0	6.49	0.02
Site Access	0.1	6.99	0.10	0.1	6.59	0.05
Tye Lane (NB)	-	-	-	-	-	-
2031 Baseline + Committed Development + Proposed Development						
Tye Lane (SB)	0.0	6.58	0.01	0.0	6.48	0.02
Site Access	0.1	7.00	0.10	0.1	6.59	0.05
Tye Lane (NB)	-	-	-	-	-	-

Table 12: Site Access Modelling

- 9.9 Table 12 demonstrates that the proposed site access would operate well within capacity in both future scenarios and in 2031 operates with a maximum RFC value of 0.10, queues of less than 1 vehicle and delays of 7 seconds. Therefore, there are no capacity concerns as to the functioning of the proposed access onto Tye Lane.

Tye Lane/The Street

- 9.10 Capacity assessment modelling has been undertaken at the Tye Lane/The Street priority junction for all scenarios to assess the impact of the development on its operation during the AM and PM peak periods. The modelling results are summarised in Table 13, with the full outputs included in Appendix N.

Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2020 Baseline						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.1	10.89	0.10	0.2	11.28	0.16
The Street (WB)	0.1	6.31	0.07	0.1	6.22	0.04
2023 Opening Year + Committed Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.1	11.05	0.10	0.2	11.48	0.17
The Street (WB)	0.1	6.31	0.07	0.1	6.22	0.04
2023 Opening Year + Committed Development + Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.2	11.48	0.15	0.2	11.95	0.20
The Street (WB)	0.1	6.38	0.08	0.1	6.37	0.05
2031 Forecast + Committed Development + Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.1	11.19	0.11	0.2	11.80	0.18
The Street (WB)	0.1	6.38	0.07	0.1	6.22	0.04
2031 Forecast + Committed Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.2	11.70	0.16	0.3	12.24	0.21
The Street (WB)	0.1	6.38	0.08	0.1	6.36	0.06

Table 13: Tye Lane/The Street Junction Assessment

- 9.11 Table 13 demonstrates that the Tye Lane/The Street junction operates well within capacity with a maximum RFC value of 0.21 (in the PM peak period), queues of less than 1 vehicle and delays of under 13 seconds.
- 9.12 There are therefore no capacity concerns at this junction even with the addition of the proposed development.
- 9.13 As mentioned throughout the report, and in greater detail in Section 10, there are proposals for a A27 bypass to route north of the site which would sever the existing link between Tye Lane and the A27. Therefore greater volume of traffic will utilise the junction between Tye Lane and The Street as they will no longer be able to access the A27 from Tye Lane.

- 9.14 This scenario has been modelled for capacity at the Tye Lane/Street junction as part of a sensitivity test and the results of which are included within Table 14. It is pertinent to note that the results in the modelling below also allow for Lane to the East of Tye Lane to be accessed via a vehicular access onto Tye Lane as part of the committed development redistribution. Although this application was recently rejected this has been allowed for to ensure the sensitivity test is robust.

Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2031 Forecast + Committed Development + Development (Sensitivity Test)						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.4	13.60	0.27	0.2	11.95	0.16
The Street (WB)	0.0	5.79	0.03	0.1	6.29	0.06
2031 Forecast + Committed Development (Sensitivity Test)						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.7	17.78	0.43	0.3	13.71	0.25
The Street (WB)	0.1	5.87	0.04	0.2	6.66	0.10

Table 14: Tye Lane/The Street Junction Assessment – Sensitivity Test

- 9.15 Table 14 demonstrates that even in a worst case following the closure of the Tye Lane/A27 junction and the potential addition of the vehicular access associated with the Land East of Tye Lane, the Tye Lane/The Street junction still operates well within capacity with a maximum RFC value of 0.43 (in the AM peak period), queues of less than 1 vehicle and delays of under 18 seconds.

- 9.16 There are therefore no capacity concerns at this junction even in the most robust of future scenarios.

The Street/Yapton Lane Roundabout

- 9.17 Capacity assessment modelling has been undertaken at the 'The Street/Yapton Lane' mini roundabout which is anticipated to receive 11% of development traffic. The geometries for the model have been extracted from the Land East of Tye Lane application (reference: WA/44/17/OUT) which have been approved by WSCC as part of that application.

- 9.18 The modelling results are summarised in Table 15, with the full outputs included in Appendix O.

Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2020 Baseline						
Yapton Lane (SB)	0.3	5.60	0.25	1.3	10.25	0.58
Yapton Lane (NB)	1.8	11.41	0.65	0.3	5.32	0.24
The Street	0.2	6.75	0.14	0.2	5.33	0.16
2023 Opening Year + Committed Development						
Yapton Lane (SB)	0.4	5.97	0.30	1.9	12.66	0.66
Yapton Lane (NB)	2.5	14.28	0.72	0.4	5.67	0.28
The Street	0.2	7.21	0.16	0.2	5.56	0.18
2023 Opening Year + Committed Development + Development						
Yapton Lane (SB)	0.4	6.01	0.30	1.9	12.76	0.66
Yapton Lane (NB)	2.5	14.28	0.72	0.4	5.72	0.29
The Street	0.2	7.21	0.17	0.2	5.59	0.18
2031 Forecast + Committed Development						
Yapton Lane (SB)	0.5	6.15	0.31	2.3	14.59	0.70
Yapton Lane (NB)	3.1	16.91	0.76	0.4	5.82	0.30
The Street	0.2	7.58	0.17	0.2	5.70	0.19
2031 Forecast + Committed Development + Development						
Yapton Lane (SB)	0.5	6.19	0.32	2.3	14.72	0.70
Yapton Lane (NB)	3.1	17.08	0.76	0.4	5.88	0.30
The Street	0.2	7.67	0.18	0.2	5.73	0.19

Table 15: The Street/Yapton Lane Mini-Roundabout Junction Assessment

9.19 Table 15 demonstrates that the 'The Street/Yapton Lane' mini roundabout operates well within capacity with a maximum RFC value of 0.76, queues of less than 4 vehicles and delays of under 18 seconds. The results presented in Table 15 are similar to those submitted as part of the Land east of Tye Lane application and are therefore considered to be robust and representative.

9.20 There are therefore no capacity concerns as to the functioning of this roundabout even with the addition of the proposed development traffic.

Yapton Lane/A27 Junction

9.21 At the pre-application stage, WSCC highways officers requested that the Yapton Lane/A27 junction should be assessed for its capacity with the addition of the proposed development. As demonstrated through the distribution diagrams provided, no development traffic is anticipated to travel along Yapton

Lane to the junction. Only 20% of development arrivals, which equates to 4 vehicle movements in the AM and 10 vehicle movements in the PM, are due to pass this junction upon returning to the site via Tye Lane.

9.22 As such, no further detailed capacity assessments have been undertaken at this junction, rather a percentage impact assessment has been provided. This assessment utilises the flows set out within the Land East of Tye Lane application (reference: WA/44/17/OUT) for the '2031 + Development + Mitigation' scenario. It should be noted that the Land East of Tye Lane application identified a maximum RFC value of 0.45 in the AM peak and 0.64 in the PM peak and so the additional vehicle flows generated through the junction as a result of this development are not anticipated to cause capacity concerns.

9.23 The percentage impact assessment is provided in Table 16.

	Flows from WA/44/17/OUT	Development Trips	Percentage Impact
AM Peak Period	2,807	4	0.1%
PM Peak Period	2,963	10	0.4%

Table 16: Percentage Impact Assessment – Yapton Lane/A27

9.24 Table 16 demonstrates that the proposed development will generate a maximum percentage impact of 0.4% on this junction and therefore there are no capacity concerns as to the functioning of the junction with the addition of the proposed development.

Yapton Lane/Lake Lane Junction

9.25 At the pre-application stage, WSCC highways officers also requested that the Yapton Lane/Lake Lane junction should be assessed for its capacity with the addition of the proposed development.

9.26 This junction was not considered to require assessment as part of the Land East of Tye Lane application and given that the proposed development is anticipated to place less traffic through this junction (with all vehicle movements continuing along Yapton Lane and not utilising Lake Lane), no further assessment has been undertaken as part of this application either.

9.27 For reference, the proposed development is anticipated to place 8 and 9 vehicle movements through this junction in the AM and PM peak periods respectively.



Impact on Railway Crossing

- 9.28 As part of the pre-application discussions, WSCC highways officers requested that consideration should be given to the impact of the proposed development on the operation of the Lake Lane/Yapton Lane Level Crossing. This crossing is some 2.5km south of the proposed development and is anticipated to receive approximately 11% of development traffic flows.
- 9.29 As part of the Land East of Tye Lane application, assessment was also undertaken of this crossing, with traffic surveys undertaken on Tuesday 21st March 2017 which recorded the times that the barrier was lowered and raised, the number of vehicles queueing in each direction during the times that the barrier was lowered and instances of queue clearance during the peak hours.
- 9.30 The results of the Land east of Tye Lane application identified that the barrier is called into operation some 12 times within the morning peak period for a total duration of 10 minutes. On only one occasion did all queued traffic, not clear the junction. In the PM peak period, the barrier was called into operation some 15 times for a total duration of 13 minutes. On only 3 occasions did all queued traffic, not clear the junction.
- 9.31 The Land east of Tye Lane application factored up the 2017 flows to the 2031 period to provide a percentage impact assessment. A similar methodology has therefore been applied to assess the proposed developments impact on the operation of the crossing, using the flows submitted as part of the WA/44/17/OUT application. The results are demonstrated in Table 17.

	2017 Observed Flows		2031 + land east of Tye Lane		Development Traffic		2031 + land east of Tye Lane + Proposed Development		Development Percentage Impact	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Northbound	559	173	644	214	2	6	646	220	0.3%	2.7%
Southbound	196	505	241	587	5	3	246	590	2.0%	0.5%

Table 17: Development Impact at the Level Crossing

- 9.32 Table 17 demonstrates that the proposed development is expected to generate a total of 8 and 9 two-way vehicle movements through the junction in the AM and PM peak periods respectively, which equates to an additional vehicle every 6-7 minutes. The assessment demonstrates that the traffic flows at the level crossing are heavily tidal, with northbound traffic being the main movement in the AM peak and southbound being heaviest in the PM peak.
- 9.33 The development traffic flows are counter-tidal with the majority of trips heading southbound in the



AM peak and northbound in the PM peak. The proposed development will generate less than 1% impact on the heaviest direction during both peak hours (2 – 3 vehicles), equivalent to one vehicle every 20 – 30 minutes, and one vehicle every 10 – 11 minutes in the opposite direction (5 – 6 vehicles).

- 9.34 As the operation of the barrier was demonstrated to clear on almost every occasion through the land east of Tye Lane application, and given that the land east of Tye Lane application was demonstrated as generating an additional 29 vehicle movements through this junction compared to the proposed development, the operation of the crossing will not be adversely affected by the proposed development.

Tye Lane/A27 Junction

- 9.35 Capacity assessment modelling has been undertaken at the Tye Lane/A27 priority junction for all scenarios to assess the impact of the development on its operation during the AM and PM peak periods. It should be noted that no results have been provided in the table below for the A27, given that the westbound traffic flows are not restricted given the free flow of traffic past the Tye Lane junction and similarly, westbound flows cannot turn right into Tye Lane and therefore they are also unrestricted and not included within the model.

- 9.36 The modelling results are summarised in Table 18, with the full outputs and turning count data included in Appendix P.

Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2020 Baseline						
Tye Lane	0.2	13.48	0.19	0.1	9.16	0.08
2023 Opening Year + Committed Development						
Tye Lane	0.3	14.80	0.21	0.1	9.49	0.08
2023 Opening Year + Committed Development + Development						
Tye Lane	0.5	17.60	0.34	0.2	10.06	0.14
2031 Forecast + Committed Development						
Tye Lane	0.3	16.03	0.24	0.1	9.83	0.09
2031 Forecast + Committed Development + Development						
Tye Lane	0.6	19.37	0.37	0.2	10.45	0.14

Table 18: Tye Lane/A27 Junction Assessment

- 9.37 Table 18 demonstrates that the Tye Lane/A27 junction operates well within capacity in all scenarios, with Tye Lane experiencing a maximum RFC value of 0.37, queues of less than 1 vehicle and delays of under 20 seconds. Therefore, no junction capacity improvement works are required at this junction.



- 9.38 Although the A27/Tye Lane junction is understood to perform under capacity in the future scenario, the previously submitted application for the revised access onto Tye Lane for the development to the east of Tye Lane identified the need to improve the on slip at the junction for vehicles joining the A27 from Tye Lane. This application has since been refused, however it is recognised that the desire to improve the A27/Tye Lane remains, therefore it is considered that the proposed development to the west of Tye Lane could provide a contribution to help facilitate this improvement (unless the Arundel Bypass scheme progresses, making these improvements void). The plan demonstrating these works is attached for reference as Appendix Q.

A27 Arundel Road Junction

- 9.39 At the pre-application stage, WSCC highways officers also requested that the A27 Arundel Road junction should be assessed for its capacity with the addition of the proposed development.
- 9.40 This junction was not considered to require assessment as part of the Land East of Tye Lane application, nor the previously submitted application for 155 dwellings at Lane West of Tye Lane. Furthermore, the proposed development is anticipated to place less traffic through this junction (with A29 (southbound) vehicle trips routing via Eastergate Street and not through the roundabouts) than the land east of Tye Lane application.
- 9.41 Whilst the proposed development is anticipated to generate 36 vehicle movements through this junction in the AM peak period, and 19 vehicle moments in the PM peak period, these are only added to the free flow of traffic along the A27 and no turning manoeuvres into Arundel Road is anticipated. In the 2031 baseline year, the development will generate minimal percentage impacts on the junction with 1.9% impact in the AM peak period and 1.5% in the PM peak period.
- 9.42 Given the minimal impacts, and that neither of the preceding applications in the vicinity were required to assess the junction despite generating more movements than the current proposed development, no further assessment has been undertaken.

A27 Arundel Road/A29 Fontwell Avenue Roundabout (Fontwell West roundabout)

- 9.43 The A27 Arundel Road/A29 Fontwell Avenue (Fontwell West) roundabout is located 2.7km west of the proposed development site and provides access to destinations including Fontwell, Eastergate and continuing along the A27 westbound towards Chichester and Hampshire.
- 9.44 The vehicle flows added to the junction associated with the proposed development are demonstrated as part of Appendix L, and the development trips summarised in Table 6.



- 9.45 As part of the Land east of Tye Lane application (reference: WA/44/17/OUT), assessment of this roundabout was undertaken for both its existing configuration as a roundabout, and further assessment as a signalised junction which was identified as a potential improvement scheme within the draft Arun District Local Plan and through the Dandara development off Fontwell Avenue. The assessments were undertaken for the 2031 future year scenarios given that these included all traffic anticipated to be within the area associated with the draft allocation sites as well as adjoining authorities.
- 9.46 In its existing configuration, the junction was demonstrated to operate significantly over capacity with an RFC of 2.94 (without land east of Tye Lane development traffic) and 3.00 (with land east of Tye Lane development traffic). Queues were demonstrated at around 116 – 126 vehicles and delays of around 3,000 seconds.
- 9.47 With the improvement proposed which included signalling the junction, queues and delays were reduced, however the junction was still demonstrated to operate significantly over capacity, with queues of 174 vehicles and delays of over 500 seconds.
- 9.48 As such, as part of the land East of Tye Lane, further improvements were explored to improve the capacity and reduce the queues on the A27 arms. It was identified that an additional entry lane on the A27 east approach which would enable left and ahead traffic to utilise the nearside lane would provide significant improvements, with queueing in the PM peak period reduced by some 40 – 60 vehicle and delays reduced by 2 – 3 minutes.
- 9.49 The impact assessment modelling of this junction for the proposed development has been assessed using LinSig and includes the mitigation work identified as per the i-Transport TA for the site to the East of Tye Lane as detailed above. The results of the junction capacity assessment are presented in Table 19, with the full outputs included in Appendix R.

	AM Peak Period			PM Peak Period		
	DOS	Queue (vehicles)	Delay (s)	DOS	Queue (vehicles)	Delay (s)
2031 + Local Plan + Mitigation + Linden						
A27 W Ahead	89.7%	11	26	98.3%	28	44
A27 W Ahead	64.5%	5	20	116.9%	108	299
A27 E Ahead/Left	79.2%	9	16	102.3%	34	98
A27 E Ahead	79.2%	9	19	103.0%	29	125
Arundel Road	73.4%	4	19	72.4%	3	26

A29 Fontwell Avenue	97.0%	10	65	48.6%	3	11
2031 + Local Plan + Mitigation + Linden + Proposed Development						
A27 W Ahead	89.7%	11	26	98.3%	28	44
A27 W Ahead	66.0%	6	20	119.4%	120	330
A27 E Ahead/Left	80.7%	10	17	102.7%	36	102
A27 E Ahead	80.6%	10	20	104.1%	32	139
Arundel Road	73.4%	4	19	72.4%	3	26
A29 Fontwell Avenue	97.0%	10	65	48.6%	3	11

Table 19: Fontwell West Roundabout Junction Capacity Assessment

9.50 Table 19 demonstrates that the impact of the proposed development is minimal, and that the junction is expected to operate above capacity with and without the proposed development in the PM period. In the AM period the worst performing arm deteriorates remains the same at 97.0% DoS, however other arms deteriorate slightly and therefore the impact is balanced across the junction. In the PM the worst performing arm, which is already over capacity, is impacted further with an increase in its DoS from 116.9% to 119.4%. This impact is only slight and its impact upon queueing vehicles is exaggerated due to already being over capacity at this point.

9.51 As mentioned above, this modelling has been undertaken to replicate the i-Transport modelling as appropriate. However, were the cycle times revised to c. 70 seconds (from 45 in the AM and 58 in the PM) and optimised appropriately there would be capacity improvements across the junction that would exceed the proposed development's impact and should provide an overall betterment to the junction.

9.52 In addition, given that the cycle times will likely be optimised as part of the implementation of the improvement scheme, then physical works could be undertaken instead which would also deliver highway capacity improvements that would result in the junction operating within capacity and therefore would mitigate the proposed developments impact. These works included extending the inside lane along the A27 Eastern arm from 76.5m as proposed with the Lane East of Tye Lane improvement works, by a further 13.5m to 90m in length. The resulting impact of this increased flare length is shown in Table 20.

