

LAND WEST OF TYE LANE, WALBERTON

TRANSPORT ASSESSMENT

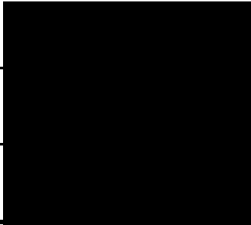
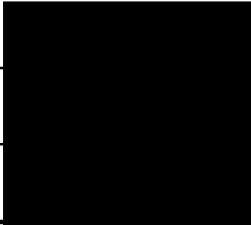
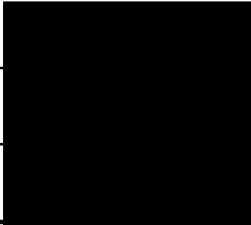
September 2020

David Wilson Homes

RESIDENTIAL DEVELOPMENT
LAND WEST OF TYE LANE
WALBERTON

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CONTROLLED DOCUMENT

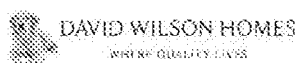
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1. INTRODUCTION

- 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 155 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 Yapton 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 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 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 February 2019 and acts as the central guidance for development planning, replacing all National Planning Policy guidance. The following NPPF paragraphs are relevant to this TA:

Planning policies and decisions should recognise that sites to meet local business and community needs in rural areas may have to be found adjacent to or beyond existing settlements, and in locations that are not well served by public transport. In these circumstances it will be important to ensure that development is sensitive to its surroundings, does not have an unacceptable impact on local roads and exploits any opportunities to make a location more sustainable (for example by improving the scope for access on foot, by cycling or by public transport). The use of previously developed land, and sites that are physically well-related to existing settlements, should be encouraged where suitable opportunities exist.

(NPPF Para. 84)

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. 102)

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. 103)

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. 109)

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. 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 (2019)

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.

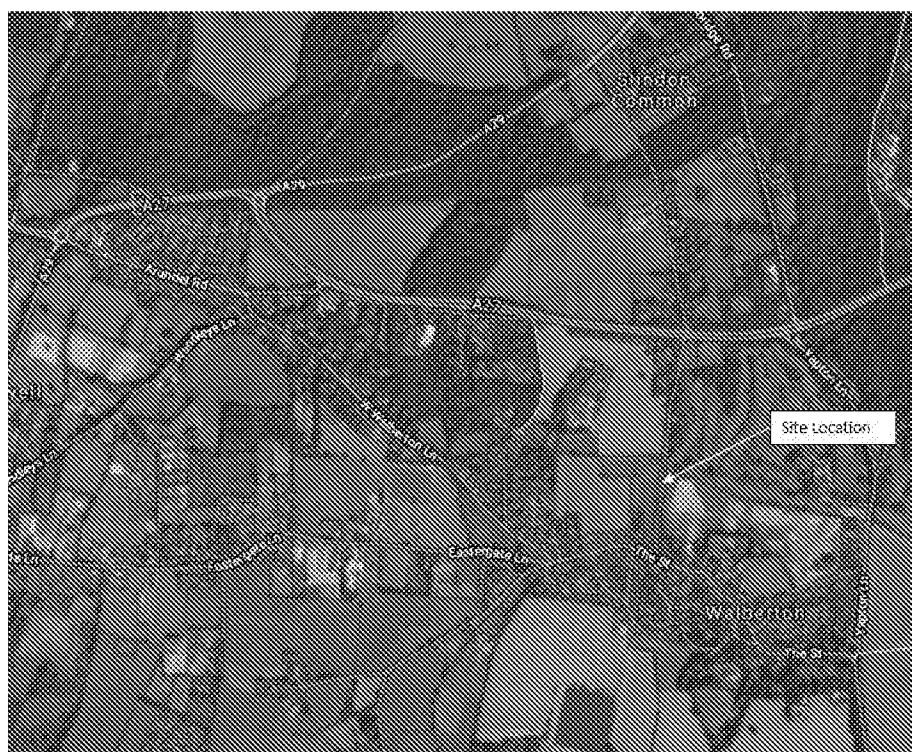


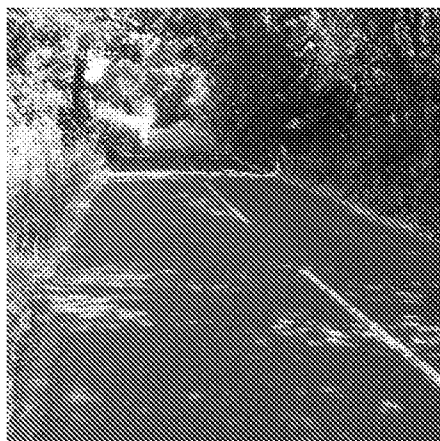
Figure 2: Site and Surroundings

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



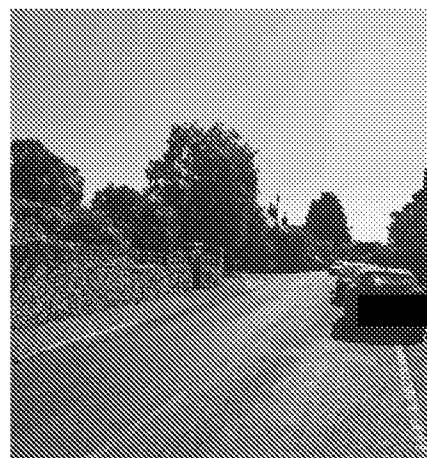
Photograph 2: Tye Lane Conditions

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.

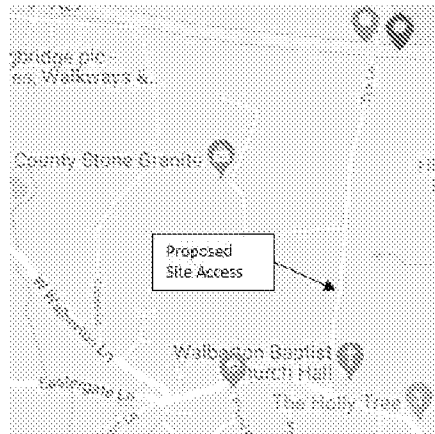


Figure 3: PIA Data – Tye Lane (Source: WSCC Safer Roads Partnership)

- 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.

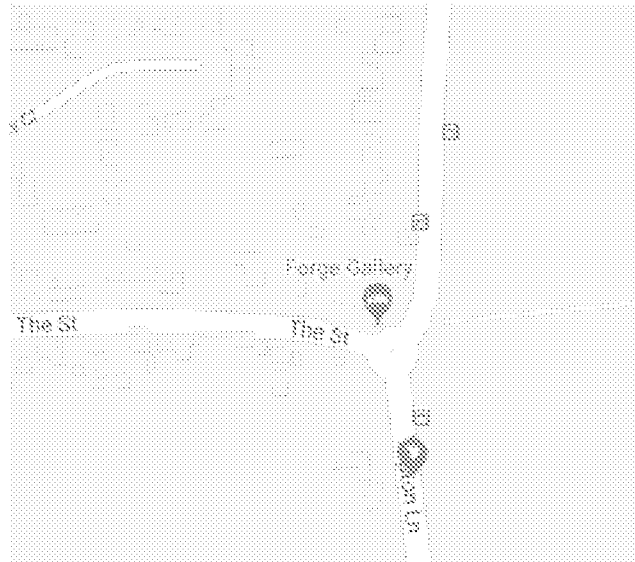


Figure 4: PIA Data – The Street/Yapton Lane (Source: WSCC Safer Roads Partnership)

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.