	AM Peak Period			PM Peak Period		
	DOS	Queue (vehicles)	Delay (s)	DOS	Queue (vehicles)	Delay (s)
2031 + Local Plan + Mitigation + Linden+Proposed Development including cycle time optimisation						
A27 W Ahead	69.9%	7	10	83.2%	9	10
A27 W Ahead	36.4%	4	8	84.5%	19	15
A27 E Ahead/Left	89.7%	17	31	91.7%	17	36
A27 E Ahead	86.9%	16	32	83.2%	13	35
Arundel Road	65.0%	5	21	75.7%	3	31
A29 Fontwell Avenue	87.5%	7	35	49.7%	3	12
2031 + Local Plan + Mitigation + Linden+Proposed Development including cycle time optimisation & 13.5m flare						
A27 W Ahead	69.0%	7	9	85.1%	11	11
A27 W Ahead	34.0%	4	7	83.5%	20	15
A27 E Ahead/Left	87.0%	18	30	89.5%	17	35
A27 E Ahead	85.0%	17	32	77.8%	13	33
Arundel Road	64.9%	5	23	80.3%	4	38
A29 Fontwell Avenue	86.2%	8	39	45.7%	3	12

Table 20: Fontwell West Roundabout Junction Capacity Assessment Potential Mitigation

- 9.53 Based on the above, the optimisation of the signal timings will mitigate some of the development, however the provision of an additional 13.5m flare on the A27 eastern arm will result in the junction performing within capacity compared to the current situation. Therefore the proposed development will provide funding to provide this work, subject to detailed design.

A27/A29 Farmile Road roundabout (Fontwell East roundabout)

- 9.54 The A27 Arundel Road/A29 Farmile Road roundabout is located 2.6km west of the proposed development site and connects to the A27 (westbound) as well as providing the opportunity to complete a U-turn and continue eastbound along the A27. The A29 provides a route towards destinations such as Storrington and Pulborough.
- 9.55 The vehicle flows added to the junction associated with the proposed development are demonstrated as part of Appendix L, and the development trips summarised in Table 6.
- 9.56 This junction has been assessed using LinSig, utilising the information provided within the i-Transport TA for the Linden Homes site to the East of Tye Lane, which includes an improvement scheme identified

by Arun Local Plan including signalisation and increase in flare lengths. The results of the junction capacity assessment are presented in Table 21, with the full outputs included in Appendix S.

	AM Peak Period			PM Peak Period		
	DOS	Queue (vehicles)	Delay (s)	DOS	Queue (vehicles)	Delay (s)
2031 + Local Plan + Mitigation + Land to the East of Tye Lane						
A27 W Ahead	82.1%	8	18	85.7%	9	17
A27 W Ahead	71.7%	6	20	73.0%	7	16
A29 Ahead	83.0%	6	18	84.6%	7	19
A27 E Ahead	83.9%	10	20	68.5%	6	19
A27 E Ahead	88.2%	11	20	72.4%	6	18
2031 + Local Plan + Mitigation + Lane to the East of Tye Lane + Proposed Development						
A27 W Ahead	82.1%	8	18	85.7%	9	17
A27 W Ahead	71.7%	6	20	73.0%	7	16
A29 Ahead	85.2%	7	20	85.8%	7	20
A27 E Ahead	86.7%	11	22	70.5%	6	19
A27 E Ahead	89.2%	12	21	73.3%	6	19

Table 21: Fontwell East Roundabout Junction Capacity Assessment

9.57 Table 21 demonstrates that the impact of the proposed development is minimal, with the worst performing arm in the AM deteriorates from a DoS of 88.2% to 89.2% with the development and in the PM the worst performing arm deteriorates from 84.6% 85.8% with the development, both of which have an insignificant impact on the delay and queuing of vehicles.

Summary of Junction Modelling

9.58 A comprehensive assessment of the local junctions identified by WSCC has been undertaken to determine the impact of the proposed development on their operation. At every junction modelled it has been demonstrated that the proposed development would not cause any capacity concerns with each junction continuing to operate within capacity.

9.59 The proposed development would offer proportionate contributions towards the wider improvements at the A27 roundabouts and specifically widening the A27 eastern arm at Fontwell West roundabout.

9.60 Aside from these contributions, it is not considered that any additional mitigation or improvement works are required on any of the local junctions to improve junction capacity.

10. A27 BYPASS SENSITIVITY ASSESSMENT

- 10.1 This section of the report assesses the likely implications of the preferred route of the A27 Arundel Bypass, specifically upon the operation of Tye Lane and the junction with The Street.

A27 Arundel Bypass Preferred Route

- 10.2 Providing a strategic route across the south coast, the A27 forms a critical part of the road network, and as such, the A27 Arundel Bypass scheme was identified within the Government's Road Investment Strategy 2015 – 2020 to help tackle congestion and other issues in and around Arundel.
- 10.3 Following extensive research, assessment, consideration and discussions, in October 2020 HE announced their preferred route (5Bv1) which would have an impact upon the village of Walberton and the proposed development site. In addition, it would have significant impacts on the 'currently under construction' Land East of Tye Lane development, approved under application reference: WA/44/17/OUT).
- 10.4 The preferred route (which is demonstrated in Figure 15) will feature approximately 8km of dual two-lane carriageway to the south of the existing A27. The route will start at Crossbush and reconnect to the A27 near the A27/A29 Fontwell East roundabout. Whilst the proposal put forward by NH is not guaranteed, it provides an indication of the likely extent of the new road and therefore will likely include the following:
- A junction at Crossbush with access to and from the A27 in both directions;
 - A new viaduct spanning the River Arun and a bridge over the Arun Valley Railway;
 - A new bridge over Binsted Rife;
 - A new junction with the existing A27 at Tye Lane to the north of Walberton (with the A27 continuing via an underpass) enabling westbound access onto the A27 and eastbound access from the A27; and
 - The closure of Tye Lane south of the new route.



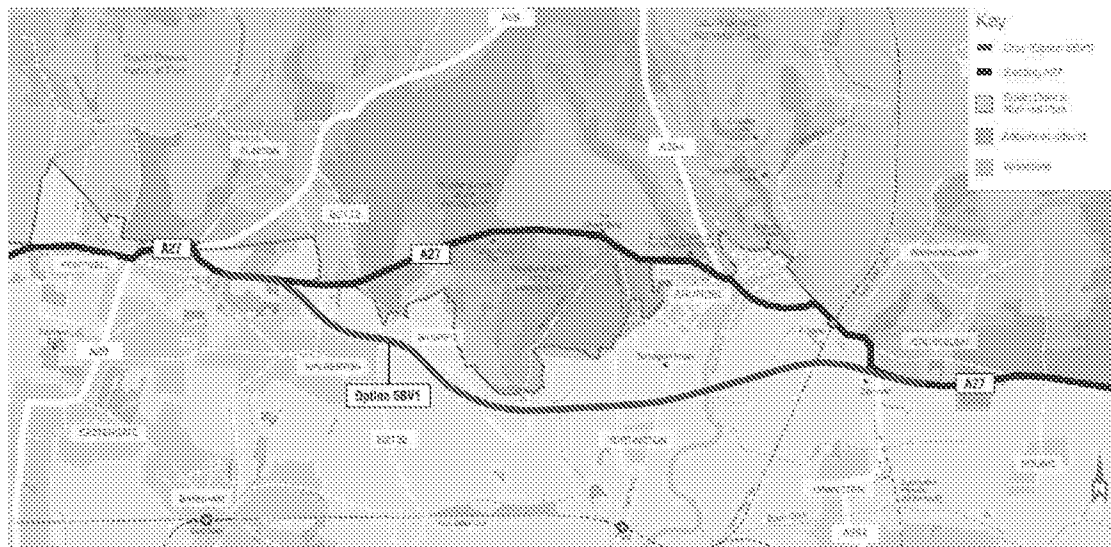


Figure 15: Extent of Preferred Route (Source: Highways England)

10.5 The preferred route will also result in a new overbridge being provided on Yapton Lane which would result in vehicles not being able to access the new bypass in this location, but instead continuing northbound and adjoining the existing A27.

10.6 As the proposed development is seeking to provide vehicular access onto Tye Lane, a sensitivity assessment has been undertaken to determine the likely impact of the potential closure of Tye Lane on the operation of other local junctions. This section also includes for the revised Linden Homes vehicular access to be provided onto Tye Lane because of the proposed bypass cutting through their existing access onto Yapton Lane.

Revised Baseline Flows on Tye Lane

10.7 It is important to note that Tye Lane serves as a key route within the village of Walberton at present given the direct access onto the A27. With the closure of Tye Lane, a number of vehicle movements would be displaced and therefore educated assumptions and routing of these has been undertaken using the information obtained from the turning counts and Automated Traffic Count (ATC) surveys that were undertaken to inform this TA.

10.8 The revised baseline vehicle movements at each junction have been discussed previously within the Highways response Note in relation to the previous application for 155 dwellings and is appended at Appendix B for further consideration as appropriate.

10.9 As part of the Section 8 above, the distribution of vehicle trips to and from the site was assessed using data obtained from the 2011 'Travel to Work' Census Data for Arun 003. The data enabled us to determine the likely destinations and route residents of the proposed development would use and by

which proportion.

10.10 The results of the initial assessment suggested that 68% of development traffic would have turned left out of the site and subsequently left onto the A27, with the remaining 32% turning right out of the site and continuing either eastbound (11%) or westbound (21%) on The Street. The route assignment is provided above in Table 10 for reference.

10.11 Given that the preferred bypass route would involve the closure of Tye Lane and subsequently restricting access to the A27 to the north of the site, the distributions have been re-assessed, with all movements being required to turn right out and left into the site at the access. These have then been distributed appropriately onto the local road network. The revised distributions are set out within Table 22.

Destination	Percentage	Route Assignment
Chichester	34%	100% West Walberton Lane, A27 westbound
Arun 003: Eastergate/Westergate	14%	100% Eastergate Lane
Worthing	5%	100% A27 Eastbound
Arun 017: Bognor Regis	4%	50% North End Road, 50% Eastergate Lane
Arun 001: Arundel	4%	100% West Walberton Lane, A27 Eastbound
London Districts	3%	100% West Walberton Lane: 50% A29 NB, 50% A27 westbound
Arun 014: North Bognor Regis	3%	50% North End Road, 50% Eastergate Lane
Horsham	3%	100% West Walberton Lane: 50% A29, 50% A27 eastbound
Arun 006: Yapton	2%	100% North End Road
Portsmouth & IOW	2%	100% West Walberton Lane, A27 westbound
Arun 012: North Bersted	2%	100% Eastergate Lane
Havant	2%	100% West Walberton Lane, A27 westbound
Arun 004: Toddington	2%	100% North End Road
Arun 011: Littlehampton Central	2%	100% North End Road
Brighton and Hove	1%	100% West Walberton Lane, A27 Eastbound
Arun 009: Littlehampton East	1%	100% North End Road
Crawley	1%	100% West Walberton Lane: 50% A29, 50% A27 eastbound
Adur	1%	100% West Walberton Lane, A27 Eastbound
Arun 005: Angmering	1%	100% North End Road
Arun 016: Bognor Regis West	1%	50% North End Road, 50% Eastergate Lane
Arun 007: Rustington	1%	100% North End Road
East Hampshire	1%	100% West Walberton Lane, A27 westbound
Guildford	1%	100% West Walberton Lane: 50% A29, 50% A27 westbound
Fareham	1%	100% West Walberton Lane, A27 westbound
Other	8%	1% North End Road, 1% Eastergate Lane, 1% A29 NB, 3% A27 WB, 2% A27 EB
TOTAL	100%	N/A

Table 22: Revised Distribution Percentages

10.12 The revised route assignment percentages are provided in Table 23.

Direction from Tye Lane	Route Assignment		Percentage
Right from Tye Lane	Eastergate Lane	A29 SB	21%
Right from Tye Lane	West Walberton Lane	A27 Westbound	45%
		A27 Eastbound	10%
		A29 SB	0%
		A29 NB	5%
Left from Tye Lane	The Street	North End Road	19%
TOTAL	-	-	100%

Table 23: Revised Route Assignment

10.13 The revised distributions as set out within Table 23 reflect that within the main body of the TA above, albeit with the percentage utilising the A27 eastbound reduced and the percentage utilising North End Road increasing. This is due to the closure of Tye Lane resulting in a longer route to destinations such as Littlehampton and Rustington.

10.14 The preferred route of the A27 Arundel Bypass would have a significant impact on the access designed (and built) as part of the Linden Homes development on Land East of Tye Lane. As a result of the possibility of losing this access, a revised access application (reference: WA/93/20/PL) was submitted in December 2020, although this has since been refused. As part of the revised application, distribution diagrams were presented to identify how the vehicles were anticipated to re-route from the new access onto Tye Lane and the wider network.

10.15 The results of the revised Land East of Tye Lane assessment were very similar to those presented in Table 23, with 83% anticipated to turn right out of Tye Lane onto The Street (in comparison to our suggested 81%) and 17% anticipated to turn left out onto The Street (in comparison to our 19%).

10.16 Whilst the results presented in Table 23 are very similar to those suggested in the East of Tye Lane application, WSCC highways officers have requested that the distributions are the same, and therefore for robustness (and as they have been agreed), the land East of Tye Lane (Linden Homes) distributions have been used.

10.17 The revised distribution of the development traffic from the site (which matches those submitted as part of the revised Land to the East of Tye Lane scheme under application reference: WA/93/20/PL) is summarised in greater detail as part of the Highways Response Note submitted in support of the previous application for 155 dwellings and can be reviewed at Appendix B.

10.18 As part of this sensitivity test the Tye Lane/The Street junction has been modelled to confirm it can accommodate all additional trips that previously routed onto the A27 and would now route onto The Street. This junction modelling was undertaken earlier as part of Section 9 and the results were



summarised within Table 14.

10.19 Table 14 demonstrates that even in a worst case following the closure of the Tye Lane/A27 junction and the potential addition of the vehicular access associated with the Land East of Tye Lane, the Tye Lane/The Street junction still operates well within capacity with a maximum RFC value of 0.43 (in the AM peak period), queues of less than 1 vehicle and delays of under 18 seconds.

10.20 There are therefore no capacity concerns at this junction even in the most robust of future scenarios which consider both the coming forward of the A27 bypass and Land to the East of Tye Lane accessed off Tye Lane.

10.21 All other impacts across the network caused by the potential future A27 Bypass are separate to the proposed development and should be modelled in combination with all other highway impact assessment which is being undertaken to support the A27 Bypass.



11. SUMMARY AND CONCLUSION

- 11.1 This Transport Assessment has been prepared by Paul Basham Associates on behalf of David Wilson Homes to support an outline planning application for a residential development comprising up to 131 dwellings with vehicular access via Tye Lane at land to the west of Tye Lane, Walberton.
- 11.2 This report has been prepared in accordance with policies and guidance set out at national, regional and local levels, as well as taking WSCC comments and requirements into consideration where appropriate.
- 11.3 The development site, located on the eastern side of Tye Lane and within 500m of the village centre, is approximately 14km east of Chichester and 6km west of Arundel. The location of the site presents a good opportunity to encourage sustainable travel options for local journeys (specifically to school and the village centre), with the opportunity travel by bus and train realistic alternatives to the private car for destinations further afield.
- 11.4 The proposed development would consist of up to 131 dwellings with associated car parking which will be provided in accordance with WSCC Guidance on Parking at New Developments (June 2020). Cycle parking will also be provided for each property within a suitable area. Internally, roads will be reflective of MfS design principles with refuse collection to also occur within the site boundary.
- 11.5 The proposed development is anticipated to generate 72 vehicular and 14 pedestrian trips in the AM peak period, 86 vehicular and 10 pedestrian trips in the PM peak period and 648 vehicular and 115 pedestrian trips across a 12 hour day. The vehicular trips have been distributed onto the local road network through assessment using Census data, and consideration was also given to both the percentages and routes anticipated to be used within the draft TA prepared by Mayer Brown as well as those submitted and approved as part of the WA/44/17/OUT application.
- 11.6 The development will be served by one point of vehicular access onto Tye Lane and a separate pedestrian access provided onto Field Close. The vehicular access will be provided as a 6m wide access road with 6m corner radii and will be regraded into the site at a gradient of 1:20. Visibility has been demonstrated as achievable from the site access in accordance with the recorded vehicle speeds, with vegetation and the existing bank to be regraded/re-provided and maintained to below 600mm in height.
- 11.7 Comprehensive assessments of local junctions identified at the pre-application stage and previous application stage have been undertaken to determine the impact of the proposed development on their operation. Each junction has been demonstrated as operating within capacity with the addition of the proposed development, and therefore, aside from offering proportionate contributions to the



improvement schemes on the A27 Fontwell west roundabout, potential widening on the eastern arm of the A27 on the Fontwell west roundabout and improvements to the Tye Lane slips onto the A27 (which are not required for capacity purposes), no further capacity improvement works are required.

- 11.8 This Transport Assessment has demonstrated that the proposed development will not have a 'severe' impact on the operation, capacity or safety of the local road network. We therefore encourage WSCC to look favourably upon this development in relation to highways.



Land West of Tye Lane, Walberton
Transport Assessment

Appendix A

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



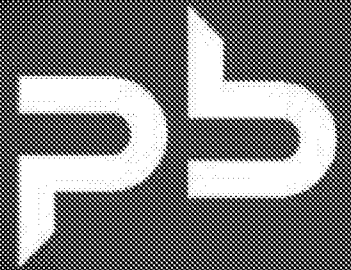


Land West of Tye Lane, Walberton
Transport Assessment

Appendix B

Paul Basham Associates Ltd
Report No. 041.0071/TA/3





LAND WEST OF TYE LANE, WALBERTON

HIGHWAYS RESPONSE NOTE

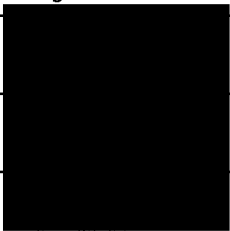
December 2020

David Wilson Homes

RESIDENTIAL DEVELOPMENT
LAND WEST OF TYE LANE
WALBERTON

HIGHWAYS RESPONSE NOTE

CONTROLLED DOCUMENT

Document No:		041.0071/HRN/2	
Status:	Original	Copy No:	
	Name	Signature	Date
Prepared by:	Shannon Betteridge		December 2020
Checked by:	Tom Peters		December 2020
Approved by:	Mark Smith		December 2020

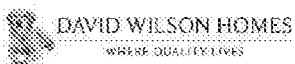
Revision Record

Rev.	Date	By	Summary of Changes	Chkd	Aprvd
2	21.12.20	THP	Revised following client comment	MS	MS

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David Wilson Homes
Tollbar House
Tollbar Way
Hedge End
Southampton
SO30 2UH



Paul Basham Associates Ltd
The Bothy
Cams Hall Estate
Fareham
PO16 8UT

**RESIDENTIAL DEVELOPMENT
LAND WEST OF TYE LANE
WALBERTON**

HIGHWAYS RESPONSE NOTE

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- Appendix G – Revised Tye Lane/The Street Junction Modelling

1. INTRODUCTION

- 1.1 This Highways Response Note (HRN) has been prepared by Paul Basham Associates on behalf of David Wilson Homes to support an *'Outline application with all matters reserved, other than means of access, for the construction of up to 155no. dwellings'* (application reference: WA/68/20/OUT) at land to the west of Tye Lane, Walberton. The site location is demonstrated in **Figure 1**, with the site layout included in **Appendix A**.

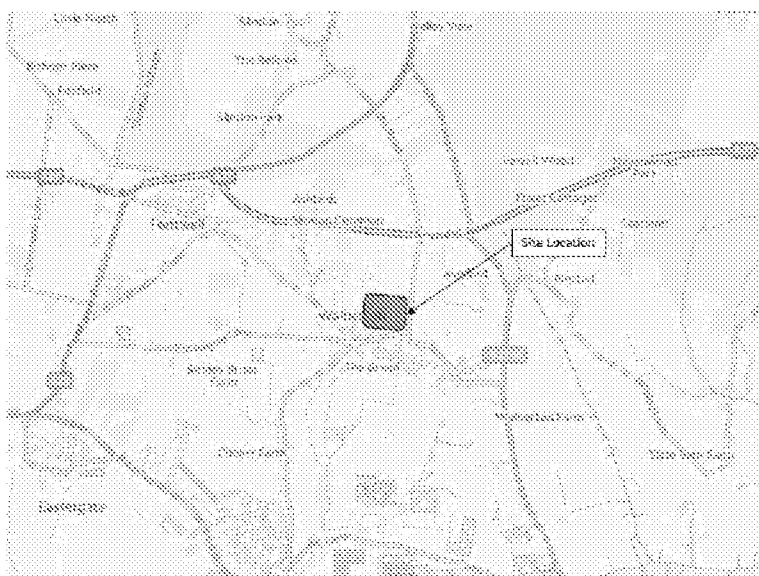


Figure 1: Site Location

- 1.2 The application was submitted in October 2020 for which a Transport Assessment (TA), Travel Plan (TP) and Walking, Cycling and Horse-Riding Assessment Review (WCHAR) were prepared and submitted by Paul Basham Associates.
- 1.3 Whilst the application is yet to be determined, this report aims to address the highways comments received from both West Sussex County Council (WSSC) and Highways England (HE) where appropriate and suitable. Specifically, this report will provide commentary and evidence on the following:
- Consideration of the preferred A27 Bypass route
 - Further information regarding the pedestrian access, flows anticipated to be generated by the site and improvements to pedestrian infrastructure being proposed by the proposed site and the Linden development opposite
 - Modelling of the A27 Fontwell Junctions to determine the proposed development's impact
 - Sensitivity distributions with Linden development vehicular access onto Tye Lane and closure of Tye Lane to the A27, and
 - Sensitivity modelling of the Tye Lane/The Street junction to include for both the proposed development and the Linden application.

2. PEDESTRIAN INFRASTRUCTURE

- 2.1 The TA submitted alongside the planning application detailed a separate pedestrian access between the south western corner of the site with The Street via Field Close. This pedestrian access was proposed as a separate pedestrian access because the restricted width along Tye Lane made it difficult to provide a footway adjacent to Tye Lane.
- 2.2 The highway comments received from WSCC detailed their preference for a footway to accompany the vehicular access along Tye Lane, continuing south and connecting into The Street.
- 2.3 As part of the application for vehicular access to Land to the East of Tye Lane submitted by Linden Homes, a vehicular access is proposed onto Tye Lane together with an accompanying footway which routes alongside the eastern edge of Tye Lane between the Linden Homes vehicular access and The Street. The configuration of this access and footway is shown at **Appendix B**. Sections of this footway narrow to less than 1m due to various pinch points and as a result WSCC have indicated that their preference would be for the footway to route along the western edge of Tye Lane as there is a wider highway verge and therefore less need to restrict the width of the footway.
- 2.4 Having considered WSCC's comments, a footway design has been prepared which routes along the western edge of Tye Lane. The proposed footway maintains a 1.5m footway between the Land West of Tye Lane vehicular access and The Street. This footway proposes two alternative options to connect into the footway accompanying the Linden Homes site, depending on whether they construct the consented pedestrian only access or the currently proposed vehicular access onto Tye Lane. The arrangement for this footway, together with the two connection options, is shown at **Appendix C**.
- 2.5 As can be seen from the drawing at **Appendix C**, the footway measures a consistent 1.5m along its entire length, between the vehicular access to the north and The Street to the south, connecting into the existing section of footway along Tye Lane to the southern extent. As a result, the carriageway width is restricted in places to between 4.8-5.0m. The carriageway width of Tye Lane is currently c. 5m so this narrowing only takes place in certain places and is considered appropriate given the current characteristics of Tye Lane.
- 2.6 The only anomaly to the above is where, due to restricted land availability, the carriageway is reduced to a width of 4.1m (still sufficient for 2 cars to pass according to Manual for Streets) and as a result the footway is reduced to 1.3m. This narrowing takes place over a distance of c.10m towards the south of Tye Lane and is considered necessary to provide a footway of acceptable width whilst maintaining a carriageway width suitable for two cars to pass.

3. A27 FONTWELL ROUNDABOUTS JUNCTION CAPACITY ASSESSMENTS

- 3.1 As part of the TA submitted to support the application, assessments were undertaken of both the A27 Fontwell East and A27 Fontwell West roundabouts. Given the quantum of development traffic anticipated to be placed through the junctions (between 25 and 43 vehicle movements), a percentage impact assessment was provided which demonstrated a maximum percentage impact of 1.04%. This was recorded in the 2020 morning peak scenario at the A27 Fontwell East roundabout.
- 3.2 The highway comments received from both WSCC and HE, however, have requested that junction capacity assessments are undertaken for both roundabouts to fully determine the likely impact of the proposed development on their operation. Discussions with WSCC have been undertaken to determine the model that is considered to be the most robust and 'up-to-date' in order for these assessments to be undertaken. The following scenarios are therefore those used within our assessment:
- 2031 + Local Plan + Mitigation + Linden Development
- 3.3 The models for the roundabouts have been re-created using the geometries set out within the outline application for Land East of Tye Lane (reference: WA/44/17/OUT). In order to determine the impact of the proposed development on the operation of the junctions, the results provided within the Land East of Tye Lane application have also been reprovided for reference.
- 3.4 It should be noted that these results are considered to be for the 'as existing' scenario, whereby vehicles associated with the proposed development can continue to travel northbound along Tye Lane and turn left onto the A27. A sensitivity assessment that considers the potential closure of Tye Lane is completed later within this HRN.

Fontwell East Roundabout

- 3.5 The A27 Arundel Road/A29 Farmile Road roundabout is located 2.6km west of the proposed development site and connects to the A27 (westbound) as well as providing the opportunity to complete a U-turn and continue eastbound along the A27. The A29 provides a route towards destinations such as Storrington and Pulborough.
- 3.6 It is anticipated that of the 68% of development traffic utilising this roundabout, 20% are likely to complete a U-turn to continue eastbound along the A27 towards destinations including Arundel and Brighton. 5% of development traffic is anticipated to utilise the A29 (NB) arm towards Pulborough, areas of Chichester District and the South Downs National Park. The remaining 43% of traffic is anticipated to continue on the A27 westbound to the A27/A29 Fontwell West roundabout.

- 3.7 For vehicles arriving to the site, the 20% of vehicles who completed the U-turn back along the A27 eastbound will return to the site via the Tye Lane/A27 junction. For both the 5% travelling back from the A29 (NB) and the 43% continuing along the A27 towards the A27/A29 Fontwell West roundabout, these have been distributed onto the A27/A29 Fontwell West roundabout and specifically the A29 Fontwell Avenue (SB) arm which connects to Eastergate Lane and subsequently back onto The Street.
- 3.8 The vehicle flows added to the junction associated with the proposed development are demonstrated in **Figure 2**, and these are as per the distributions presented as part of the live application and approved by WSCC.

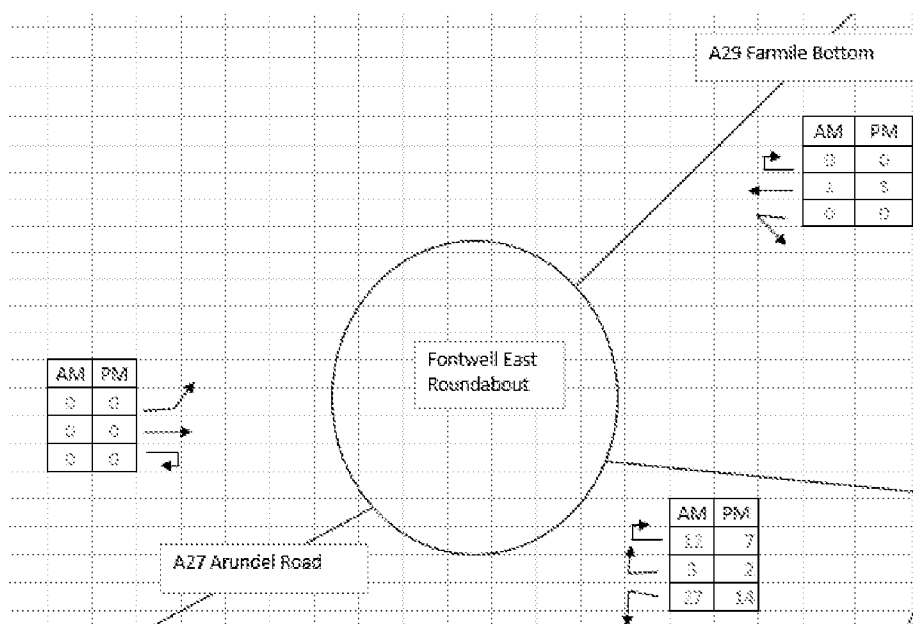


Figure 2: Development Flows on Fontwell East Roundabout

- 3.9 This junction has been assessed using LinSig, utilising the information provided within the i-Transport TA for the Linden Homes site to the East of Tye Lane. The results of the junction capacity assessment are presented in **Table 1**, with the full outputs included in **Appendix D**.

	AM Peak Period			PM Peak Period		
	DOS	Queue (vehicles)	Delay (s)	DOS	Queue (vehicles)	Delay (s)
2031 + Local Plan + Mitigation + Linden						
A27 W Ahead	82.1%	8	18	85.7%	9	17
A27 W Ahead	71.7%	6	20	73.0%	7	16
A29 Ahead	83.0%	6	18	84.6%	7	19
A27 E Ahead	83.9%	10	20	68.5%	6	19
A27 E Ahead	88.2%	11	20	72.4%	6	18

2031 + Local Plan + Mitigation + Linden + Proposed Development						
A27 W Ahead	82.1%	8	18	85.7%	9	17
A27 W Ahead	71.7%	6	20	73.0%	7	16
A29 Ahead	85.2%	7	20	85.8%	7	20
A27 E Ahead	86.7%	11	22	70.5%	6	19
A27 E Ahead	89.2%	12	21	73.3%	6	19

Table 1: Fontwell East Roundabout Junction Capacity Assessment

- 3.10 **Table 1** demonstrates that the impact of the proposed development is minimal, with the worst performing arm in the AM deteriorates from a DoS of 88.2% to 89.2% with the development and in the PM the worst performing arm deteriorates from 84.6% 85.8% with the development, both of which have an insignificant impact on the delay and queuing of vehicles.

Fontwell West Roundabout

- 3.11 The A27 Arundel Road/A29 Fontwell Avenue roundabout is located 2.7km west of the proposed development site and provides access to destinations including Fontwell, Eastergate and continuing along the A27 westbound towards Chichester and Hampshire.
- 3.12 It is anticipated that of the 43% of development traffic utilising this roundabout, all are likely to continue straight across and continue on the A27 westbound. No vehicular traffic is anticipated to travel southbound on the A29 from this roundabout given the connection between the site and Eastergate Lane.
- 3.13 For vehicles arriving to the site, the 43% of vehicles travelling from the A27 are anticipated to enter the roundabout and exit via the A29 Fontwell Avenue in order to complete their journey via Eastergate Lane and The Street. They are also joined by the 5% arriving from the A29 Farmile roundabout.
- 3.14 The vehicle flows added to the junction associated with the proposed development are demonstrated in **Figure 3**, and again these are as per the distributions presented as part of the live application and approved by WSCC.

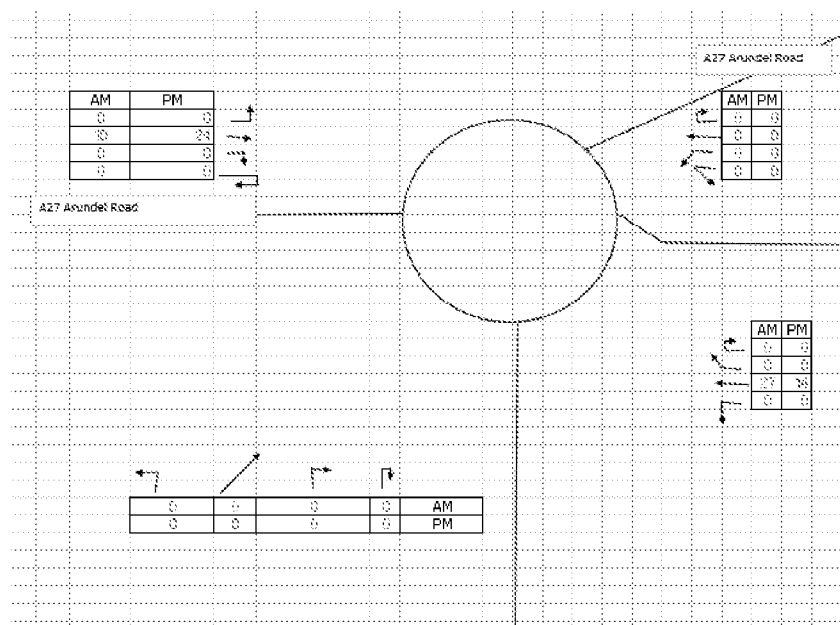


Figure 3: Development Flows on Fontwell West Roundabout

3.15 The results of the junction capacity assessment are presented in Table 2, with the full outputs included in Appendix E.

	AM Peak Period			PM Peak Period		
	DOS	Queue (vehicles)	Delay (s)	DOS	Queue (vehicles)	Delay (s)
2031 + Local Plan + Mitigation + Linden						
A27 W Ahead	89.7%	11	26	98.3%	28	44
A27 W Ahead	64.5%	5	20	116.9%	108	299
A27 E Ahead/Left	79.2%	9	16	102.3%	34	98
A27 E Ahead	79.2%	9	19	103.0%	29	125
Arundel Road	73.4%	4	19	72.4%	3	26
A29 Fontwell Avenue	97.0%	10	65	48.6%	3	11
2031 + Local Plan + Mitigation + Linden + Proposed Development						
A27 W Ahead	89.7%	11	26	98.3%	28	44
A27 W Ahead	66.0%	6	20	119.4%	120	330
A27 E Ahead/Left	80.7%	10	17	102.7%	36	102
A27 E Ahead	80.6%	10	20	104.1%	32	139
Arundel Road	73.4%	4	19	72.4%	3	26
A29 Fontwell Avenue	97.0%	10	65	48.6%	3	11

Table 2: Fontwell West Roundabout Junction Capacity Assessment

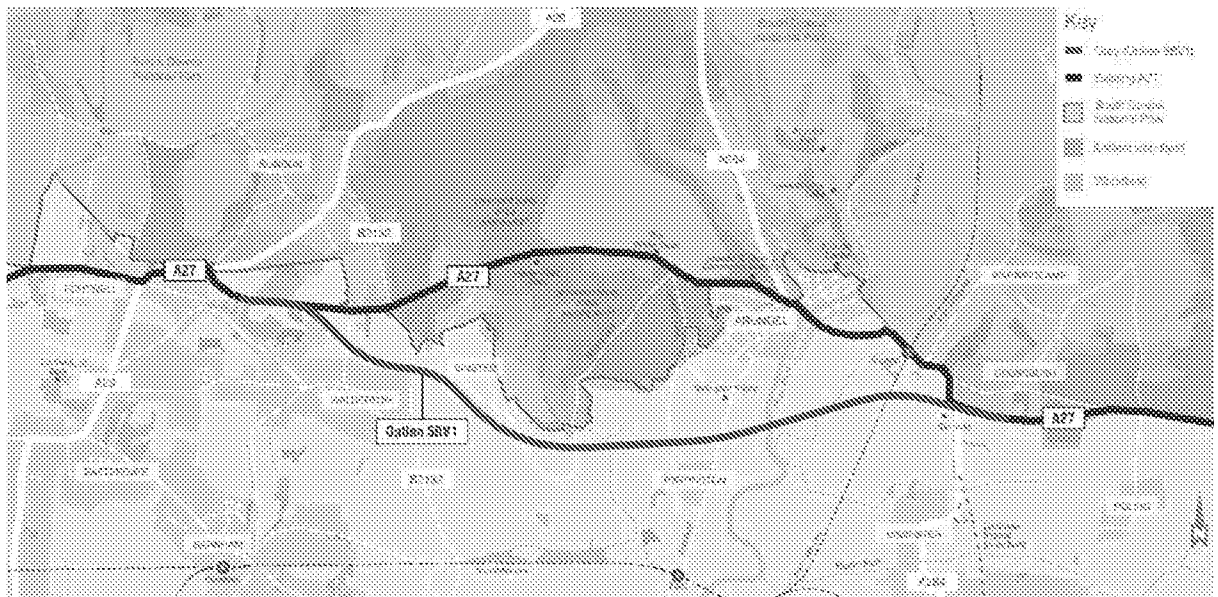
- 3.16 **Table 2** demonstrates that the impact of the proposed development is minimal, and that the junction is expected to operate above capacity with and without the proposed development in the PM period. In the AM period the worst performing arm deteriorates remains the same at 97.0% DoS, however other arms deteriorate slightly and therefore the impact is balanced across the junction. In the PM the worst performing arm, which is already over capacity, is impacted further with an increase in its DoS from 116.9% to 119.4%. This impact is only slight and its impact upon queueing vehicles is exaggerated due to already being over capacity at this point.
- 3.17 As mentioned above, this modelling has been undertaken to replicate the i-Transport modelling as appropriate. However, were the cycle times revised to c. 70 seconds (from 45 in the AM and 58 in the PM) and optimised appropriately there would be capacity improvements across the junction that would exceed the proposed development's impact and should provide an overall betterment to the junction.

4. A27 ARUNDEL BYPASS AND REVISED BASELINE FLOWS

- 4.1 This section of the report assesses the likely implications of the preferred route of the A27 Arundel Bypass, specifically upon the operation of Tye Lane and the junction with The Street.