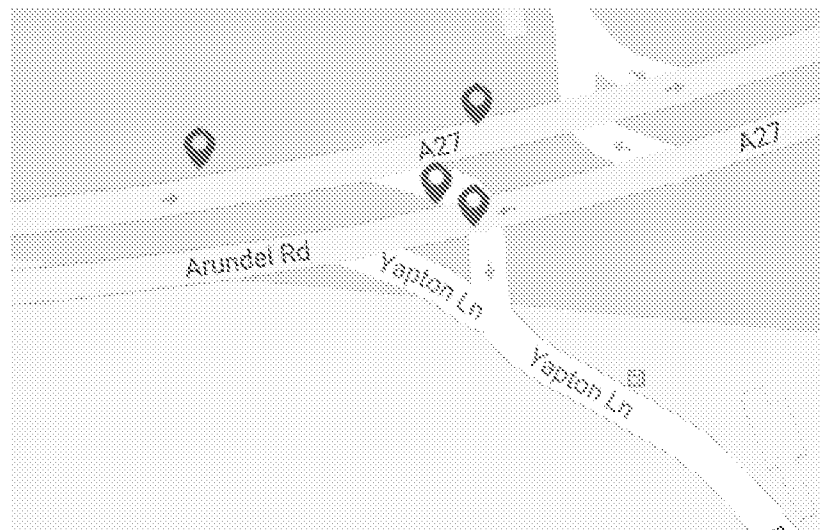


Figure 5: PIA Data – Yapton Lane/A27 (Source: WSCC Safer Roads Partnership)

- 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.

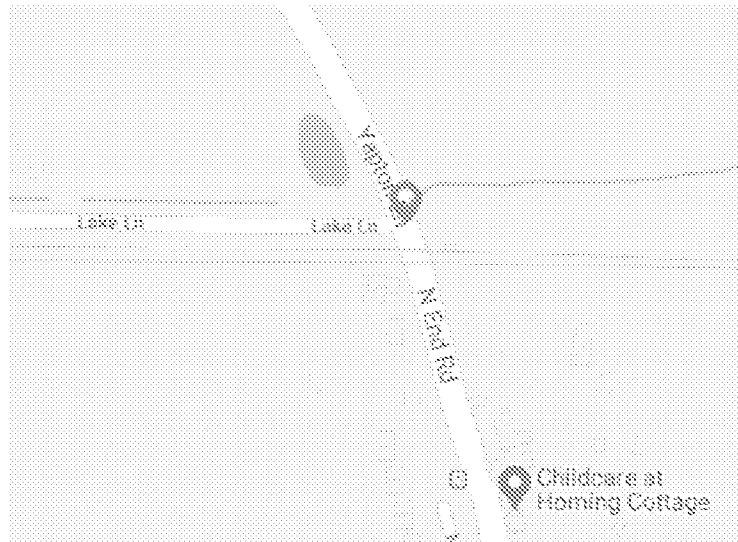


Figure 6: PIA Data – Yapton Lane/Lake Lane (Source: WSCC Safer Roads Partnership)

- 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.

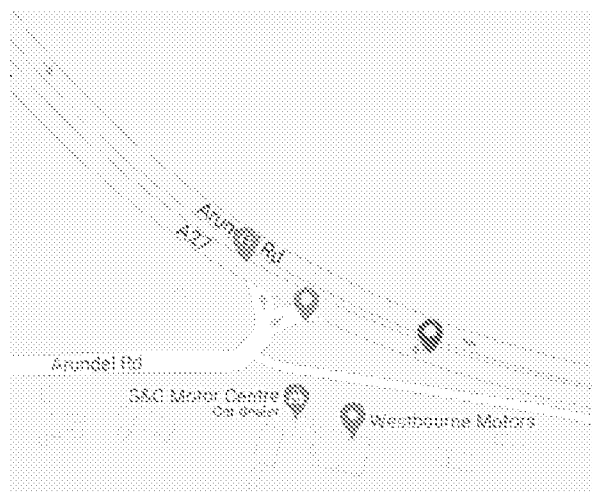


Figure 7: PIA Data – A27 Arundel Road (Source: WSCC Safer Roads Partnership)

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.

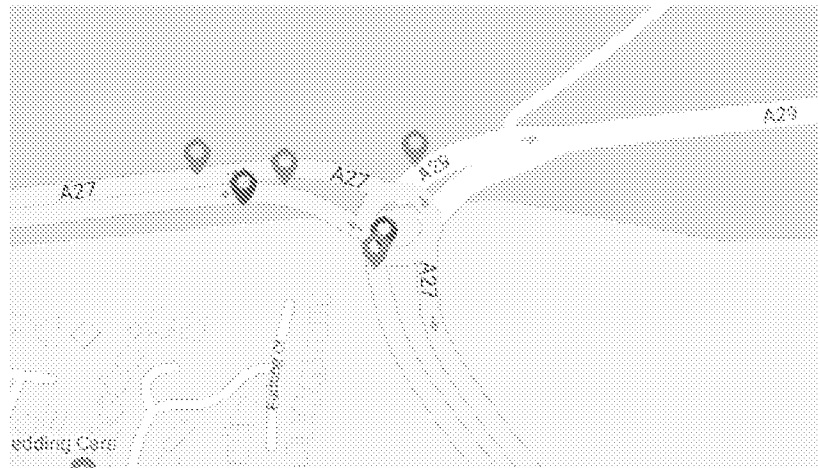


Figure 8: PIA Data – A27/A29 Fontwell East Roundabout (Source: WSCC Safer Roads Partnership)

- 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.

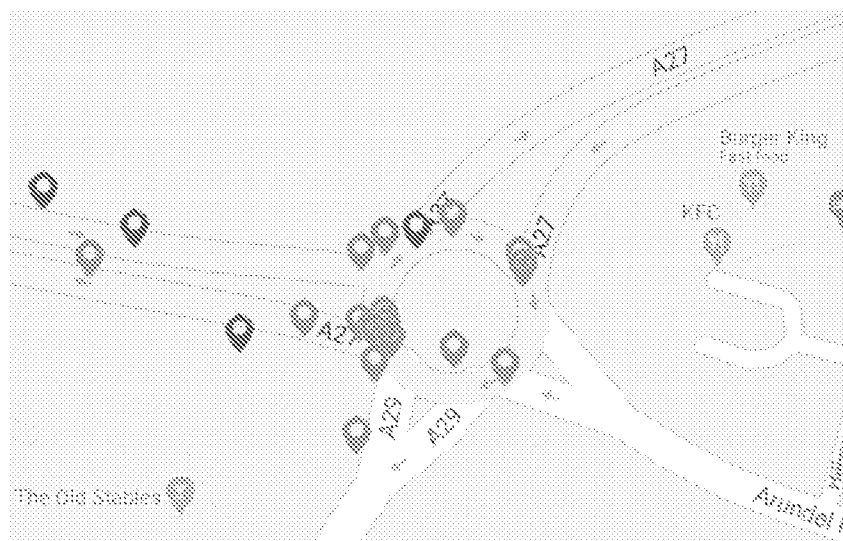


Figure 9: PIA Data – A27/A29 Fontwell West Roundabout (Source: WSCC Safer Roads Partnership)

- 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 B.

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.