A27 Arundel Bypass Preferred Route

- 4.2 Providing a strategic route across the south coast, the A27 forms a critical part of the road network, and as such, the A27 Arundel Bypass scheme was identified within the Government's Road Investment Strategy 2015 – 2020 to help tackle congestion and other issues in and around Arundel.
- 4.3 Following extensive research, assessment, consideration and discussions, in October 2020 HE announced their preferred route (5Bv1) which would have an impact upon the village of Walberton and the proposed development site. In addition, it would have significant impacts on the 'currently under construction' Land East of Tye Lane development, approved under application reference: WA/44/17/OUT).
- 4.4 The preferred route (which is demonstrated in **Figure 4**) will feature approximately 8km of dual two-lane carriageway to the south of the existing A27. The route will start at Crossbush and reconnect to the A27 near the A27/A29 Fontwell East roundabout. Whilst the proposal put forward by HE is not guaranteed, it provides an indication of the likely extent of the new road and therefore will likely include the following:
- A junction at Crossbush with access to and from the A27 in both directions:
 - A new viaduct spanning the River Arun and a bridge over the Arun Valley Railway:
 - A new bridge over Binsted Rife:
 - A new junction with the existing A27 at Tye Lane to the north of Walberton (with the A27 continuing via an underpass) enabling westbound access onto the A27 and eastbound access from the A27: and
 - The closure of Tye Lane south of the new route.



- 4.5 The preferred route will also result in a new overbridge being provided on Yapton Lane which would result in vehicles not being able to access the new bypass in this location, but instead continuing northbound and adjoining the existing A27.
- 4.6 As the proposed development is seeking to provide vehicular access onto Tye Lane, a sensitivity assessment has been undertaken to determine the likely impact of the potential closure of Tye Lane on the operation of other local junctions. This section also includes for the revised Linden Homes vehicular access to be provided onto Tye Lane because of the proposed bypass cutting through their existing access onto Yapton Lane.

Revised Baseline Flows on Tye Lane

- 4.7 It is important to note that Tye Lane serves as a key route within the village of Walberton at present given the direct access onto the A27. With the closure of Tye Lane, a number of vehicle movements would be displaced and therefore educated assumptions and routing of these has been undertaken using the information obtained from the turning counts and Automated Traffic Count (ATC) surveys that were included as part of the TA.
- 4.8 The revised baseline vehicle movements at each junction are discussed in the subsequent paragraphs, with the revised distribution diagrams included in **Appendix F**.

Tye Lane Movements

- 4.9 The ATC undertaken on Tye Lane in 2018, identified 80 AM vehicle movements (of which 28 were southbound and 52 were northbound) and 68 vehicle movements in the PM (of which 47 were southbound and 21 were northbound). These were factored up to represent the 2031 future year scenario from which junction models were run.
- 4.10 As Tye Lane is to be closed off because of the proposed bypass, a number of vehicle movements that were occurring and recorded along Tye Lane can be discounted and/or re-distributed on the local road network. Given that to the north of the proposed development is an industrial estate and a small number of dwellings, it is anticipated that a small number of vehicle movements would still occur both northbound and southbound past the proposed development even with the closure of Tye Lane to the A27.
- 4.11 With consideration given to the turning counts and movements at the Tye Lane/The Street junction and the subsequent flows past the proposed development site access, the following movements were retained on the network along Tye Lane.
- 5 AM departures and 8 PM departures (both SB movements on Tye Lane) retained to reflect the dwellings leaving Tye Lane in the morning and the industrial estate users leaving in the evening; and
 - 5 AM and 8 PM movements were retained as turning into Tye Lane from The Street to reflect those arriving to the industrial estate in the morning and those arriving home in the evening.
- 4.12 The revised 2031 baseline vehicle movements anticipated along Tye Lane outside the proposed site access are demonstrated in **Figure 5**.

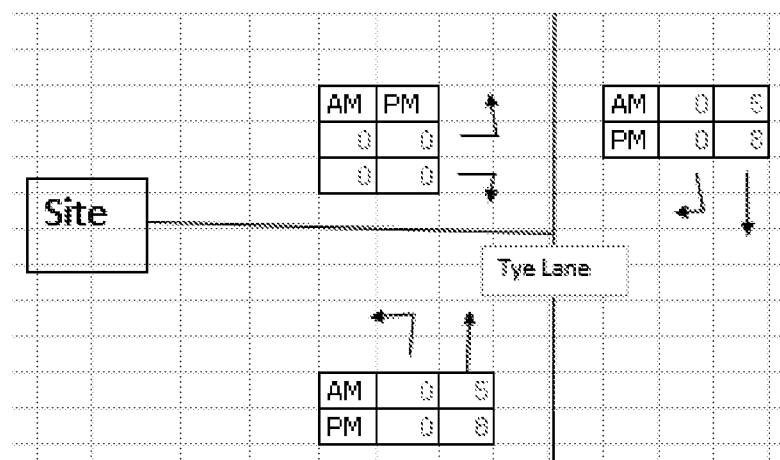


Figure 5: Revised Tye Lane Movements

Tye Lane/A27 Junction

- 4.13 At the Tye Lane/A27 junction, the 22 AM and 56 PM vehicle movements that were recorded as turning left in to Tye Lane have instead been re-distributed as continuing along the A27 to the Arundel Road left slip, left at the Arundel Road/West Walberton Road roundabout and subsequently left into Tye Lane at the Tye Lane/The Street junction.
- 4.14 The vehicle movements recorded as turning left out of Tye Lane onto the A27 (63 in the AM and 34 in the PM) are anticipated to be 'rat-runners' who utilised Tye Lane for access onto the A27. Therefore, these have been added onto the westbound movements along The Street, before continuing their journeys up West Walberton Lane. At the West Walberton Lane/Arundel Road roundabout, 75% of the vehicles (47 vehicles in the AM and 26 vehicles in the PM) are anticipated to travel to the Fontwell West roundabout and continue straight across to continue on the A27, whereas the remaining 25% (16 vehicles in the AM and 9 vehicles in the PM) are anticipated to turn right at the West Walberton Lane/Arundel Road roundabout, left onto the A27 and then distribute to either the A29 northbound or along the A27 eastbound.
- 4.15 The 63 AM and 34 PM vehicle movements discussed above do not need to be routed back into the site, given that there was no opportunity for them to turn right into Tye Lane from the A27 and therefore they are considered to already be included in the network flows.
- 4.16 The revised 2031 baseline vehicle movements anticipated at this junction are demonstrated in Figure 6.

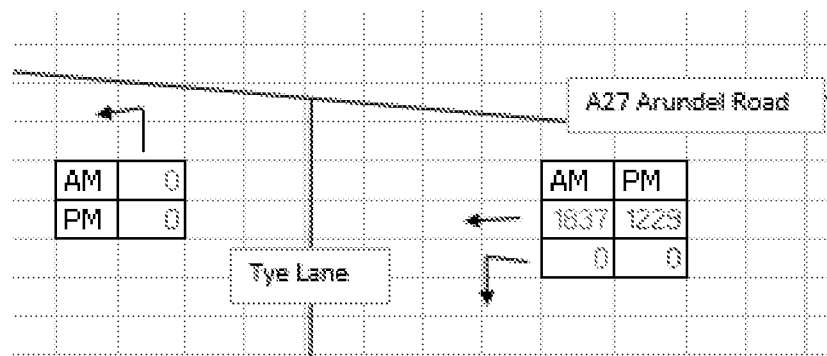


Figure 6: Revised Movements at the Tye Lane/A27 Junction

Tye Lane/The Street Junction

- 4.17 The recorded turning movements at the Tye Lane/The Street junction have been re-assessed to determine the likely number of vehicle movements anticipated through this junction once the closure of Tye Lane to the A27 is in place.

- 4.18 As aforementioned, Tye Lane would only serve the existing industrial estate and dwellings both located to the north of the proposed development site (before consideration is given to the proposed development and the possible Linden Homes development to the east as discussed later in the report).
- 4.19 It is anticipated that only 5 vehicle movements would occur both NB and SB along Tye Lane in the AM peak period, with 8 vehicle movements occurring both NB and SB in the PM peak period. Therefore, in addition to these movements, the 22 AM and 56 PM movements that were previously identified as turning left into Tye Lane from the A27 have been added to the 'left in' movement into Tye Lane from The Street – a very worst case scenario as these are almost certainly rat-runners rather than having Tye Lane as a destination. The additional 63 AM and 34 PM vehicle movements that were previously identified as turning 'left out' of Tye Lane onto the A27 have been added to the westbound movements along The Street.
- 4.20 The revised 2031 baseline vehicle movements anticipated at this junction are demonstrated in **Figure 7**.

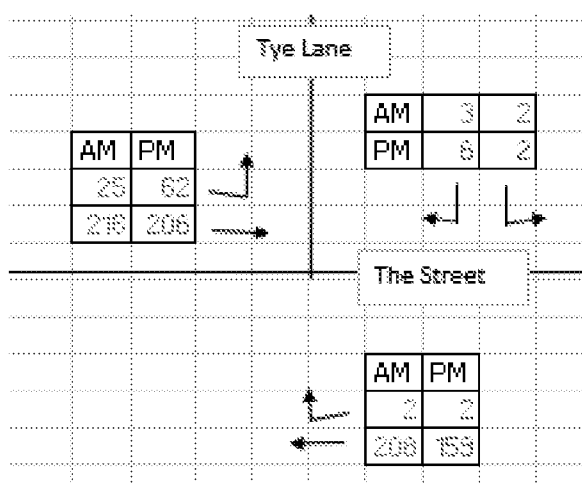


Figure 7: Revised Tye Lane/The Street Vehicle Movements

- 4.21 The revised vehicle movements along Tye Lane (and specifically at the Tye Lane/The Street junction) will be used later in this report to re-model the capacity of the Tye Lane/The Street junction with the addition of both the proposed development and the relocated Linden Homes developments' access.

5. SENSITIVITY ASSESSMENT - TRIP DISTRIBUTION AND ROUTE ASSIGNMENT

- 5.1 As part of the TA submitted to support the application, the distribution of vehicle trips to and from the site was assessed using data obtained from the 2011 'Travel to Work' Census Data for Arun 003. The data enabled us to determine the likely destinations and route residents of the proposed development would use and by which proportion.
- 5.2 The results of the initial assessment suggested that 68% of development traffic would have turned left out of the site and subsequently left onto the A27, with the remaining 32% turning right out of the site and continuing either eastbound (11%) or westbound (21%) on The Street. The route assignment submitted a part of the TA is provided in **Table 3** for reference.

Route Assignment	Percentage
North End Road	11%
Eastergate Lane	21%
A27 Westbound	43%
A27 Eastbound	20%
A29 SB	0%
A29 NB	5%
TOTAL	100%

Table 3: Route Assignment by Percentage (TA Submission)

- 5.3 Given that the preferred bypass route would involve the closure of Tye Lane and subsequently restricting access to the A27 to the north of the site, the distributions have been re-assessed, with all movements being required to turn right out and left into the site at the access. These have then been distributed appropriately onto the local road network. The revised distributions are set out within **Table 4**.

Destination	Percentage	Route Assignment
Chichester	34%	100% West Walberton Lane, A27 westbound
Arun 003: Eastergate/Westergate	14%	100% Eastergate Lane
Worthing	5%	100% A27 Eastbound
Arun 017: Bognor Regis	4%	50% North End Road, 50% Eastergate Lane
Arun 001: Arundel	4%	100% West Walberton Lane, A27 Eastbound
London Districts	3%	100% West Walberton Lane: 50% A29 NB, 50% A27 westbound
Arun 014: North Bognor Regis	3%	50% North End Road, 50% Eastergate Lane
Horsham	3%	100% West Walberton Lane: 50% A29, 50% A27 eastbound
Arun 006: Yapton	2%	100% North End Road
Portsmouth & IOW	2%	100% West Walberton Lane, A27 westbound
Arun 012: North Bersted	2%	100% Eastergate Lane
Havant	2%	100% West Walberton Lane, A27 westbound
Arun 004: Toddington	2%	100% North End Road
Arun 011: Littlehampton Central	2%	100% North End Road
Brighton and Hove	1%	100% West Walberton Lane, A27 Eastbound
Arun 009: Littlehampton East	1%	100% North End Road
Crawley	1%	100% West Walberton Lane: 50% A29, 50% A27 eastbound

Adur	1%	100% West Walberton Lane, A27 Eastbound
Arun 005: Angmering	1%	100% North End Road
Arun 016: Bognor Regis West	1%	50% North End Road, 50% Eastergate Lane
Arun 007: Rustington	1%	100% North End Road
East Hampshire	1%	100% West Walberton Lane, A27 westbound
Guildford	1%	100% West Walberton Lane: 50% A29, 50% A27 westbound
Fareham	1%	100% West Walberton Lane, A27 westbound
Other	8%	1% North End Road, 1% Eastergate Lane, 1% A29 NB, 3% A27 WB, 2% A27 EB
TOTAL	100%	N/A

Table 4: Revised Distribution Percentages

5.4 The revised route assignment percentages are provided in **Table 5**.

Direction from Tye Lane	Route Assignment		Percentage
Right from Tye Lane	Eastergate Lane	A29 SB	21%
Right from Tye Lane	West Walberton Lane	A27 Westbound	45%
		A27 Eastbound	10%
		A29 SB	0%
		A29 NB	5%
Left from Tye Lane	The Street	North End Road	19%
TOTAL	-	-	100%

Table 5: Revised Route Assignment

5.5 The revised distributions as set out within **Table 5** are still provided in line with those set out within the TA, albeit with the percentage utilising the A27 eastbound reduced and the percentage utilising North End Road increasing. This is due to the closure of Tye Lane resulting in a longer route to destinations such as Littlehampton and Rustington.

5.6 The preferred route of the A27 Arundel Bypass would have a significant impact on the access designed (and built) as part of the Linden Homes development on Land East of Tye Lane. As a result of the possibility of losing this access, a revised access application (reference: WA/93/20/PL) has been submitted in December 2020. As part of the revised application, distribution diagrams were presented to identify how the vehicles were anticipated to re-route from the new access onto Tye Lane and the wider network.

5.7 The results of the revised Linden Homes assessment were very similar to those presented in **Table 5**, with 83% anticipated to turn right out of Tye Lane onto The Street (in comparison to our suggested 81%) and 17% anticipated to turn left out onto The Street (in comparison to our 19%).

5.8 Whilst the results presented in **Table 5** are very similar to those suggested in the Linden application, WSCC highways officers have requested that the distributions are the same, and therefore for robustness (and as they have been agreed), the Linden distributions have been used.

- 5.9 The revised distribution of the development traffic from the site (which matches those submitted as part of the revised Linden Homes scheme under application reference: WA/93/20/PL) is summarised within the following paragraphs of the report and subsequently demonstrated in the distribution diagram included in **Appendix F**.

Site Access

- 5.10 The closure of Tye Lane to the north of the development site would result in all development traffic being required to turn right out of the site to continue southbound along Tye Lane. Similarly, the left turn manoeuvres from the A27 will no longer be achievable with vehicles being re-routed on the local road network as later discussed. Therefore, the distribution from the site access will be 100% turning right out and 100% turning left in.

Tye Lane/A27 Junction

- 5.11 As aforementioned, the A27 will no longer provided a junction with Tye Lane in this location, therefore inhibiting any left turn manoeuvres out of Tye Lane or left turn manoeuvres into Tye Lane.
- 5.12 Given that the 13% of vehicles associated with the development site who are anticipated to travel eastbound along the A27 towards destinations such as Arundel and Brighton, can no longer turn left into Tye Lane upon their return, they have been placed on the Yapton Lane southbound route. Vehicles are then anticipated to travel westbound along The Street and right into Tye Lane at the junction with The Street.

Tye Lane/The Street Junction

- 5.13 It is anticipated that of the 100% of development traffic departing the site, 83% will turn right onto The Street with the remaining 17% turning left. Given that no vehicles can turn right into the site from the north, all arrivals will be from the south and subsequently through the Tye Lane/The Street junction. As such, 69% of arrivals will be left into Tye Lane, with the remaining 31% turning right in.

The Street/West Walberton Lane Junction

- 5.14 The West Walberton Lane/The Street junction was not assessed in detail as part of the original TA given that only 21% of development traffic was to pass through it associated with vehicles traveling along Eastergate Lane. However, as the A27 would no longer be accessible to the north of the site, all vehicles wanting to travel northbound (to head either eastbound or westbound along the A27 or northbound on the A29) would be required to use West Walberton Lane.

- 5.15 Therefore, at this junction, it is anticipated that 56% of vehicles will travel northbound and 43% will travel southbound.
- 5.16 The remaining 26% who were anticipated to turn right out of Tye Lane onto The Street are anticipated to continue along The Street and utilise either Barnham Lane or Eastergate Lane.

West Walberton Lane/ Arundel Road Roundabout

- 5.17 Of the 56% travelling north on West Walberton Lane, 13% is turn right at the roundabout with Arundel Road and continue onto the A27 for access to the A27 Fontwell East roundabout. The remaining 43% is anticipated to turn left at the roundabout to continue along Arundel Road towards the A27 Fontwell West roundabout.
- 5.18 43% of vehicles are anticipated to travel through this roundabout and subsequently southbound on West Walberton Lane. This 43% are the vehicles arriving from the A27 eastbound who would travel straight across the Fontwell West roundabout and onto Arundel Road. The 13% who passed through this roundabout for site departures are routed back into the site via Yapton Lane as previously discussed and in accordance with the Linden Homes distributions.

A27/A29 Farmile Bottom Roundabout (Fontwell East Roundabout)

- 5.19 The distributions suggest that 13% of development traffic would utilise the A27 Fontwell East roundabout. As part of the original TA prepared by Paul Basham Associates, 15% of development traffic was anticipated to utilise this roundabout, of which 5% was anticipated to travel northbound along the A29, with the remaining 10% completing a U-turn and travelling eastbound along the A27.
- 5.20 However, the distributions set out by the revised Linden application (reference: WA/93/20/PL) suggest that the 13% utilising the Fontwell East roundabout would all travel eastbound along the A27 towards destinations including Brighton and East Sussex, with no vehicles anticipated to travel northbound along the A29. As such, our revised distribution diagram accords with those submitted through the Linden scheme. These vehicles would route back to the site via Yapton Lane.

A27/A29 Fontwell Avenue Roundabout (Fontwell West Roundabout)

- 5.21 As identified, it is anticipated that 43% of development departures and arrivals would use the A27 Fontwell West roundabout, arriving and departing via the Arundel Road arm. All vehicles would continue straight across the roundabout and utilise the A27 (westbound).

The Street/Yapton Lane/North End Road Roundabout

- 5.22 17% of vehicles departing the site are anticipated to travel eastbound along The Street and turn right at the 'The' Street/Yapton Lane/North End Road roundabout and continue south along Yapton Lane. For those arriving back to the site, all 17% of vehicles would turn left at the roundabout (and be joined by the 13% returning via Yapton Lane) and back onto The Street.

6. SENSITIVITY ASSESSMENT – TYE LANE/THE STREET JUNCTION CAPACITY ASSESSMENT

- 6.1 As part of the original TA submitted to support the application, junction capacity assessments of several local junctions were undertaken. Whilst the A27 roundabouts have been assessed earlier in this report as if the network were to remain as existing to determine the impact of the proposed development, a sensitivity assessment on the operation of the Tye Lane/The Street junction has been assessed, given the impact of the preferred Bypass route in the area.
- 6.2 The works completed by HE to date do not provide a comprehensive and complete assessment of the impact of the preferred bypass route on the operation of all the local junctions in and around Walberton, particularly in relation to how vehicle movements who would have previously travelled NB on Yapton Lane and onto the A27 will now do so. It is anticipated that these vehicles would likely route through the village, but with no real information to assess this, we can only base our assessment off the flows and data we do have.
- 6.3 Therefore, the Tye Lane/The Street junction model has been re-run to include for the revised 2031 flows, the inclusion of the Linden Homes revised access onto Tye Lane and the proposed development.
- 6.4 When this junction was modelled as part of the original TA, the Linden development was for 175 dwellings. Since then, an application has been submitted to increase the number of units on their site by 30, taking the total to 205 dwellings (through application WA/59/20/PL), and with the fall-back access position onto Tye Lane (application reference: WA/93/20/PL). Whilst the application for the additional units is yet to be determined, for robustness, this uplift in vehicle flows has been applied as part of the sensitivity test and distributed onto the network as per the percentages set out in **Appendix F**.
- 6.5 The junction modelling for the Tye Lane/The Street has therefore been re-run for the following scenarios:
- 2031 Baseline:
 - 2031 Baseline + Committed Developments (includes 205 dwellings at Land East of Tye Lane):
and
 - 2031 Baseline + Committed Developments + Proposed Development
- 6.6 The results of the junction modelling assessment are summarised in **Table 6**, with the full outputs included in **Appendix G**.

Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2031 Baseline						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.0	9.29	0.01	0.0	9.73	0.02
The Street (WB)	0.0	5.68	0.01	0.0	5.95	0.00
2031 Baseline + Committed Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.4	13.60	0.27	0.2	11.95	0.16
The Street (WB)	0.0	5.79	0.03	0.1	6.29	0.06
2031 Baseline + Committed Development + Proposed Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.8	18.82	0.46	0.4	14.06	0.27
The Street (WB)	0.1	5.88	0.05	0.2	6.72	0.11

Table 6: Revised Tye Lane/The Street Modelling

- 6.7 **Table 6** demonstrates that the Tye Lane/ The Street junction has a maximum RFC of 0.46, well below the recognised threshold of 0.85, therefore indicating that the operation of the junction will be within its capacity. This translates into queues of less than 1 vehicle and delays of under 20 seconds further illustrating the junction will operate efficiently even with the closure of Tye Lane, the addition of the Linden Homes scheme and the addition of the proposed development.
- 6.8 The results presented in **Table 6** are broadly in line with those submitted as part of the revised Linden Homes application (reference: WA/93/20/PL) which provided a maximum RFC of 0.30 in the '2031 baseline + Committed Development + Development' AM scenario on Tye Lane and 0.25 in the PM scenario.
- 6.9 It is important to note that, whilst the results presented within this report are broadly in keeping with those submitted as part of application WA/93/20/PL, it is the responsibility of this application to demonstrate the impact of the development on the local road network (with due consideration to the potential A27 realignment) and not to assess the implications of the A27 realignment on Walberton Village as a whole.

7. SUMMARY AND CONCLUSIONS

- 7.1 This Highways Response Note has been prepared by Paul Basham Associates on behalf of David Wilson Homes to support an *'Outline application with all matters reserved, other than means of access, for the construction of up to 155no. dwellings'* (application reference: WA/68/20/OUT) at land to the west of Tye Lane, Walberton.
- 7.2 This report has been written in order to address the highways comments received from both West Sussex County Council and Highways England where appropriate and suitable.
- 7.3 As requested by WSCC a pedestrian footway link has been provided alongside the western edge of Tye Lane. This footway measures 1.5m between the proposed vehicular access to lane west of Tye Lane and The Street, connecting into the existing footway at the south of Tye Lane. Two points of connection to the Linden Homes development to the East of Tye Lane have been proposed depending on whether they construct the consented pedestrian only access or the proposed vehicular access onto Tye Lane
- 7.4 A modelling assessment of the development impact on both the A27 Fontwell West and A27 Fontwell East roundabouts has demonstrated that the impact is negligible (unlikely to be distinguishable amongst daily fluctuations on these heavily-trafficked routes), and certainly not severe to reference NPPF terminology.
- 7.5 Following extensive research, assessment, consideration and discussions, in October 2020, HE announced their preferred route for the A27 Arundel Bypass scheme (5Bv1) which would have an impact upon the village of Walberton and the proposed development site. In addition, it would have significant impacts on the 'currently under construction' Land East of Tye Lane development, approved under application reference: WA/44/17/OUT). As such, assessments on the implications that this may cause on the area and in particular Tye Lane and its junction with The Street have been undertaken.
- 7.6 The recorded 2018 vehicle flows along Tye Lane in addition to the turning count movements recorded at the Tye Lane/The Street junction have been reassessed and re-distributed onto the local road network to take into account the closure of Tye Lane to the north of the proposed development site. This has included taking vehicles off of Tye Lane and placing them onto different arms at nearby junctions, whilst ensuring the flows are included at each relevant junction on the network.

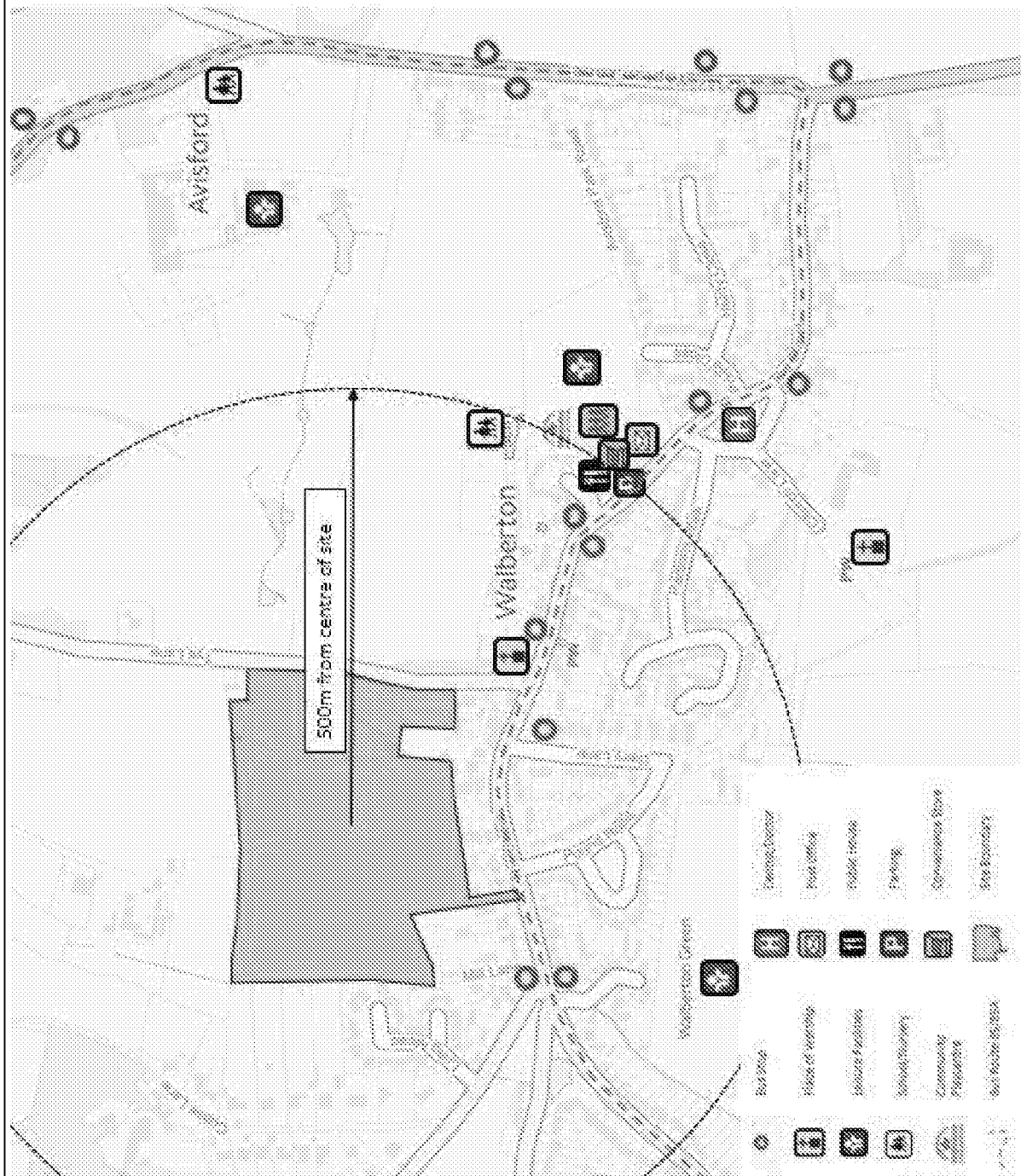
- 7.7 In addition to the revision of the baseline flows, further assessment into the likely vehicular distribution of the proposed development sites' traffic has been provided. The revised distributions have been provided in accordance with those set out within the revised Linden Homes access application (reference: WA/93/20/PL) which indicate an 83%/17% split right and left respectively for departures at the Tye Lane/The Street junction, and a 69%/31% split for those coming left and right into Tye Lane respectively.
- 7.8 In order to assess the capacity and capability of the Tye Lane/The Street junction to accommodate the closure of Tye Lane, the proposed development and the addition of 205 dwellings on land east of Tye Lane, a revised junction capacity model was undertaken, using the geometries set out within the original assessment completed as part of the Transport Assessment.
- 7.9 The results of the assessment indicate that there are no capacity concerns in relation to the operation of the junction should the bypass be provided and the implications it would cause to the local area. Whilst the results presented within this report are broadly in keeping with those submitted as part of the revised Linden Homes access application, the full impact of the closure of the Bypass on this junction cannot be determined given a lack of information in the public realm by Highways England, specifically relating to the distribution of other vehicles in the village.
- 7.10 The information provided within this report has aimed to address the comments raised by WSCC and HE and we therefore encourage these highway authorities to look favourably upon this development in relation to highways.

Land West of Tye Lane, Walberton
Transport Assessment

Appendix C

Paul Basham Associates Ltd
Report No. 041.0071/TA/3





Project Number:
041.0071

Project Name:
**Land West of Tye
Lane, Walberton**

Title:
Accessibility Map

paulbusham
associates

Checked By:
JL

Drawn By:
SB

Checked Date:
10.08.2020

Drawn Date:
10.08.2020

Scale: N/A

Drawing No: N/A

Land West of Tye Lane, Walberton
Transport Assessment

Appendix D

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



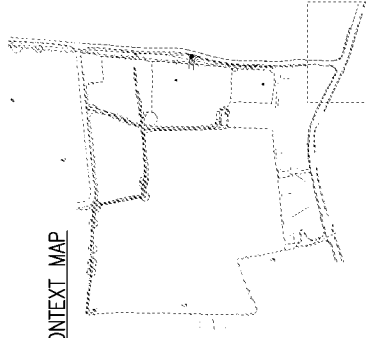
GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.
6. HIGHWAY BOUNDARY MAPPING WAS OBTAINED FROM WEST SUSSEX COUNTY COUNCIL IN 2018, WITH ADDITIONAL LIAISON WITH REGARDS TO AN OWNERSHIP QUERY ON TYE LANE UNDERTAKEN IN AUGUST 2020.

KEY

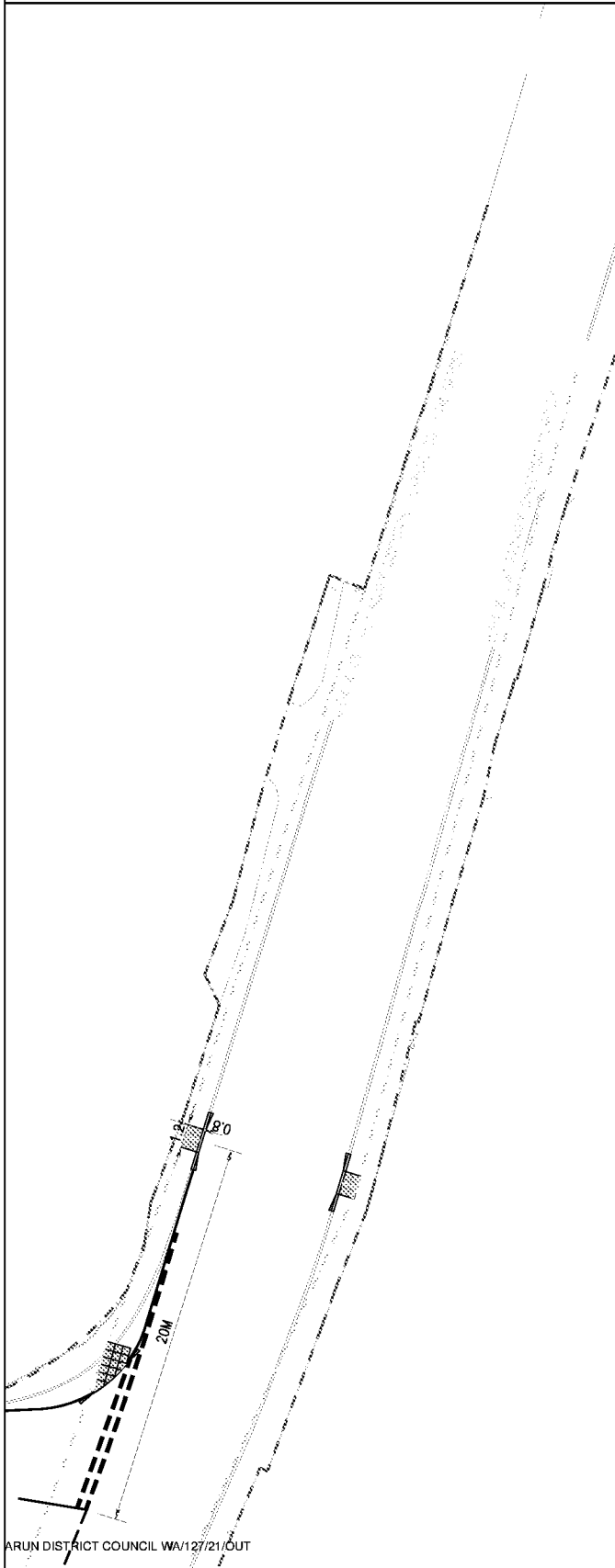
----- HIGHWAY BOUNDARY MAPPING

CONTEXT MAP

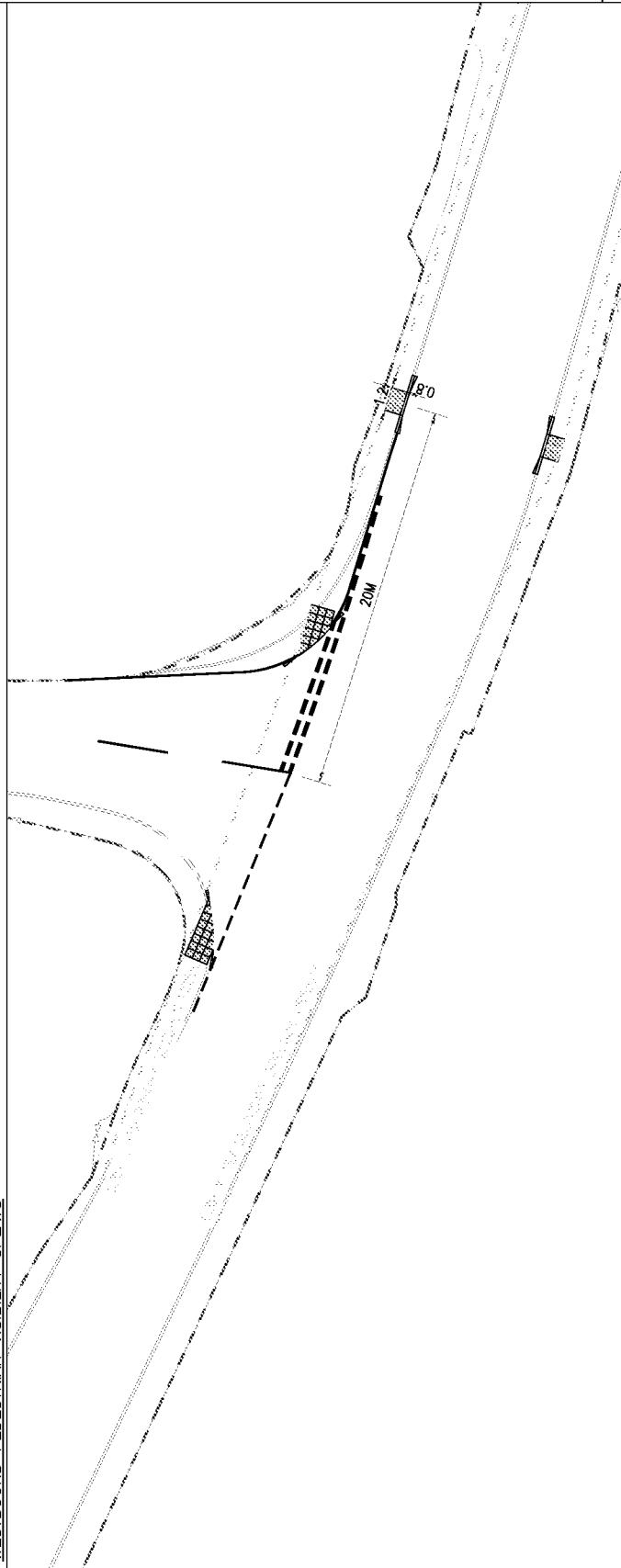


A		UPDATED WITH CLIENT COMMENTS	14.08.20	SB	MS
Rev	Description	Date	By	Chkd	

Scale		1:200
Checked Date		20.08.20
Checked By		SB
Drawn Date		19.08.20
Drawn By		SB
Client		DAVID WILSON HOMES ARUN DISTRICT COUNCIL
Client Drawing No.		041.0071.003
Revision		A



WESTBOUND PEDESTRIAN VISIBILITY SPLAYS



EASTBOUND PEDESTRIAN VISIBILITY SPLAYS

Project Name		LAND WEST OF TYE LANE WALDBERTON
Project Phase		PRELIMINARY
Title		PEDESTRIAN CROSSING AND VISIBILITY SPLAY ON THE STREET
Client		DAVID WILSON HOMES ARUN DISTRICT COUNCIL
Checked By		SB
Checked Date		20.08.20
Drawn By		SB
Drawn Date		19.08.20
Scale		1:200
Rev		
Description		
Date		14.08.20
By		SB
Chkd		MS

Land West of Tye Lane, Walberton
Transport Assessment

Appendix E

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



Calculation Reference: AUDIT-247601-200826-0852

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANSSelected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	3 days
	HC HAMPSHIRE	1 days
	HF HERTFORDSHIRE	1 days
	KC KENT	4 days
	SC SURREY	2 days
	WS WEST SUSSEX	4 days
03	SOUTH WEST	
	DV DEVON	2 days
04	EAST ANGLIA	
	NF NORFOLK	3 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	NR NORTHAMPTONSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
	ST STAFFORDSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	2 days
	SY SOUTH YORKSHIRE	1 days
09	NORTH	
	DH DURHAM	2 days

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

Primary 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: No of Dwellings
 Actual Range: 50 to 432 (units:)
 Range Selected by User: 50 to 500 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/12 to 19/11/19

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:

Monday	8 days
Tuesday	4 days
Wednesday	7 days
Thursday	7 days
Friday	4 days
Saturday	1 days

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

Selected survey types:

Manual count	31 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 undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	11
Edge of Town	20

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	29
No Sub Category	2

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	31 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®.