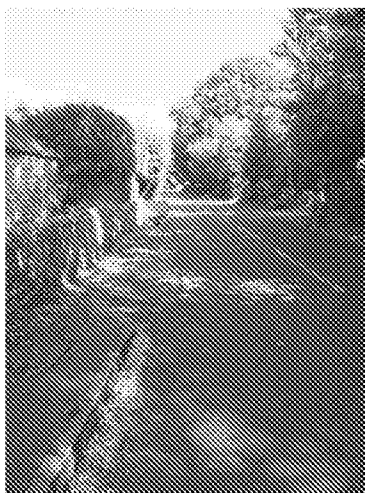


Photograph 5: Tye Lane Informal Pedestrian Route



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

- 4.7 It should be noted that as part of the planning application on the land to the east of Tye Lane (reference: WA/44/17/OUT), a pedestrian connection onto Tye Lane is to be provided. The principle of pedestrians walking within the carriageway was not considered a safety concern as part of that application with the highways comments stating *'Tye Lane does not have any pedestrian facilities between the proposed emergency access, pedestrian access and junction with The Street and as such pedestrians are required to walk within the carriageway. Site observations shows that vehicle flows, and speeds are low. Measures should be introduced to improve the village gateway features and to enhance pedestrian awareness such as pedestrian in road warning signs and removal of the centre line'*.
- 4.8 As identified in Figure 3, there have been no recorded incidents along Tye Lane despite serving as a key route to the A27 and existing pedestrian movements occurring. Whilst the proposed development will generate additional vehicle trips along Tye Lane, the majority would be anticipated to travel northbound towards the A27 and thus reduce the likely conflict with pedestrians heading towards the village. The anticipated vehicle and pedestrian trips generated by the proposed development, along with the likely percentage of vehicles travelling into the village are assessed further in Section 7 of this report.
- 4.9 In addition to the points raised, we are aware of a planning appeal decision from East Sussex (reference: APP/U1430/W/19/3234340) in November 2019 that was approved after a successful justification that pedestrians walking within the carriageway would not be a safety concern. The application itself was sought for up to 85 dwellings in Bexhill-on-Sea. Ultimately the decision to overrule the planning refusal on pedestrian safety was justified by the following:
- *Para. 21: The lack of a formalised pedestrian refuge on either side of the road presents a shared responsibility for highway safety between road users in general:*

- *Para. 22: The shared nature of the roadway, in itself, would influence driver behaviour with cars slowing to anticipate pedestrians and cyclists much as would be the case on many adopted roads of similar nature.*
- *Para 25: I consider that in the reality of any increased traffic movements along Maple Walk, notwithstanding the TAA conclusion that most future peak traffic movements would use Clavering Walk and Cooden Sea Road, pedestrians and cyclists, who, in the main, are likely to be locals with a good knowledge of road conditions along Maple Walk, would continue to take care when using the unadopted road. Similarly, local drivers using Maple Walk would be aware of the narrowing character of the road in places and drive accordingly.....Any increase in traffic either from the proposed development or over-time would not, in my view, significantly increase impacts on the safety of highways users along Maple walk.*

4.10 Whilst it is noted that the above comments do not relate to the proposed development, there are comparable conditions with this site. In addition, the visibility for all road users will be improved as a result of the development given that the existing grass verge on the western side of the carriageway will be regraded and cut back where appropriate to ensure appropriate visibility from the site access is achievable.

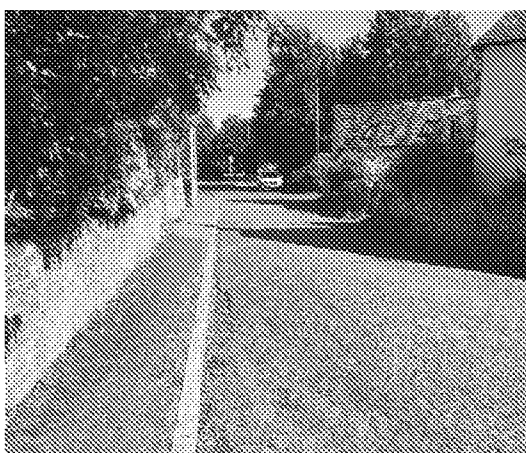
The Street

4.11 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.

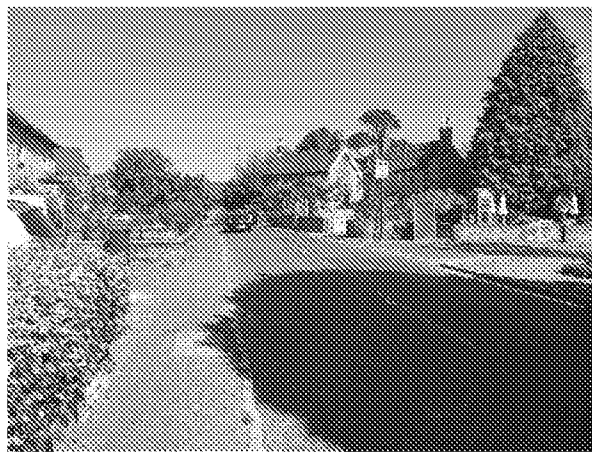


Photograph 8: Tye Lane/The Street Junction

- 4.12 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

- 4.13 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.

- 4.14 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

- 4.15 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 C.
- 4.16 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

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

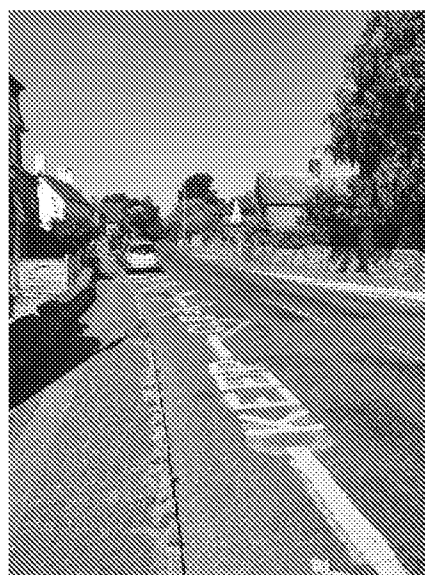


Photograph 15: Crossing facility at The Street/William Booker Yard Junction

- 4.18 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.



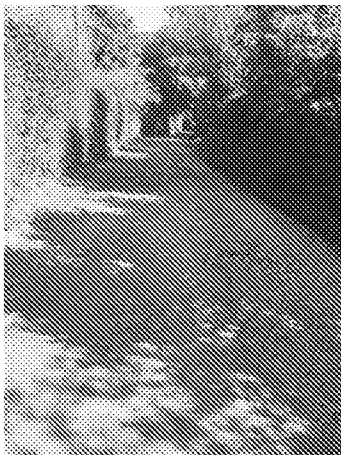
Photograph 16: Primary Direction Visibility



Photograph 17: Secondary Direction Visibility

Public Bridleway

- 4.22 Bridleway no. 392 is located to the west of the proposed development site and provides a route between the A27 (and beyond) to the north to Copse Lane to the south. The Bridleway is available for use by pedestrians and equestrians for approximately 350m as it also provides access to a number of residential properties.
- 4.23 The Bridleway is in a good condition with wide tracks provided for its duration which therefore also enables pedestrians/vehicles to pass equestrians safely. The existing conditions of the Bridleway are demonstrated in Photographs 18 and 19.