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	4 days
25,001 to 50,000	3 days
50,001 to 75,000	3 days
75,001 to 100,000	8 days
100,001 to 125,000	1 days
125,001 to 250,000	11 days
250,001 to 500,000	1 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	5 days
1.1 to 1.5	24 days
1.6 to 2.0	2 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	10 days
No	21 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	31 days
-----------------	---------

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

LIST OF SITES relevant to selection parameters

- | | | |
|---|--|---------------------|
| 1 | DH-03-A-01 SEMI DETACHED
GREENFIELDS ROAD
BISHOP AUCKLAND | DURHAM |
| | Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 50
Survey date: TUESDAY 28/03/17 | Survey Type: MANUAL |
| 2 | DH-03-A-03 SEMI-DETACHED & TERRACED
PILGRIMS WAY
DURHAM | DURHAM |
| | Edge of Town
Residential Zone
Total No of Dwellings: 57
Survey date: FRIDAY 19/10/18 | Survey Type: MANUAL |
| 3 | DS-03-A-02 MIXED HOUSES
RADBOURNE LANE
DERBY | DERBYSHIRE |
| | Edge of Town
Residential Zone
Total No of Dwellings: 371
Survey date: TUESDAY 10/07/18 | Survey Type: MANUAL |
| 4 | DV-03-A-02 HOUSES & BUNGALOWS
MILLHEAD ROAD
HONITON | DEVON |
| | Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 116
Survey date: FRIDAY 25/09/15 | Survey Type: MANUAL |
| 5 | DV-03-A-03 TERRACED & SEMI DETACHED
LOWER BRAND LANE
HONITON | DEVON |
| | Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 70
Survey date: MONDAY 28/09/15 | Survey Type: MANUAL |
| 6 | ES-03-A-03 MIXED HOUSES & FLATS
SHEPHAM LANE
POLEGATE | EAST SUSSEX |
| | Edge of Town
Residential Zone
Total No of Dwellings: 212
Survey date: MONDAY 11/07/16 | Survey Type: MANUAL |
| 7 | ES-03-A-04 MIXED HOUSES & FLATS
NEW LYDD ROAD
CAMBER | EAST SUSSEX |
| | Edge of Town
Residential Zone
Total No of Dwellings: 134
Survey date: FRIDAY 15/07/16 | Survey Type: MANUAL |
| 8 | ES-03-A-05 MIXED HOUSES & FLATS
RATTLE ROAD
NEAR EASTBOURNE
STONE CROSS | EAST SUSSEX |
| | Edge of Town
Residential Zone
Total No of Dwellings: 99
Survey date: WEDNESDAY 05/06/19 | Survey Type: MANUAL |

LIST OF SITES relevant to selection parameters (Cont.)

9	HC-03-A-23	HOUSES & FLATS	HAMPSHIRE
	CANADA WAY LIPHOOK		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	62	
	Survey date: TUESDAY	19/11/19	Survey Type: MANUAL
10	HF-03-A-03	MIXED HOUSES	HERTFORDSHIRE
	HARE STREET ROAD BUNTINGFORD		
	Edge of Town Residential Zone		
	Total No of Dwellings:	160	
	Survey date: MONDAY	08/07/19	Survey Type: MANUAL
11	KC-03-A-03	MIXED HOUSES & FLATS	KENT
	HYTHE ROAD ASHFORD WILLESBOROUGH		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	51	
	Survey date: THURSDAY	14/07/16	Survey Type: MANUAL
12	KC-03-A-04	SEMI-DETACHED & TERRACED	KENT
	KILN BARN ROAD AYLESFORD DITTON		
	Edge of Town Residential Zone		
	Total No of Dwellings:	110	
	Survey date: FRIDAY	22/09/17	Survey Type: MANUAL
13	KC-03-A-06	MIXED HOUSES & FLATS	KENT
	MARGATE ROAD HERNE BAY		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	363	
	Survey date: WEDNESDAY	27/09/17	Survey Type: MANUAL
14	KC-03-A-07	MIXED HOUSES	KENT
	RECULVER ROAD HERNE BAY		
	Edge of Town Residential Zone		
	Total No of Dwellings:	288	
	Survey date: WEDNESDAY	27/09/17	Survey Type: MANUAL
15	NE-03-A-02	SEMI DETACHED & DETACHED	NORTH EAST LINCOLNSHIRE
	HANOVER WALK SCUNTHORPE		
	Edge of Town No Sub Category		
	Total No of Dwellings:	432	
	Survey date: MONDAY	12/05/14	Survey Type: MANUAL
16	NF-03-A-02	HOUSES & FLATS	NORFOLK
	DEREHAM ROAD NORWICH		
	Suburban Area (PPS6 Out of Centre) Residential Zone		
	Total No of Dwellings:	98	
	Survey date: MONDAY	22/10/12	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

17	NF-03-A-04	MIXED HOUSES		NORFOLK
	NORTH WALSHAM ROAD			
	NORTH WALSHAM			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	70		
	Survey date: WEDNESDAY	18/09/19		Survey Type: MANUAL
18	NF-03-A-06	MIXED HOUSES		NORFOLK
	BEAUFORT WAY			
	GREAT YARMOUTH			
	BRADWELL			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	275		
	Survey date: MONDAY	23/09/19		Survey Type: MANUAL
19	NR-03-A-01	HOUSES		NORTHAMPTONSHIRE
	BOUGHTON GREEN ROAD			
	NORTHAMPTON			
	KINGSTHORPE			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	102		
	Survey date: SATURDAY	22/09/12		Survey Type: MANUAL
20	NY-03-A-09	MIXED HOUSING		NORTH YORKSHIRE
	GRAMMAR SCHOOL LANE			
	NORTHALLERTON			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	52		
	Survey date: MONDAY	16/09/13		Survey Type: MANUAL
21	NY-03-A-10	HOUSES AND FLATS		NORTH YORKSHIRE
	BOROUGHBRIDGE ROAD			
	RIPON			
	Edge of Town			
	No Sub Category			
	Total No of Dwellings:	71		
	Survey date: TUESDAY	17/09/13		Survey Type: MANUAL
22	SC-03-A-04	DETACHED & TERRACED		SURREY
	HIGH ROAD			
	BYFLEET			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	71		
	Survey date: THURSDAY	23/01/14		Survey Type: MANUAL
23	SC-03-A-05	MIXED HOUSES		SURREY
	REIGATE ROAD			
	HORLEY			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	207		
	Survey date: MONDAY	01/04/19		Survey Type: MANUAL
24	SF-03-A-07	MIXED HOUSES		SUFFOLK
	FOXHALL ROAD			
	IPSWICH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	73		
	Survey date: THURSDAY	09/05/19		Survey Type: MANUAL
25	SH-03-A-05	SEMI-DETACHED/TERRACED		SHROPSHIRE
	SANDCROFT			
	TELFORD			
	SUTTON HILL			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	54		
	Survey date: THURSDAY	24/10/13		Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

26	ST-03-A-07	DETACHED & SEMI-DETACHED	STAFFORDSHIRE
	BEACONSIDE		
	STAFFORD		
	MARSTON GATE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	248	
	Survey date: WEDNESDAY	22/11/17	Survey Type: MANUAL
27	SY-03-A-01	SEMI DETACHED HOUSES	SOUTH YORKSHIRE
	A19 BENTLEY ROAD		
	DONCASTER		
	BENTLEY RISE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total No of Dwellings:	54	
	Survey date: WEDNESDAY	18/09/13	Survey Type: MANUAL
28	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	HORSHAM		
	BROADBRIDGE HEATH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL
29	WS-03-A-08	MIXED HOUSES	WEST SUSSEX
	ROUNDSTONE LANE		
	ANGMERING		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	180	
	Survey date: THURSDAY	19/04/18	Survey Type: MANUAL
30	WS-03-A-09	MIXED HOUSES & FLATS	WEST SUSSEX
	LITTLEHAMPTON ROAD		
	WORTHING		
	WEST DURRINGTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	197	
	Survey date: THURSDAY	05/07/18	Survey Type: MANUAL
31	WS-03-A-10	MIXED HOUSES	WEST SUSSEX
	TODDINGTON LANE		
	LITTLEHAMPTON		
	WICK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	79	
	Survey date: WEDNESDAY	07/11/18	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.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANSCalculation factor: **1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	31	147	0.012	31	147	0.035	31	147	0.047
08:00 - 09:00	31	147	0.032	31	147	0.080	31	147	0.112
09:00 - 10:00	31	147	0.035	31	147	0.036	31	147	0.071
10:00 - 11:00	31	147	0.029	31	147	0.037	31	147	0.066
11:00 - 12:00	31	147	0.027	31	147	0.026	31	147	0.053
12:00 - 13:00	31	147	0.033	31	147	0.024	31	147	0.057
13:00 - 14:00	31	147	0.027	31	147	0.028	31	147	0.055
14:00 - 15:00	31	147	0.030	31	147	0.035	31	147	0.065
15:00 - 16:00	31	147	0.071	31	147	0.042	31	147	0.113
16:00 - 17:00	31	147	0.058	31	147	0.033	31	147	0.091
17:00 - 18:00	31	147	0.050	31	147	0.025	31	147	0.075
18:00 - 19:00	31	147	0.035	31	147	0.039	31	147	0.074
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.439			0.440			0.879

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.

Land West of Tye Lane, Walberton
Transport Assessment

Appendix F

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



Site No: 22655001
Tye Lane, Walberton (Hedge)
Vehicle Count Report

Grid Reference: SU97019,06360

Week Begin: 24-Feb-18

Channel: Northbound

Time Begin	Sat 24/02/2018	Sun 25/02/2018	Mon 26/02/2018	Tue 27/02/2018	Wed 28/02/2018	Thu 01/03/2018	Fri 02/03/2018	5-Day Av	7-Day Av
00:00	4	3	0	0	3	0	0	1	1
01:00	0	2	0	0	0	1	1	0	1
02:00	1	0	0	2	0	2	1	1	1
03:00	0	0	0	0	0	0	0	0	0
04:00	0	0	1	1	1	3	1	1	1
05:00	5	2	6	9	6	6	3	6	5
06:00	9	5	22	12	15	11	9	14	12
07:00	14	9	63	50	61	46	32	50	39
08:00	25	15	63	54	64	50	29	52	43
09:00	26	16	50	29	54	32	17	36	32
10:00	27	29	30	26	38	22	18	27	27
11:00	37	28	28	27	27	15	26	25	27
12:00	25	17	33	41	23	20	15	26	25
13:00	21	25	27	27	34	28	11	25	25
14:00	31	17	31	23	23	20	23	24	24
15:00	20	17	26	24	50	30	16	29	26
16:00	16	7	24	23	21	22	10	20	18
17:00	6	11	21	24	21	20	17	21	17
18:00	14	8	11	14	13	3	6	9	10
19:00	8	4	8	4	9	4	6	6	6
20:00	2	3	5	4	10	1	1	4	4
21:00	4	1	2	2	3	3	2	2	2
22:00	2	2	3	2	1	1	3	2	2
23:00	5	1	2	2	2	4	7	3	3

12H,7-19	262	199	407	362	429	308	220	345	312
16H,6-22	285	212	444	384	466	327	238	372	337
18H,6-24	292	215	449	388	469	332	248	377	342
24H,0-24	302	222	456	400	479	344	254	387	351

Am	11:00	10:00	08:00	08:00	08:00	08:00	07:00 -	-	
Peak	37	29	63	54	64	50	32	53	47
Pm	14:00	13:00	12:00	12:00	15:00	15:00	14:00 -	-	
Peak	31	25	33	41	50	30	23	35	33

K & M TRAFFIC SURVEYS

Created at 13:04:46 on 13 Mar 2018

Site No: 22655001
Tye Lane, Walberton (Hedge)
Vehicle Count Report

Grid Reference: SU97019,06360

Week Begin: 03-Mar-18

Channel: Northbound

Time	Sat	Sun	Mon	Tue	Wed	Thu	Fri	5-Day	7-Day
Begin	03/03/2018	04/03/2018	05/03/2018	06/03/2018	07/03/2018	08/03/2018	09/03/2018	Av	Av
00:00	2	1	0	0	-	-	-	0	0
01:00	0	1	0	1	-	-	-	1	1
02:00	0	0	1	1	-	-	-	1	1
03:00	0	0	0	1	-	-	-	1	0
04:00	1	0	3	1	-	-	-	2	2
05:00	2	2	8	8	-	-	-	8	6
06:00	5	4	23	23	-	-	-	23	18
07:00	11	9	64	62	-	-	-	63	48
08:00	20	12	59	66	-	-	-	63	49
09:00	29	17	43	45	-	-	-	44	38
10:00	33	23	35	30	-	-	-	33	31
11:00	20	32	29	17	-	-	-	23	24
12:00	19	20	23	25	-	-	-	24	23
13:00	18	17	23	32	-	-	-	28	25
14:00	15	12	29	26	-	-	-	28	24
15:00	19	21	30	28	-	-	-	29	26
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22:00	3	6	3	4	-	-	-	4	4
23:00	2	1	2	0	-	-	-	1	1
12H,7-19	226	195	398	399	-	-	-	399	345
16H,6-22	247	217	435	437	-	-	-	436	378
18H,6-24	252	224	440	441	-	-	-	441	383
24H,0-24	257	228	452	453	-	-	-	453	393
Am	10:00	11:00	07:00	08:00	-	-	-	-	-
Peak	33	32	64	66	-	-	-	65	56
Pm	16:00	15:00	15:00	13:00	-	-	-	-	-
Peak	19	21	30	32	-	-	-	31	28

K & M TRAFFIC SURVEYS

Created at 13:04:46 on 13 Mar 2018

Site No: 22655001
Tye Lane, Walberton (Hedge)
Vehicle Count Report

Grid Reference: SU97019,06360

Week Begin: 24-Feb-18

Channel: Southbound

Time Begin	Sat 24/02/2018	Sun 25/02/2018	Mon 26/02/2018	Tue 27/02/2018	Wed 28/02/2018	Thu 01/03/2018	Fri 02/03/2018	5-Day Av	7-Day Av
00:00		5	4	5	1	3	5	2	3
01:00		1	3	0	0	1	0	0	0
02:00		0	2	2	2	1	2	1	2
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04:00		1	1	1	3	3	6	3	3
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07:00		13	5	10	9	15	11	10	11
08:00		17	10	35	21	32	28	22	28
09:00		12	17	22	25	32	26	10	23
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18:00		21	16	21	27	28	14	13	21
19:00		16	9	15	11	11	7	8	10
20:00		10	3	8	9	8	0	7	6
21:00		12	4	8	6	5	7	3	6
22:00		8	4	8	10	10	7	5	8
23:00		5	3	2	1	5	5	4	3

12H,7-19	254	219	375	334	403	319	245	335	307
16H,6-22	295	236	415	367	432	342	266	364	336
18H,6-24	308	243	425	378	447	354	275	376	347
24H,0-24	318	256	439	389	461	373	285	389	360

Am	11:00	09:00	08:00	11:00	09:00	08:00	10:00 -	-	
Peak	22	17	35	27	32	28	25	29	27
Pm	14:00	17:00	17:00	17:00	15:00	17:00	17:00 -	-	
Peak	33	31	55	56	58	40	29	48	43

K & M TRAFFIC SURVEYS

Created at 13:04:46 on 13 Mar 2018

Site No: 22655001
Tye Lane, Walberton (Hedge)
Vehicle Count Report

Grid Reference: SU97019,06360

Week Begin: 03-Mar-18

Channel: Southbound

Time Begin	Sat 03/03/2018	Sun 04/03/2018	Mon 05/03/2018	Tue 06/03/2018	Wed 07/03/2018	Thu 08/03/2018	Fri 09/03/2018	5-Day Av	7-Day Av
00:00	4	6	3	4 -	-	-	-	4	4
01:00	2	2	0	0 -	-	-	-	0	1
02:00	0	3	2	2 -	-	-	-	2	2
03:00	2	0	0	0 -	-	-	-	0	0
04:00	5	2	5	4 -	-	-	-	5	4
05:00	1	4	2	2 -	-	-	-	2	2
06:00	2	3	1	6 -	-	-	-	4	3
07:00	3	3	18	16 -	-	-	-	17	13
08:00	10	7	34	32 -	-	-	-	33	26
09:00	21	19	24	27 -	-	-	-	26	24
10:00	23	13	25	19 -	-	-	-	22	21
11:00	26	19	27	21 -	-	-	-	24	24
12:00	25	28	30	29 -	-	-	-	30	29
13:00	25	18	29	21 -	-	-	-	25	24
14:00	18	23	33	30 -	-	-	-	32	28
15:00	16	18	30	46 -	-	-	-	38	32
16:00	31	30	50	55 -	-	-	-	53	46
17:00	23	21	63	48 -	-	-	-	56	46
18:00	11	14	29	39 -	-	-	-	34	28
19:00	11	10	22	23 -	-	-	-	23	19
20:00	6	9	11	10 -	-	-	-	11	10
21:00	7	5	14	7 -	-	-	-	11	9
22:00	5	3	5	8 -	-	-	-	7	6
23:00	11	1	5	7 -	-	-	-	6	6
12H,7-19	232	213	392	383 -	-	-	-	388	340
16H,6-22	258	240	440	429 -	-	-	-	435	381
18H,6-24	274	244	450	444 -	-	-	-	447	393
24H,0-24	288	261	462	456 -	-	-	-	459	406
Am	11:00	11:00	08:00	08:00 -	-	-	-	-	-
Peak	26	19	34	32 -	-	-	-	33	30
Pm	16:00	16:00	17:00	16:00 -	-	-	-	-	-
Peak	31	30	63	55 -	-	-	-	59	51

K & M TRAFFIC SURVEYS

Created at 13:04:46 on 13 Mar 2018

Land West of Tye Lane, Walberton
Transport Assessment

Appendix G

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



GENERAL NOTES

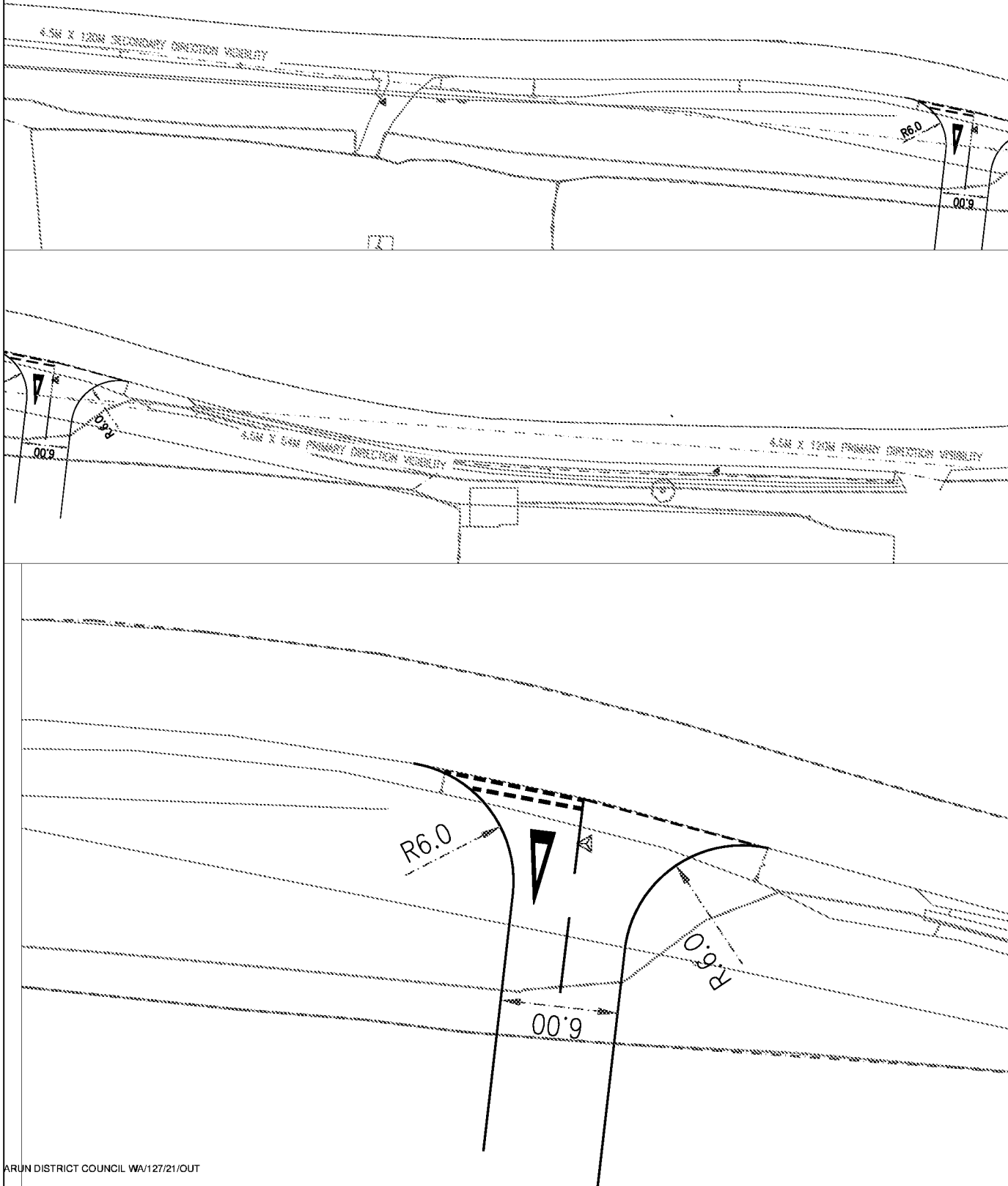
1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.
6. HIGHWAY BOUNDARY MAPPING WAS OBTAINED FROM WEST SUSSEX COUNTY COUNCIL IN 2018, WITH ADDITIONAL LIAISON WITH REGARDS TO AN OWNERSHIP QUERY ON THE LANE UNDERTAKEN IN AUGUST 2020.

VISIBILITY SPLAYS

1. VISIBILITY SPLAYS ARE BASED ON THE RECORDED 85%ILE SPEEDS OF 40MPH SOUTHBOUND & 41MPH NORTHBOUND ON THE LANE AS PROVIDED BY MAYER BROWN.
2. ANY VEGETATION WITHIN THE VISIBILITY SPLAYS WILL BE MAINTAINED TO BELOW 600MM IN HEIGHT AS REQUIRED IN MANUAL FOR STREETS DESIGN GUIDANCE.

KEY

----- HIGHWAY BOUNDARY MAPPING



ACCESS DESIGN		SCALE 1:200	PRIMARY DIRECTION VISIBILITY SPLAY	SECONDARY DIRECTION VISIBILITY SPLAY	UPDATED VISIBILITY NOTES		06.08.20	08	08	08
Project Name LAND WEST OF TYE LANE WALBERTON		Access Design and Visibility Splays	DAVID WILSON HOMES WILSON HOMES	Checked By A	Drawn By SB	Checked Date 20.08.20	Drawn Date 19.08.20	Scale 1:200	Drawn 04.1.0071.001	Drawn A
Project Phase PRELIMINARY		(AT A3 SIZE)								

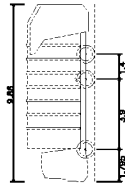
GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.
6. HIGHWAY BOUNDARY MAPPING WAS OBTAINED FROM WEST SUSSEX COUNTY COUNCIL IN 2018, WITH ADDITIONAL LIAISON WITH REGARDS TO AN OWNERSHIP QUERY ON THE LANE UNDERTAKEN IN AUGUST 2020.

KEY

HIGHWAY BOUNDARY MAPPING

REFUSE VEHICLE PROFILE



Large Refuse Vehicle (3 axle)	
Overall Length	8.50m
Overall Width	2.50m
Overall Body Height	3.14m
Min Body Ground Clearance	0.365m
Track Width	2.45m
Lock to lock time	4.00s
Kerb to kerb turning Radius	9.500m

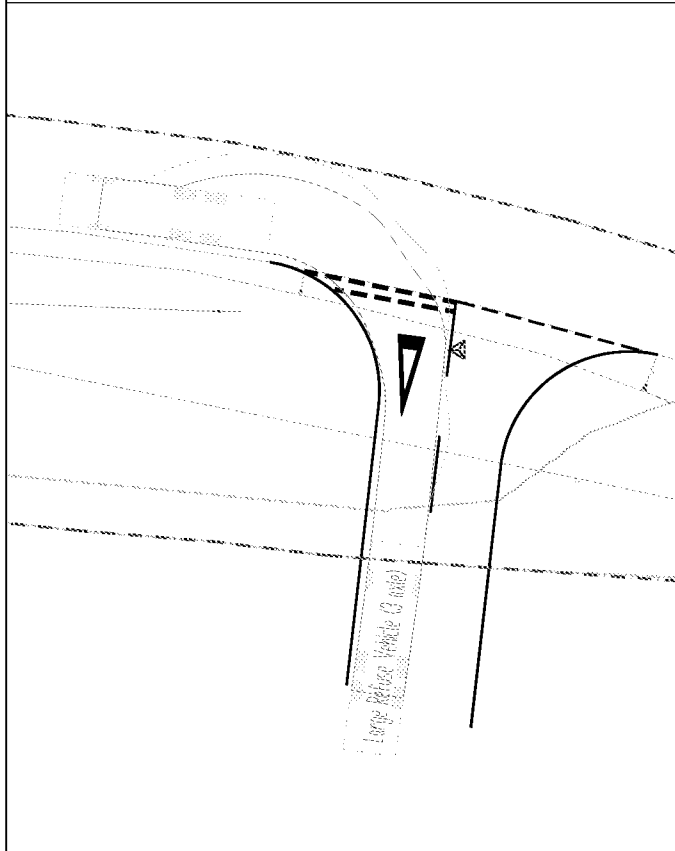
CAR VEHICLE PROFILE



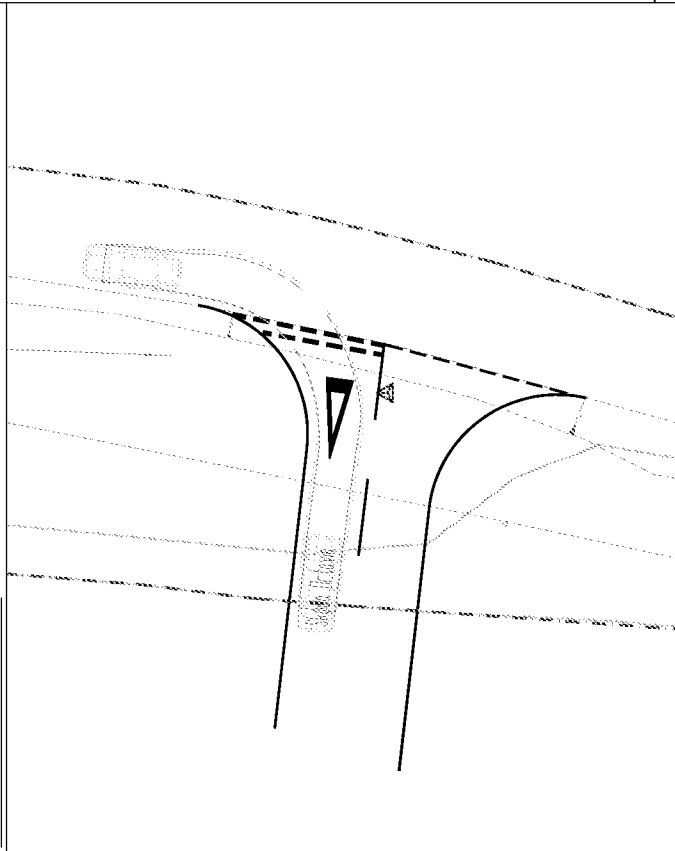
Skoda	Octavia	4.572m
Overall	Length	1.766m
Overall	Width	1.488m
Overall	Body Height	1.488m
Overall	Body Ground Clearance	0.249m
Min	Body Ground Clearance	1.713m
Max	Track Width	1.500m
Lock to lock time		4.00s
Kerb to kerb turning Radius		5.100m

A	UPDATED CLIENT LOGO	24.08.20	95	M/S
<i>Rev</i>	<i>Completed</i>	<i>Date</i>	<i>By</i>	<i>Check</i>

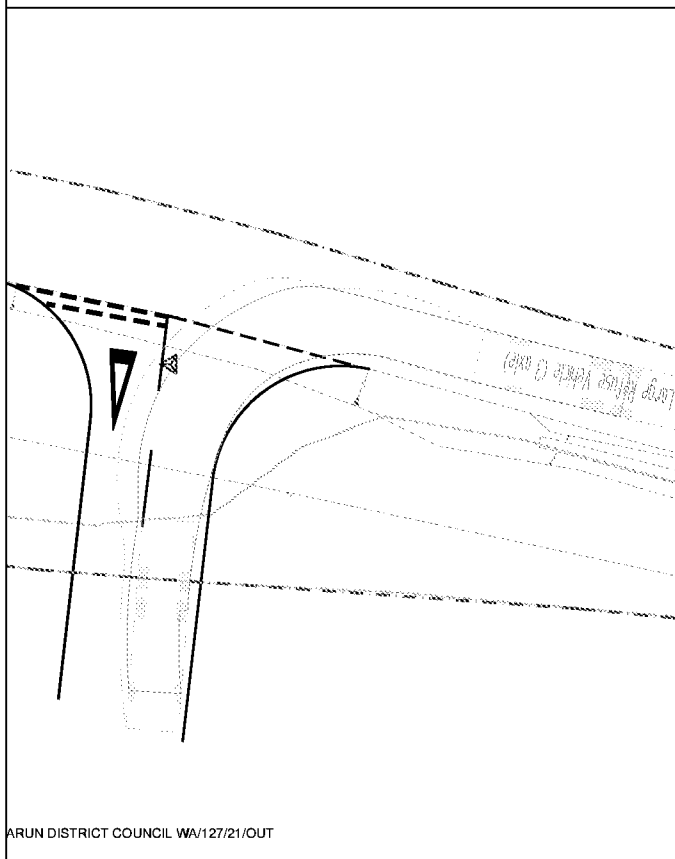
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		A



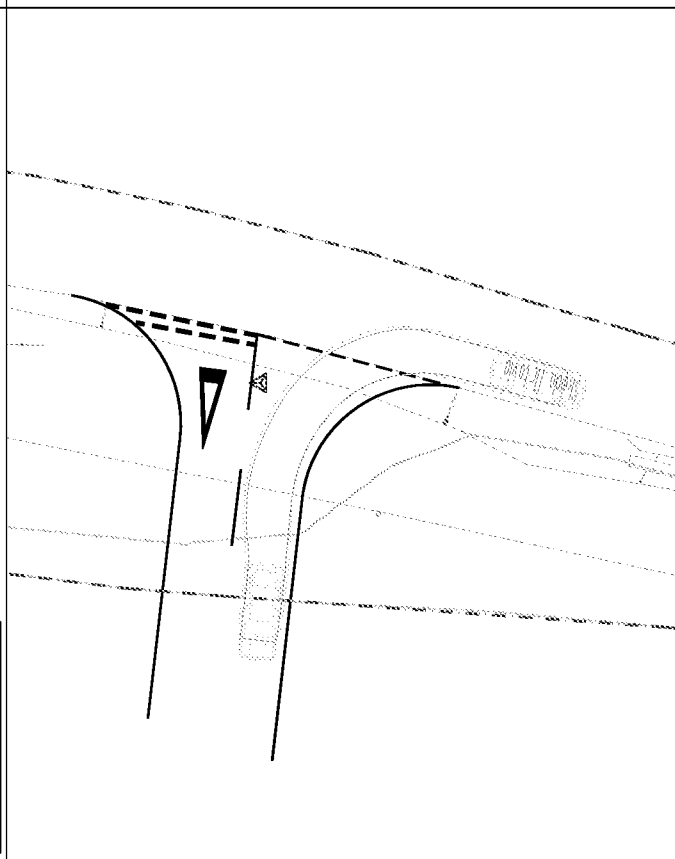
REFUSE VEHICLE LEFT OUT



CAR LEFT OUT



REFUSE VEHICLE LEFT IN



CAR LEFT IN

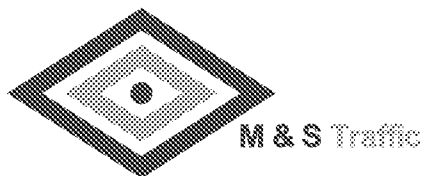
Project Name	Type	Access Vehicle Tracking
LAND WEST OF TYE LAKE WALBORTON		
Project Phase		
PRELIMINARY		

Land West of Tye Lane, Walberton
Transport Assessment

Appendix H

Paul Basham Associates Ltd
Report No. 041.0071/TA/3





Road Safety Audit Stage 1

Proposed Section 278 Works

Tye Lane

Walberton

West Sussex

Date: 7th September 2020

Report produced for: Paul Basham Associates

Report produced by: M & S Traffic

Registered Office: 32 Hamelin Road, Gillingham, Kent ME7 3EX Registered in Cardiff No:06730905

DOCUMENT CONTROL SHEET

M&S Traffic has prepared this report in accordance with the instructions from Paul Basham Associates. M&S Traffic shall not be liable for the use of any information contained herein for any purpose other than the sole and specific use for which it was prepared.

Project Title Land West of Tye Lane, Walberton

Report Title Road Safety Audit Stage 1

Revision

Status Final

Audit Reference PBA/20/041.0071/TL/1/MM

Record of Issue

Document Ref 041.0071.S1RSA/1	Prepared by: (Name)	Checked by: (Name)	Approved by (Signature)	Date Approved
Revision	Martin Morris	Bryan Shawyer		7 th September 2020
Designers Response	Shannon Betteridge	Mark Smith		9 th September 2020
Authority Response				

Distribution

Organisation	Contact	Copies
Paul Basham Associates	Shannon Betteridge	-

CONTENTS

Document Control Sheet	2
Contents	3
1 Introduction	4
2 Safety issues raised at previous Audits	6
3 Items raised at the Stage 1 Audit	7
4 Issues identified during the Stage 1 Audit that are outside the terms of reference	11
5 Auditors Statement	12

Appendix A..... List of drawings

Appendix B..... Comment location drawing

Appendix C..... Road Safety Audit Decision Log.

Appendix D..... Design Organisation Statement.

Appendix E..... Overseeing Organisation Statement.

1 INTRODUCTION

- 1.1 This report describes a Stage 1 Road Safety Audit carried out on proposed Section 278 works on Tye Lane, Walberton associated with a residential development of 160-units.

- Priority junction, on the western side of Tye Lane London Road.

The Audit was requested by the design organisation, Paul Basham Associates, The Bothy, Cams Hall Estate, Fareham, PO16 8UT on behalf of West Sussex County Council, as the Highway Authority.