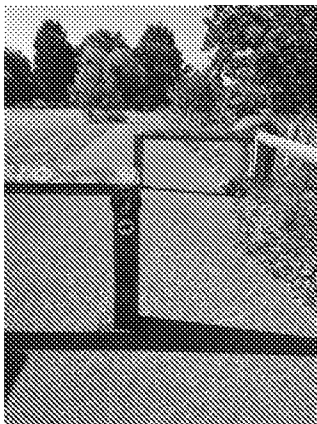
Photograph 18: Shared Bridleway Conditions



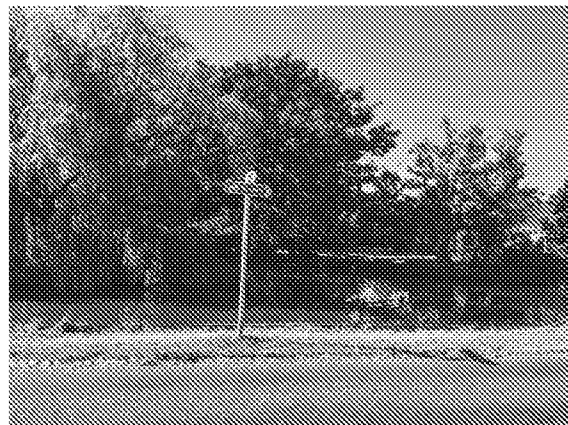
Photograph 19: Bridleway only Section

Cycle Network

- 4.24 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

- 4.25 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.

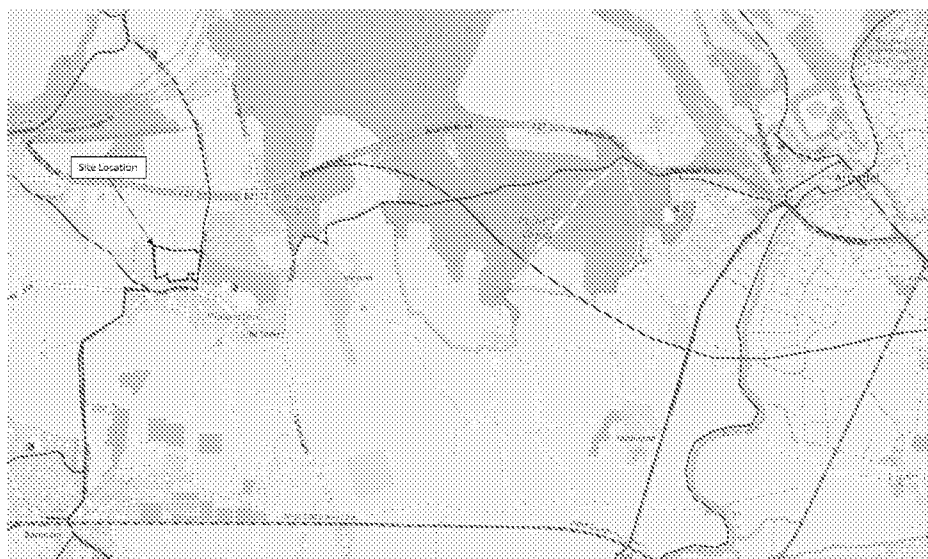


Figure 11: WSCC Cycle Improvement Schemes 2016 - 2026 (Source: WSCC)

Public Transport Provision

- 4.26 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

- 4.27 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.

- 4.28 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.
- 4.29 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

- 4.30 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 155 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.

Trip Generation

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

Vehicular

- 5.14 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). Therefore, the trip rates submitted as part of the WA/44/17/OUT application have been used, as identified in Table 6.

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 (155 Dwellings)	22	62	56	33	766

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

- 5.15 Table 6 demonstrates that the proposed development would be anticipated to generate 84 vehicle movements in the AM peak period, 89 vehicle trips in the PM peak period and 766 vehicle trips across a 12 hour period.
- 5.16 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

- 5.17 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

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

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 (155 Dwellings)	5	12	8	4	136

Table 7: Pedestrian Trip Generation

5.19 Table 7 demonstrates that the proposed development would be anticipated to generate 17 pedestrian movements in the AM peak period, 12 pedestrian trips in the PM peak period and 136 pedestrian trips across a 12 hour period.

5.20 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.

6. ACCESS ARRANGEMENTS

Existing Tye Lane Accesses

- 6.1 As requested through the pre-application, commentary and assessment on the existing accesses being served from Tye Lane is provided.
- 6.2 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

- 6.3 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

- 6.4 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.
- 6.5 The ATC results are provided in Table 8, with the full outputs included in Appendix E.

Sinah 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

- 6.6 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.
- 6.7 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 F.
- 6.8 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.
- 6.9 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 G for reference.

Visibility

- 6.10 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.
- 6.11 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 F.

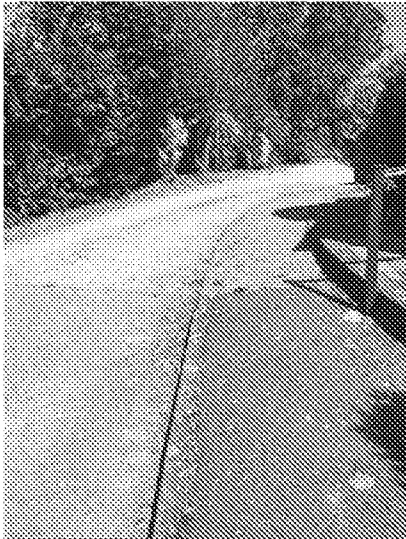
Road Safety Audits

- 6.12 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.
- 6.13 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.
- 6.14 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.

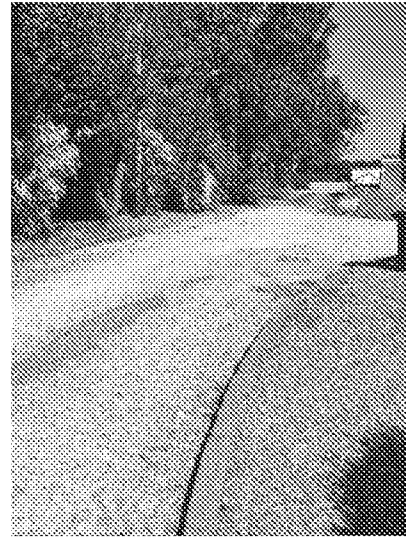
- 6.15 It is also proposed that the eastern radius of the junction is tightened to provide an opportunity to implement a crossing facility across Tye Lane in this location, given that the bus stop is located to the east of the junction. This would provide a significant betterment to the existing arrangement, 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.
- 6.16 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.
- 6.17 The full RSA output and designer's response are included in Appendix H.

Pedestrian Access

- 6.18 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.
- 6.19 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.
- 6.20 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.

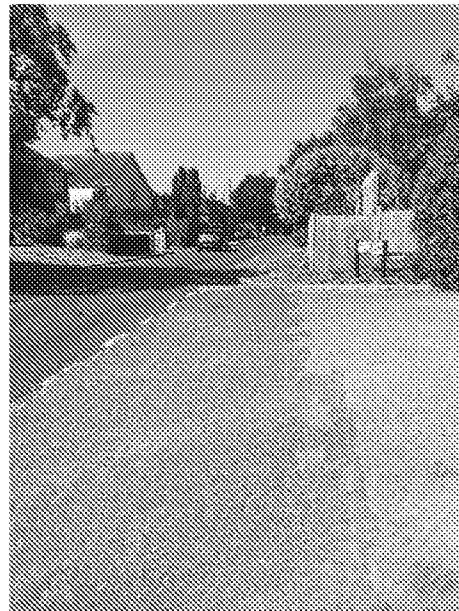


Photograph 23: Field Close Conditions



Photograph 24: Field Close connection to Site

- 6.21 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.