- 1.2 The Audit Team membership was as follows:

Martin Morris, PGD, MCIHT, MSoRSA– Audit Team Leader
Highways England Approved RSA Certificate of Competency

Bryan Shawyer B.Eng. (Hons), MSc, MCIHT, MSoRSA – Audit Team Member
Highways England Approved RSA Certificate of Competency

- 1.3 The audit was undertaken following the principles of GG 119, The Design Manual for Roads and Bridges. The documents available at the time the report was compiled are detailed in Appendix A.
- 1.4 The Audit took place at the Gillingham offices of M&S Traffic in September 2020 and comprised an examination of the documents provided as listed in Appendix A, plus a joint visit to the site of the scheme during the morning of the 1st September 2020 between 10:30 and 11:15. Weather conditions at the time were fine and the road surface was dry. Traffic flows were low and free flow speeds were low. There were no pedestrian flows and no cyclist movements observed during the site visit; however, the audit was undertaken in the Covid-19 outbreak
- 1.5 The report has been compiled, only with regards to the safety implications for road users of the layout presented in the supplied drawings. It has not been examined or verified for compliance with any other standards or criteria. This safety audit does not perform any “Technical Check” function on these proposals. It is assumed that the Project Sponsor is satisfied that such a “Technical Check” has been successfully completed prior to requesting this safety audit.
- 1.6 The auditors have not been informed of any Departures from Standards in this scheme construction. No traffic flow was provided to the Audit Team.
- 1.7 All comments and recommendations are referenced to the detailed drawings and the locations have been detailed relating to the plans supplied with the audit brief, Appendix B.

2 SAFETY ISSUES RAISED AT PREVIOUS AUDITS

2.1 No previous safety audits were submitted for assessment.

3 ITEMS RAISED AT THE STAGE 1 AUDIT

3.1 General

3.1.1 No comment.

3.2 Local Alignment

3.2.1 No comment.

3.3 Junctions

3.3.1 PROBLEM

Location: Proposed junction with Tye Lane:

Summary: Lack of visibility could lead to side impact collisions or rear end shunts.

Visibility splays at the junctions have been provided, which are considered acceptable; however, the verge within the splays is banked see figures 1 & 2 below. There is concern that banking and landscaping exceeding 600mm in height within the visibility splays could adversely affect visibility, which could lead to side impact collisions or rear end shunts.



Figures 1 & 2; Banking and vegetation within the visibility splays.

RECOMMENDATION

It is recommended that the banks and associated landscaping within the visibility splays should not exceed 600mm in height and that a regular maintenance programme should be employed.

3.4 Non-Motorised User Provision

3.4.1 No comment.

3.5 Road Signs, Carriageway Markings and Lighting

3.5.1 No comment.

4 ISSUES IDENTIFIED DURING THE STAGE 1 AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

- 4.1 Any issues that the Audit Team wish to bring to the attention of the Client Organisation, which are not covered by the road safety implications of this audit have been included in the following section. These issues could include maintenance items, operational issues or poor existing provision. It should be understood however, that in raising these issues, the Audit Team do not warrant that a full review of the existing highway environment has been undertaken beyond the scope of the audit.
- 4.2 The Audit Team had no issues to raise within this section.

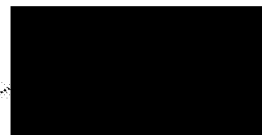
5 AUDITOR TEAM STATEMENT

5.1 We certify that this audit has been carried out following the principles of GG 119.

Audit Team Leader

Martin Morris
PGD, MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed:

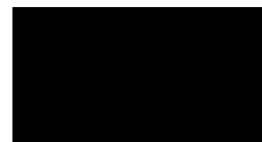


Date: 7/09/2020

Audit Team Member

Bryan Shawyer
BEng (Hons), MSc, MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed:



Date: 7/09/2020

APPENDIX A

List of drawings and documentation submitted for auditing:

Drawing Number	Title
041.0071.001	Access Design and Visibility Splays
041.0071.002	Access Vehicle Tracking
SK-01 P7	Sketch Layout – 01

Supporting Documentation:

- N/A

APPENDIX B

Plan attached showing the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

APPENDIX C: Road Safety Audit Decision Log.

Auditors: Martin Morris (Team Leader) and Bryan Shawyer (Team Member).

Scheme: Proposed S278 Works, Tye Lane, Walberton - (Land West of Tye Lane)

Date Audit Completed: 4th September 2020

This response is to a Stage 1 Road Safety Audit to the design standard detailed within GG 119 of Volume 5, Section 2, Part 2, of the Design Manual for Roads and Bridges, as detailed by the Highways Agency.

RSA Problem	RSA Recommendation	Design Organisation response)	Overseeing Organisation response	Agreed RSA action
3.3.1 Visibility splays at the junctions have been provided, which are considered acceptable; however, the verge within the splays is banked see figures 1 & 2. There is concern that banking and landscaping exceeding 600mm in height within the visibility splays could adversely affect visibility, which could lead to side impact collisions or rear end shunts.	It is recommended that the banks and associated landscaping within the visibility splays should not exceed 600mm in height and that a regular maintenance programme should be employed.	Agree – any vegetation within the visibility splay from the site access falls within either the clients land ownership or within highway ownership and so will be maintained to below 600mm as is required in Manual for Streets. This has been added to drawing note Visibility Splays no.2 on drawing 041.0071.001.A.	Visibility splays to be cleared and maintained below 600mm	Action agreed by the designer

APPENDIX D: DESIGN ORGANISATION STATEMENT

PROJECT NAME: Proposed S278 Works, Tye Lane, Walberton - (Land West of Tye Lane)	
On behalf of the Design Organisation I certify that:	
1) The actions identified in response to the problems raised in this RSA have been discussed and agreed with the Overseeing Organisation	
Name	Mark Smith
Signed	
Position	Director
Organisation	Paul Basham Associates Ltd
Date	09.09.20

APPENDIX E: OVERSEEING ORGANISATION STATEMENT

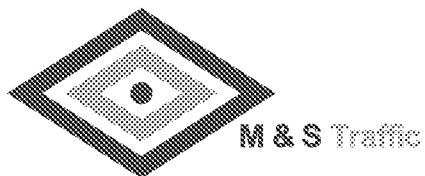
PROJECT NAME: Proposed S278 Works, Tye Lane, Walberton - (Land West of Tye Lane)	
On behalf of the Overseeing Organisation I certify that:	
1) The actions identified in response to the problems raised in this RSA have been discussed and agreed with the Design Organisation; and	
2) The agreed RSA actions will be progressed.	
Name	Stephen Gee
Signed	
Position	Principal Transport Planner
Organisation	West Sussex County Council
Date	23/06/2021

Land West of Tye Lane, Walberton
Transport Assessment

Appendix I

Paul Basham Associates Ltd
Report No. 041.0071/TA/3





Road Safety Audit Stage 1
Proposed Section 278 Works
The Street
Walberton
West Sussex

Date: 7th September 2020

Report produced for: Paul Basham Associates

Report produced by: M & S Traffic

Registered Office: 32 Hamelin Road, Gillingham, Kent ME7 3EX Registered in Cardiff No:06730905

DOCUMENT CONTROL SHEET

M&S Traffic has prepared this report in accordance with the instructions from Paul Basham Associates. M&S Traffic shall not be liable for the use of any information contained herein for any purpose other than the sole and specific use for which it was prepared.

Project Title Land West of Tye Lane, Walberton

Report Title Road Safety Audit Stage 1

Revision

Status Final

Audit Reference PBA/20/041.0071/TS/1/MM

Record of Issue

Document Ref 041.0071.S1RSA/1	Prepared by: (Name)	Checked by: (Name)	Approved by (Signature)	Date Approved
Revision	Martin Morris	Bryan Shawyer		7 th September 2020
Designers Response	Shannon Betteridge	Mark Smith		9 th September 2020
Authority Response				

Distribution

Organisation	Contact	Copies
Paul Basham Associates	Shannon Betteridge	-

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2 Safety issues raised at previous Audits	5
3 Items raised at the Stage 1 Audit	6
4 Issues identified during the Stage 1 Audit that are outside the terms of reference	9
5 Auditors Statement	10

Appendix A..... List of drawings

Appendix B..... Comment location drawing

Appendix C..... Road Safety Audit Decision Log.

Appendix D..... Design Organisation Statement.

Appendix E..... Overseeing Organisation Statement.

1 INTRODUCTION

- 1.1 This report describes a Stage 1 Road Safety Audit carried out on proposed Section 278 works on The Street, Walberton associated with a residential development of 160-units, as detailed below:

- Tye Lane / The Street (existing arrangement) to include for a new pedestrian crossing facility on The Street, approximately 20m east of the Tye Lane / The Street junction.

The Audit was requested by the design organisation, Paul Basham Associates, The Bothy, Cams Hall Estate, Fareham, PO16 8UT on behalf of West Sussex County Council, as the Highway Authority.

- 1.2 The Audit Team membership was as follows:

Martin Morris, PGD, MCIHT, MSoRSA– Audit Team Leader
Highways England Approved RSA Certificate of Competency

Bryan Shawyer B.Eng. (Hons), MSc, MCIHT, MSoRSA – Audit Team Member
Highways England Approved RSA Certificate of Competency

- 1.3 The audit was undertaken following the principles of GG 119, The Design Manual for Roads and Bridges. The documents available at the time the report was compiled are detailed in Appendix A.
- 1.4 The Audit took place at the Gillingham offices of M&S Traffic in September 2020 and comprised an examination of the documents provided as listed in Appendix A, plus a joint visit to the site of the scheme during the morning of the 1st September 2020 between 10:30 and 11:15. Weather conditions at the time were fine and the road surface was dry. Traffic flows were low and free flow speeds were low. There were low pedestrian flows and no cyclist movements observed during the site visit; however, the audit was undertaken in the Covid-19 outbreak
- 1.5 The report has been compiled, only with regards to the safety implications for road users of the layout presented in the supplied drawings. It has not been examined or verified for compliance with any other standards or criteria. This safety audit does not perform any “Technical Check” function on these proposals. It is assumed that the Project Sponsor is satisfied that such a “Technical Check” has been successfully completed prior to requesting this safety audit.
- 1.6 The auditors have not been informed of any Departures from Standards in this scheme construction. No traffic flow was provided to the Audit Team.
- 1.7 All comments and recommendations are referenced to the detailed drawings and the locations have been detailed relating to the plans supplied with the audit brief, Appendix B.

2 SAFETY ISSUES RAISED AT PREVIOUS AUDITS

2.1 No previous safety audits were submitted for assessment.

3 ITEMS RAISED AT THE STAGE 1 AUDIT

3.1 General

3.1.1 No comment.

3.2 Local Alignment

3.2.1 No comment.

3.3 Junctions

3.3.1 PROBLEM

Location: Tye Lane junction with The Street.

Summary: Restricted visibility could lead to side impact or rear end shunt collisions.

The eastern visibility splay is restricted by existing vegetation - see figure 1 below. Restricted visibility could lead to could lead to side impact or rear end shunt collisions.



Figure 1: Hedge line restricts visibility at junction.

RECOMMENDATION

It is recommended that the visibility splays should be free of obstruction.

3.4 Non-Motorised User Provision

3.4.1 PROBLEM

Location: Tye Lane junction with The Street.

Summary: Lack of pedestrian facilities could compromise pedestrian safety.

There is an absence of a pedestrian crossing points across the junction including drop kerbs and tactile paving. This may present difficulties particularly for the mobility impaired and may lead to pedestrian trips and falls and present difficulties for the visually and mobility impaired.

RECOMMENDATION

It is recommended that crossing points including drop kerbs and tactile paving should be provided.

3.4.2 PROBLEM

Location: Tye Lane junction with The Street.at the eastern radius

Summary: Insufficient intervisibility could lead to lead to rear end shunt or vehicle to pedestrian collisions.

Vegetation restricts intervisibility for pedestrians crossing where restricted visibility could lead to rear end shunt, or vehicle to pedestrian collisions.



Figure 2: Hedge line restricts intervisibility.

RECOMMENDATION

It is recommended that the intervisibility splays should not be obstructed and that the hedge line should be cut back.

3.5 Road Signs, Carriageway Markings and Lighting

3.5.1 PROBLEM

Location: Tye Lane junction with The Street.

Summary: Worn road markings could lead to side impact or rear end shunt collisions.

The Give Way markings at the junction are worn – see figure 3 below, where a lack of warning of the need to give way to traffic on The Street could lead to vehicles failing to stop and entering The Street or late braking and stopping suddenly. This could lead side impact or rear end shunt collisions.



Figure 3: Worn carriageway markings.

RECOMMENDATION:

It is recommended that the markings should be refreshed.

4 ISSUES IDENTIFIED DURING THE STAGE 1 AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

4.1 Any issues that the Audit Team wish to bring to the attention of the Client Organisation, which are not covered by the road safety implications of this audit have been included in the following section. These issues could include maintenance items, operational issues or poor existing provision. It should be understood however, that in raising these issues, the Audit Team do not warrant that a full review of the existing highway environment has been undertaken beyond the scope of the audit.

4.2 The Audit Team had no issues to raise within this section.

5 AUDITOR TEAM STATEMENT

5.1 We certify that this audit has been carried out following the principles of GG 119.

Audit Team Leader

Martin Morris
PGD, MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed:

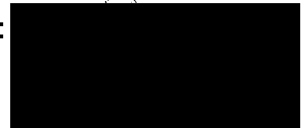


Date: 7/09/2020

Audit Team Member

Bryan Shawyer
BEng (Hons), MSc, MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
M & S Traffic Ltd
Aeolus House
32 Hamelin Road
Gillingham
Kent ME7 3EX

Signed:



Date: 7/09/2020

APPENDIX A

List of drawings and documentation submitted for auditing:

Drawing Number	Title
041.0071.003	Pedestrian Crossing and Visibility Splay on The Street
SK-01 P7	Sketch Layout – 01

Supporting Documentation:

- N/A

APPENDIX B

Plan attached showing the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

APPENDIX C: Road Safety Audit Decision Log.

Auditors: Martin Morris (Team Leader) and Bryan Shawyer (Team Member).

Scheme: Proposed S278 Works, The Street, Walberton - (Land West of Tye Lane)

Date Audit Completed: 4th September 2020

This response is to a Stage 1 Road Safety Audit to the design standard detailed within GG 119 of Volume 5, Section 2, Part 2, of the Design Manual for Roads and Bridges, as detailed by the Highways Agency.

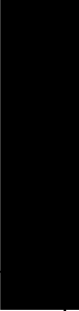
RSA Problem	RSA Recommendation	Design Organisation response)	Overseeing Organisation response	Agreed RSA action
3.3.1 The eastern visibility splay is restricted by existing vegetation - see figure 1. Restricted visibility could lead to could lead to side impact or rear end shunt collisions.	It is recommended that the visibility splay should be free of obstruction.	Agree – Give way lining brought forward by 0.7m to enable visibility splays to be improved, and the radii of the junction tightened. This maintains a major road width of 6m and improves visibility in both the primary and secondary direction. This is demonstrated in drawing no. 041.0071.004 It has also been demonstrated that the proposed junction improvements will not restrict larger vehicle manoeuvres with refuse vehicles able to pass cars simultaneously at the junction as demonstrated in drawing 041.0071.005	Give way line to be moved 0.7m forward to improve visibility.	Action agreed by the designer, and demonstrated on drawing 041.0071.004
3.4.1 There is an absence of a pedestrian crossing points across the junction including drop kerbs and tactile paving. This may present difficulties particularly for the mobility impaired and may lead to	It is recommended that crossing points including drop kerbs and tactile paving should be provided.	The revisions proposed to the junction as discussed in point 3.3.1 will enable a dropped kerb and tactile paving crossing to be provided, which is currently not provided as insufficient highway land available on eastern side of the junction. The proposed arrangement therefore	Dropped kerbs and tactile paving to be provided.	Action agreed by the designer, and demonstrated on drawing 041.0071.004

pedestrian trips and falls and present difficulties for the visually and mobility impaired.		provides a betterment to both non-motorised users safety and visibility in this location. Again, see drawing no. 041.0071.004		
3.4.2 Vegetation restricts intervisibility for pedestrians crossing, see figure 2 where restricted visibility could lead to rear end shunt, or vehicle to pedestrian collisions.	It is recommended that the intervisibility splays should not be obstructed and that the hedge line should be cut back	Visibility is improved in this location through the proposed arrangement as discussed previously. Non-motorised users would be able to see along Tye Lane as the crossing point is provided with sight lines heading north on Tye Lane.	Visibility to be improved by moving stop line forward.	Agreed
3.5.1 The Give Way markings at the junction are worn – see figure 3, where a lack of warning of the need to give way to traffic on The Street could lead to vehicles failing to stop and entering The Street or late braking and stopping suddenly. This could lead side impact or rear end shunt collisions.	It is recommended that the markings should be refreshed.	Agree – As the proposed arrangement will result in the give way lining being brought forward, the road markings will be re-provided and improved.	Markings to be reprovided at give way location.	Action agreed by the designer, and demonstrated on drawing 041.0071.004

APPENDIX D: DESIGN ORGANISATION STATEMENT

PROJECT NAME: Proposed S278 Works, The Street, Walberton - (Land West of Tye Lane)	
On behalf of the Design Organisation I certify that:	
1) The actions identified in response to the problems raised in this RSA have been discussed and agreed with the Overseeing Organisation	
Name	Mark Smith
Signed	
Position	Director
Organisation	Paul Basham Associates Ltd
Date	09.09.20

APPENDIX E: OVERSEEING ORGANISATION STATEMENT

PROJECT NAME: Proposed S278 Works, The Street, Walberton - (Land West of Tye Lane)	
On behalf of the Overseeing Organisation I certify that:	
1) The actions identified in response to the problems raised in this RSA have been discussed and agreed with the Design Organisation; and	
2) The agreed RSA actions will be progressed.	
Name	Stephen Gee
Signed	
Position	Principal Transport Planner
Organisation	West Sussex County Council
Date	23/06/2021

Land West of Tye Lane, Walberton
Transport Assessment

Appendix J

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.

2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.

3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.

4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.

5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

NORTH

Rev

Description

Date

By

Chkd

PROPOSED FOOTWAY ON TYE LANE - WITH LINEN HOMES VEHICULAR ACCESS

INSET 1

INSET 2

0m 20m

1: 500

PROPOSED FOOTWAY ON TYE LANE - WITHOUT LINEN HOMES VEHICULAR ACCESS

INSET 1

0m 50m

1: 1000

PROPOSED ROADWAY
LAND WEST OF TYE LANE,
WALBERTON

Project Phase
PRELIMINARY

DAVID WILSON HOMES
WILSON CONNECTIVITY LANDS

Client

Checked By
MS

Checked Date
17 09 20

Drawn By
THP

Drawn Date
17 09 20

Scale
SEE INSETS

Checked Date
17 09 20

Project No
041.0071.008

Revision
-

Land West of Tye Lane, Walberton
Transport Assessment

Appendix K

Paul Basham Associates Ltd
Report No. 041.0071/TA/3



Land West of Tye Lane, Walberton
Transport Assessment

Appendix L

Paul Basham Associates Ltd
Report No. 041.0071/TA/3





Government of Karnataka
 Department of Public Works
 Bangalore
 560 001

Plan No. 12/20
 Date: 12/20/2019
 By: 12/20/2019

Scale: 1:1000
 Date: 12/20/2019
 By: 12/20/2019