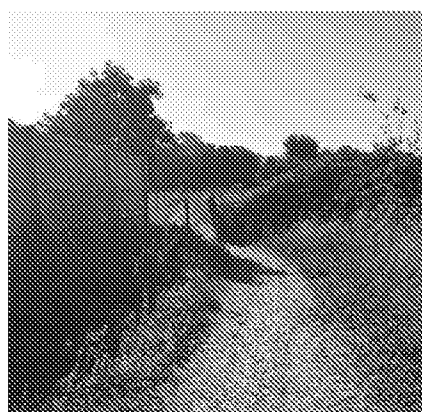


Photograph 25: Field Close Visibility

- 6.22 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

- 6.23 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.
- 6.24 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 C.

Refuse and Servicing

- 6.25 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.
- 6.26 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.

6.27 Tracking of the access has been undertaken to demonstrate that servicing vehicles can be accommodated, and is attached as Appendix F.



7. TRIP DISTRIBUTION AND ROUTE ASSIGNMENT

- 7.1 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.
- 7.2 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 I.

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 & IOW	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

- 7.3 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.
- 7.4 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.
- 7.5 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.
- 7.6 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.

- 7.7 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 J, 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.

Site Access

- 7.8 Using the data outlined in Table 10 and Appendix J, 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

- 7.9 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)

- 7.10 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.
- 7.11 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)

- 7.12 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.

- 7.13 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

- 7.14 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

- 7.15 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

- 7.16 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.
- 7.17 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
- 7.18 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 3 years old.

TEMPRO Traffic Growth

- 7.19 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.
- 7.20 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.
- 7.21 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 Baseline:
 - 2023 Baseline + Committed Developments
 - 2023 Baseline + Committed Developments + Proposed Development
 - 2031 Baseline:
 - 2031 Baseline + Committed Developments
 - 2031 Baseline + Committed Developments + Proposed Development
- 7.22 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: TEMPRO Growth Rates

Committed Development

7.23 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

7.24 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

- 7.25 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 J.

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

- 7.26 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 J.

7.27 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.

7.28 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.

7.29 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 9 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.

7.30 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.

8. JUNCTION CAPACITY ASSESSMENT

- 8.1 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

- 8.2 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

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

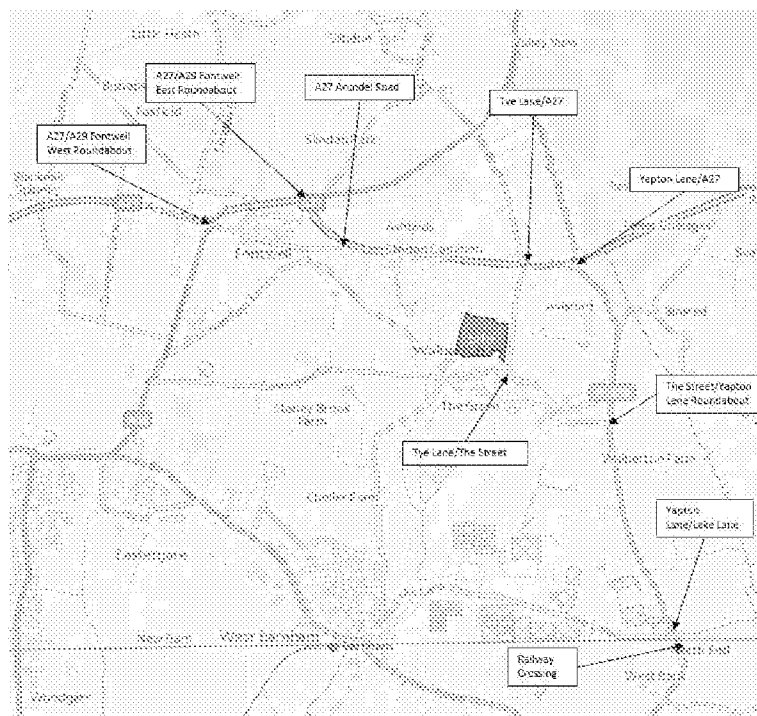


Figure 14: Location of Junctions Requiring Assessment

Junction Modelling Software

- 8.4 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.
- 8.5 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.
- 8.6 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

- 8.7 The site access has been modelled using the geometries provided within the access design included in Appendix F, and the topographical survey. The assessment has been undertaken for the '2023 baseline + Committed Development + Development' and the '2031 baseline + Committed Development + Development' scenarios only.
- 8.8 The results of the modelling assessment are provided in Table 12, with the full outputs included in Appendix K.

Arm	AM Peak Period			PM Peak Period		
	Queue	Delay (s)	RFC	Queue	Delay (s)	RFC
2023 Baseline + Committed Development + Development						
Tye Lane (SB)	0.0	6.60	0.01	0.0	6.53	0.03
Site Access	0.1	7.18	0.12	0.1	6.68	0.06
Tye Lane (NB)	-	-	-	-	-	-
2031 Baseline + Committed Development + Development						
Tye Lane (SB)	0.0	6.61	0.01	0.0	6.52	0.03
Site Access	0.1	7.20	0.13	0.1	6.69	0.07
Tye Lane (NB)	-	-	-	-	-	-

Table 12: Site Access Modelling

- 8.9 Table 12 demonstrates that the proposed site access would operate well within capacity with a maximum RFC value of 0.13, queues of less than 1 vehicle and delays of under 8 seconds. Therefore, there are no capacity concerns as to the functioning of the proposed access onto Tye Lane.

Tye Lane/The Street

- 8.10 Capacity assessment modelling has been undertaken at the Tye Lane/The Street priority junction for all scenarios (except the 'with Committed Development' scenarios as no additional traffic is placed through this junction) 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 L.

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 Baseline						
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 Baseline + Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.2	11.59	0.16	0.3	12.05	0.20
The Street (WB)	0.1	6.39	0.08	0.1	6.41	0.05
2031 Baseline						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.2	12.23	0.19	0.2	11.80	0.18
The Street (WB)	0.1	6.31	0.07	0.1	6.22	0.04
2031 Baseline + Development						
The Street (EB)	-	-	-	-	-	-
Tye Lane	0.2	11.86	0.17	0.3	12.39	0.22
The Street (WB)	0.1	6.41	0.08	0.1	6.40	0.06

Table 13: Tye Lane/The Street Junction Assessment

- 8.11 Table 13 demonstrates that the Tye Lane/The Street junction operates well within capacity with a maximum RFC value of 0.22 (in the PM peak period), queues of less than 1 vehicle and delays of under 13 seconds.
- 8.12 There are therefore no capacity concerns at this junction even with the addition of the proposed development.

The Street/Yapton Lane Roundabout

- 8.13 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.

8.14 The modelling results are summarised in Table 14, with the full outputs included in Appendix M.

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 Baseline						
Yapton Lane (SB)	0.3	5.67	0.26	1.5	10.90	0.60
Yapton Lane (NB)	2.0	12.22	0.67	0.3	5.40	0.25
The Street	0.2	6.90	0.15	0.2	5.39	0.17
2023 Baseline + 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 Baseline + Committed Development + Development						
Yapton Lane (SB)	0.4	6.02	0.30	1.9	12.79	0.66
Yapton Lane (NB)	2.5	14.41	0.72	0.4	5.74	0.29
The Street	0.2	7.32	0.17	0.2	5.60	0.18
2031 Baseline						
Yapton Lane (SB)	0.4	5.84	0.28	1.8	12.30	0.64
Yapton Lane (NB)	2.4	14.10	0.71	0.4	5.53	0.26
The Street	0.2	7.24	0.16	0.2	5.52	0.18
2031 Baseline + 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 Baseline + Committed Development + Development						
Yapton Lane (SB)	0.5	6.21	0.32	2.3	14.72	0.70
Yapton Lane (NB)	3.2	17.17	0.77	0.4	5.89	0.31
The Street	0.2	7.70	0.19	0.2	5.73	0.19

Table 14: The Street/Yapton Lane Mini-Roundabout Junction Assessment

- 8.15 Table 14 demonstrates that the 'The Street/Yapton Lane' mini roundabout operates well within capacity with a maximum RFC value of 0.77, queues of less than 4 vehicles and delays of under 18 seconds. The results presented in Table 14 are similar to those submitted as part of the Land east of Tye Lane application and are therefore considered to be robust and representative.
- 8.16 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

- 8.17 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 5 vehicle movements in the AM and 12 vehicle movements in the PM, are due to pass this junction upon returning to the site via Tye Lane.
- 8.18 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.
- 8.19 The percentage impact assessment is provided in Table 15.

	Flows from WA/44/17/OUT	Development Trips	Percentage Impact
AM Peak Period	2,807	5	0.2%
PM Peak Period	2,963	12	0.4%

Table 15: Percentage Impact Assessment – Yapton Lane/A27

- 8.20 Table 15 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

- 8.21 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.

8.22 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.

8.23 For reference, the proposed development is anticipated to place 10 vehicle movements through this junction in both the AM and PM peak periods.

Impact on Railway Crossing

8.24 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.

8.25 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.

8.26 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.

8.27 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 16.

	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	3	6	647	220	0.5%	2.7%
Southbound	196	505	241	587	7	4	248	594	2.8%	0.7%

Table 16: Development Impact at the Level Crossing

- 8.28 Table 16 demonstrates that the proposed development is expected to generate a total of 10 two-way vehicle movements through the junction in both the AM and PM peak periods, which equates to an additional vehicle every 6 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.
- 8.29 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 (3 – 4 vehicles), equivalent to one vehicle every 15 – 20 minutes, and one vehicle every 9 – 10 minutes in the opposite direction (6 – 7 vehicles).
- 8.30 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

- 8.31 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.
- 8.32 The modelling results are summarised in Table 17, with the full outputs and turning count data included in Appendix N.

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 Baseline						
Tye Lane	0.3	14.26	0.21	0.1	9.37	0.08
2023 Baseline + Committed Development						
Tye Lane	0.3	14.80	0.21	0.1	9.49	0.08
2023 Baseline + Committed Development + Development						
Tye Lane	0.6	18.30	0.36	0.2	10.16	0.14
2031 Baseline						
Tye Lane	0.3	15.39	0.23	0.1	9.70	0.09
2031 Baseline + Committed Development						
Tye Lane	0.3	16.03	0.24	0.1	9.83	0.09
2031 Baseline + Committed Development + Development						
Tye Lane	0.6	20.21	0.39	0.2	10.55	0.15

Table 17: Tye Lane/A27 Junction Assessment

8.33 Table 17 demonstrates that the Tye Lane/A27 junction operates well within capacity in all scenarios, with Tye Lane experiencing a maximum RFC value of 0.39, queues of less than 1 vehicle and delays of under 21 seconds. Therefore, no junction improvement works are required at this junction.

8.34 It is understood that with respect to the proposals for the possible A27 Arundel Bypass, 3 of the 6 options under consideration would involve closing the Tye Lane/A27 junction (Options 4/5AV1, 4/5AV2, 5BV1), with traffic needing to re-route south of the site. There is however no confirmed route as yet, and no timeframe identified for further consultation or planning applications for the A27 Arundel Bypass. However, it has been demonstrated through this assessment that the Tye Lane/The Street junction has significant capacity with 32% of development traffic passing through the junction resulting in a maximum RFC of 0.22.

A27 Arundel Road Junction

8.35 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.

8.36 This junction was not considered to require assessment as part of the Land East of Tye Lane application and 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.

8.37 Whilst the proposed development is anticipated to generate 42 vehicle movements through this junction in the AM peak period, and 22 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 2.28% impact in the AM peak period and 1.81% in the PM peak period.

8.38 Given the minimal impacts, and that the land East of Tye Lane was not required to assess the junction despite generating more movements than the proposed development, no further assessment has been undertaken.

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

8.39 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.

8.40 In order to assess the impact of the proposed development on the operation of this junction, in the first instance a percentage impact assessment has been undertaken, using the flows provided in the distribution diagrams (as part of Appendix J), and the development trips summarised in Table 6. The percentage impact assessment has been provided in Table 18.

	2020 Morning Peak			2020 Evening Peak		
	Flow	Dev Flows	Percentage Impact	Flow	Dev Flows	Percentage Impact
A27/A29 Fontwell Avenue/Arundel Road	4,446	40	0.90%	4,466	40	0.90%
	2031 Morning Peak			2031 Evening Peak		
	Flow	Dev Flows	Percentage Impact	Flow	Dev Flows	Percentage Impact
A27/A29 Fontwell Avenue/Arundel Road	4,907	40	0.82%	4,947	40	0.81%

Table 18: A27/A29 Fontwell Avenue Percentage Impact Assessment

8.41 Table 18 demonstrates that the proposed development would have a minimal impact on the roundabout, with a maximum percentage impact of 0.9%.

8.42 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.

- 8.43 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.
- 8.44 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.
- 8.45 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.
- 8.46 As the proposed development is anticipated to have a less than 1% impact on this junction, it is proposed that a proportionate contribution is provided towards the cost of the additional junction improvement works required as identified within the land east of Tye Lane application.

A27/A29 Farmile Road roundabout (Fontwell East roundabout)

- 8.47 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.
- 8.48 In order to assess the impact of the proposed development on the operation of this junction, in the first instance a percentage impact assessment has been undertaken, using the flows provided in the distribution diagrams (as part of Appendix J), and the development trips summarised in Table 6. The percentage impact assessment has been provided in Table 19.

	2020 Morning Peak			2020 Evening Peak		
	Flow	Dev Flows	Percentage Impact	Flow	Dev Flows	Percentage Impact
A27 Arundel Road/A29 Farmile Bottom	4,151	43	1.04%	3,842	25	0.65%
	2031 Morning Peak			2031 Evening Peak		
	Flow	Dev Flows	Percentage Impact	Flow	Dev Flows	Percentage Impact
A27 Arundel Road/A29 Farmile Bottom	4,581	43	0.94%	4,255	25	0.59%

Table 19: A27/A29 Farmile Road roundabout Percentage Impact Assessment

8.49 Table 19 demonstrates that the proposed development would have a minimal impact on the roundabout, with a maximum percentage impact of 1.04%.

8.50 As part of the Land East of Tye Lane application, an assessment of the capacity of the junction was undertaken with its existing configuration demonstrated to operate significantly over capacity, with maximum RFC values of 1.15, queues of around 60 vehicles and delays of over 200 seconds.

8.51 Similarly, to the Fontwell West roundabout, an improvement scheme was identified as part of the Arun District Local Plan which would see the junction signalised and flare lengths increased. The assessment of its capacity was re-run with the flows for the Lane East of Tye Lane application and was demonstrated as operating within capacity.

8.52 With the proposed development anticipated to have a 1% impact on the junction, no further mitigation or capacity works have been undertaken and rather a proportionate contribution would be provided towards the implementation of the improvement scheme.

Summary of Junction Modelling

8.53 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.

8.54 The proposed development would offer proportionate contributions towards the wider improvements at the A27 roundabouts, as the development itself will have a maximum 1% impact on either of the junctions.

8.55 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.



9. SUMMARY AND CONCLUSION

- 9.1 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 155 dwellings with vehicular access via Tye Lane at land to the west of Tye Lane, Walberton.
- 9.2 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.
- 9.3 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.
- 9.4 The proposed development would consist of up to 155 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.
- 9.5 The proposed development is anticipated to generate 84 vehicular and 17 pedestrian trips in the AM peak period, 89 vehicular and 12 pedestrian trips in the PM peak period and 766 vehicular and 136 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.
- 9.6 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.

- 9.7 Comprehensive assessments of local junctions identified by WSCC at the pre-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 roundabouts, no further capacity improvement works are required.
- 9.8 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.



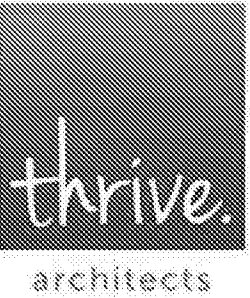
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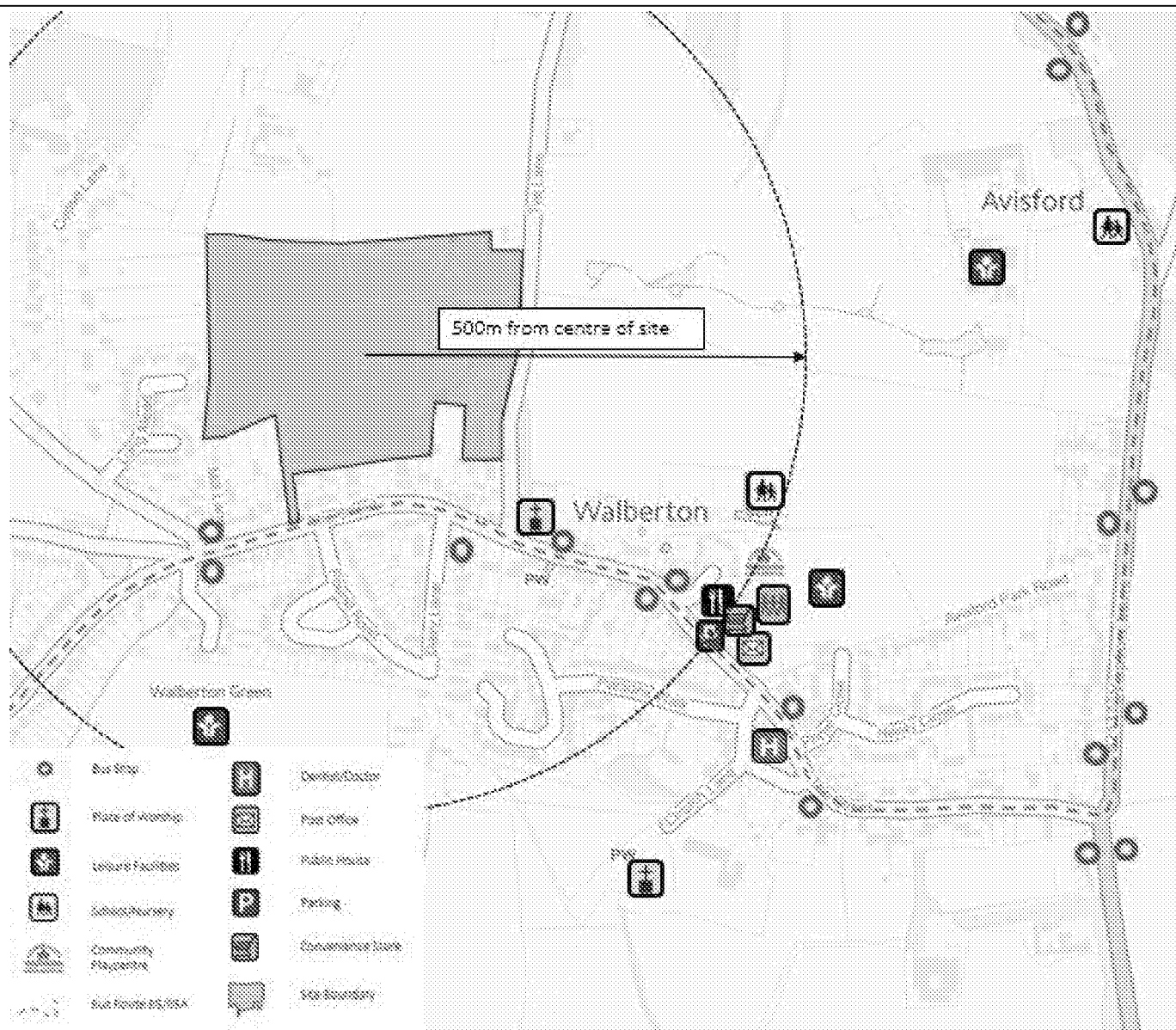
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Rev	Description	Date	Au	Ch
P1	Preliminary Issue	10.08.20	CI/dr	---/---
P2	Key amended	11.09.20	CI/km	
P3	Redline amended	15.09.20	CI/km	

Project	Tye Lane, Walberton			
Drawing	Concept Masterplan - 01			
Client	DAVID WILSON HOMES			
Job no.	BARR190813	Date	10.08.20	
Dwg no.	CMP-01	Rev.	P3	
Author	CI/dr	Checked	-/-	
Status	PRELIMINARY		Scale	1:1000@A1
			Office	Romsey
Client ref.	-			





Project Number:
041.0071

Title:
Accessibility Map

Project Name:
Land West of Tye
Lane, Walberton

pb paul basham
associates

Checked By:
JL

Checked Date:
10.08.2020

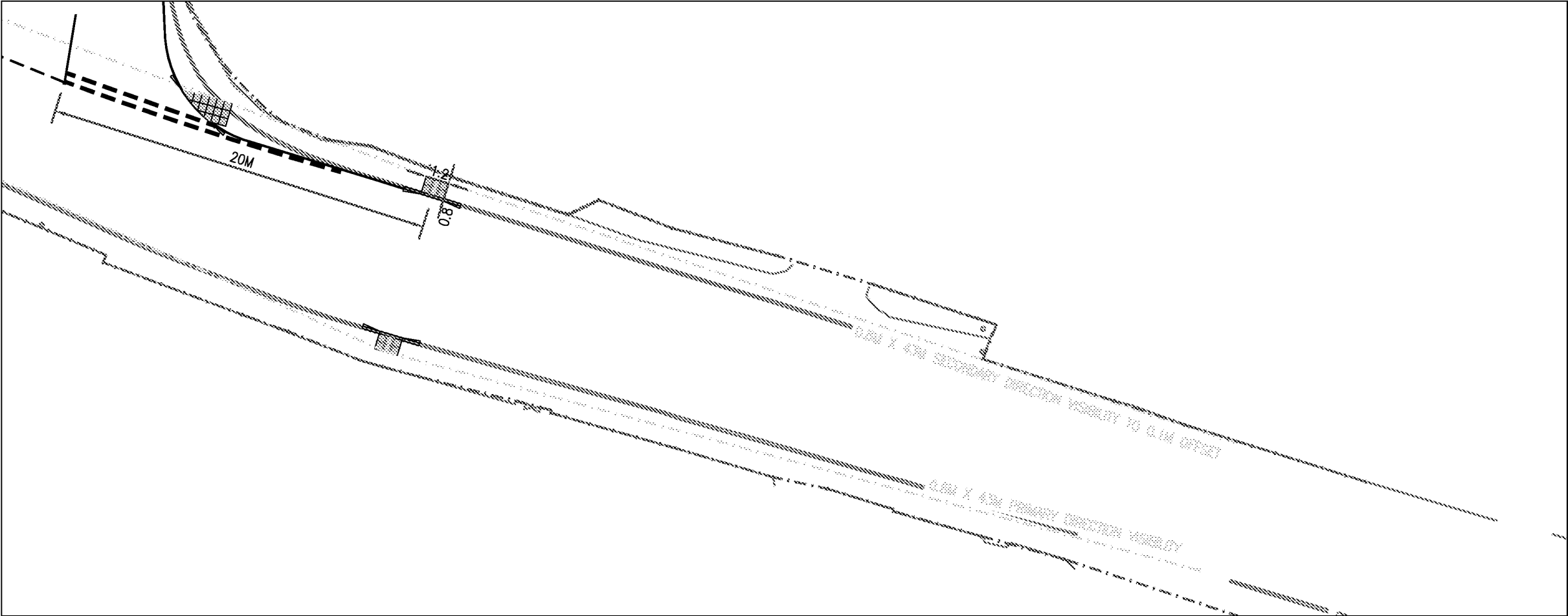
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Drawn By:
SB

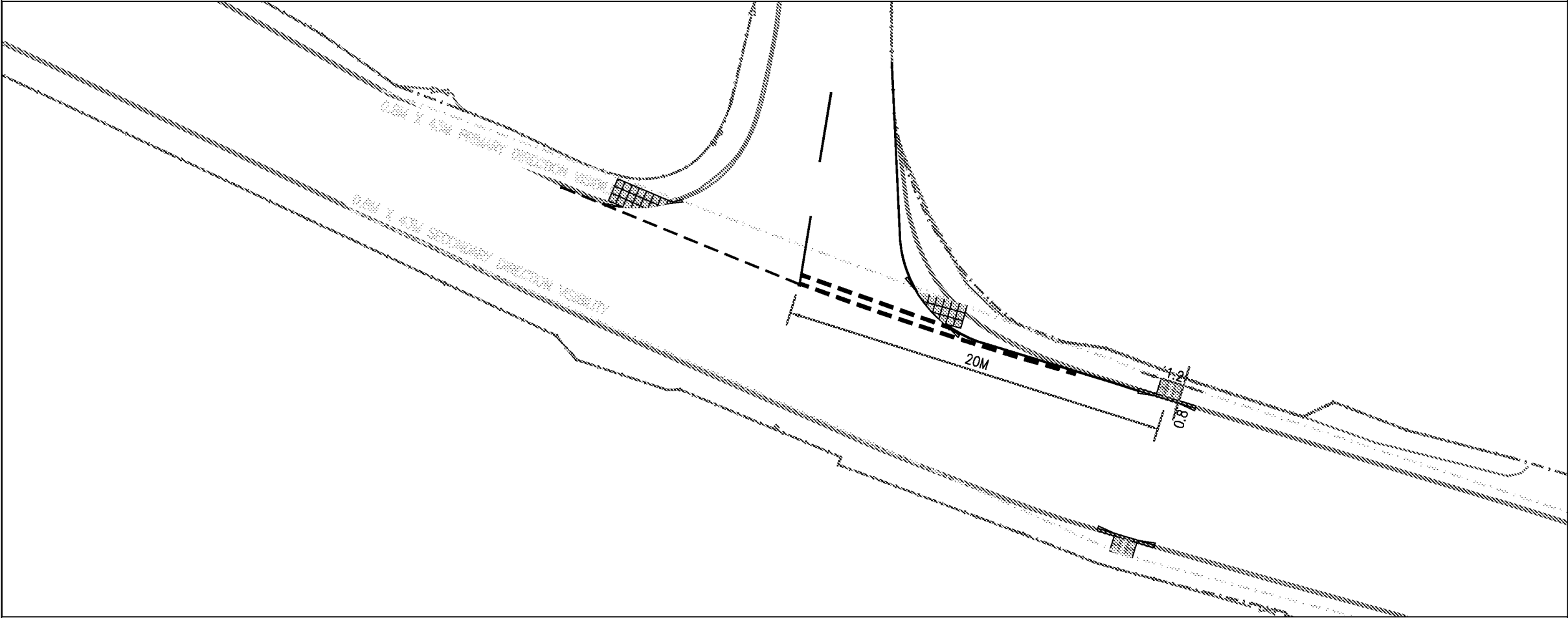
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10.08.2020

Drawing No: N/A

Appendix C



WESTBOUND PEDESTRIAN VISIBILITY SPLAYS



EASTBOUND PEDESTRIAN VISIBILITY SPLAYS

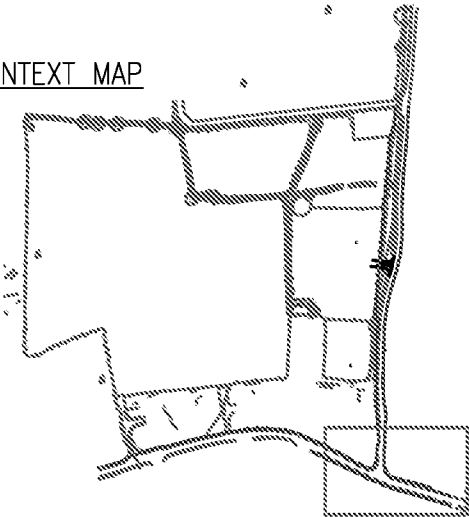
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6. HIGHWAY BOUNDARY MAPPING WAS OBTAINED FROM WEST SUSSEX COUNTY COUNCIL IN 2018, WITH ADDITIONAL LIAISON WITH REGARDS TO AN OWNERSHIP QUERY ON TYE LANE UNDERTAKEN IN AUGUST 2020.

KEY

----- HIGHWAY BOUNDARY MAPPING

CONTEXT MAP



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

Project Name LAND WEST OF TYE LANE WALBERTON	Title PEDESTRIAN CROSSING AND VISIBILITY SPLAY ON THE STREET	 Paul Basham Associates Ltd The Britty, Conic Hall Estate, Farnham PO18 8UT 01250 711 020 info@paulbashamassociates.com www.paulbashamassociates.com	Client  DAVID WILSON HOMES WHERE DREAMS BECOME REALITY	Checked By JL	Checked Date 20.08.20	Scale 1:250	(AT A3 SIZE)		
Project Phase PRELIMINARY ARUN DISTRICT COUNCIL WA/68/20/OUT				Drawn By SB	Drawn Date 18.08.20	Client Drawing No. -	PBA Drawing No. 041.0071.003	Revision A	