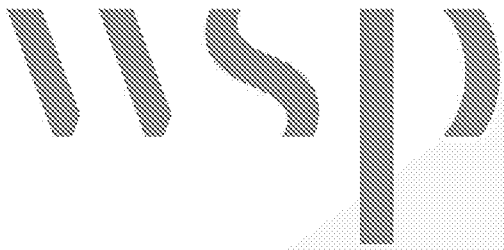


Appendix E

ROAD SAFETY AUDIT AND DEPARTURES FROM STANDARD APPLICATION

115/1



Cala Homes South Home Counties

WESTERGATE STREET AND MEADOW WAY, WESTERGATE, WEST SUSSEX

Stage Road Safety Audit - Designers Response





Cala Homes South Home Counties

WESTERGATE STREET AND MEADOW WAY, WESTERGATE, WEST SUSSEX

Stage Road Safety Audit - Designers Response

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70013258

DATE: SEPTEMBER 2023

CONFIDENTIAL



Cala Homes South Home Counties

WESTERGATE STREET AND MEADOW WAY, WESTERGATE, WEST SUSSEX

Stage Road Safety Audit - Designers Response

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THE ROAD SAFETY AUDIT

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ROAD SAFETY AUDIT BRIEF GG119



1 INTRODUCTION

- 1.1.1. WSP has been commissioned by Cala Homes to provide highways and transport support to support the planning application at Westergate Street and Meadow Way, in Westergate West Sussex. The proposals comprise a new traffic signal junction at Westergate Street and Meadow Way, as part of a scheme for 400 residential dwellings with associated car parking.
- 1.1.2. This report provides a Designer's Response to the Stage 1 Road Safety Audit (RSA) completed by Acorns Projects Limited for the proposed site accessed arrangements, which consist of a four-arm traffic signal junction at the A29 / Meadow Way / Pine Close. This RSA is aligned with Design Manual for Roads and Bridges GG119 guidance. An RSA brief, which was shared with Acorns Projects Limited prior to completion of the audit, is included in Appendix A.
- 1.1.3. The RSA report is included in Appendix A of this document and was based on drawing 3258/GA/003.
- 1.1.4. Section 2 of this report sets out the issues raised by the RSA and WSP's response as Design Organisation.
- 1.1.5. Included in Appendix B of this document are the following updated drawings, taking into account the recommendations of the RSA and this Designers Response. Appendix C presents the Road Safety Audit Brief GG119 and includes all of the departures of standards documents.
- 1.1.6. Section 3 provides the Decision Log which records the agreed actions in response to each problem raised as part of the RSA. At this stage the Decision Log has been completed by WSP as the Design Organisation for review by West Sussex County Council as the local highway authority and Overseeing Organisation. A further iteration of this Decision Log and Designers Response will be issued once all agreed actions are confirmed.



2 DESIGNERS RESPONSE

2.1 LOCAL ALIGNMENT

- 2.1.1. No problems were identified in this category at this Stage 1 RSA.

2.2 GENERAL

PROBLEM 3.2.1

Locations 1 & 2

- 2.2.1. Locations 1 & 2 - On the south eastern and north western corners of the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary

- 2.2.2. An identified Departure from Design Standard with regard to junction intervisibility could lead to a potential increased risk of side impact vehicular collisions occurring or nose to tail shunt type collisions occurring, whereby vehicle occupants could sustain personal injury.

Recommendation

- 2.2.3. The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document:
- ※ “Yellow box junction marking provided to assist with precautionary approach by west bound vehicles”;
 - ※ “All red extending detector loops to be considered during detailed design to ensure junction is clear before allowing movements with poor intervisibility”;
 - ※ “MOVA detection will facilitate precise stage change operation thereby reducing possibility of vehicles running amber lights and conflicting with pedestrian movements”.

WSP Designers Response

- 2.2.4. Problem accepted, noting that a ‘Keep Clear’ box markings have been included on the westbound approach. This is shown on the updated Site Access General Arrangement Drawing LAW-WSP-ZZ-ZZ-C-DR-0006.
- 2.2.5. Recommendations related to the provision of an all-red detector and use of MOVA detection are also accepted and will form part of the detailed design process for the junction.

PROBLEM 3.2.2

Location 3

- 2.2.6. Location 3 - On the north bound approach to the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary

- 2.2.7. An identified Departure from Design Standard with regard to forward visibility and stopping sight distance on the A29 north bound approach to the traffic signal junction could lead to a potential



increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles, whereby vehicle occupants could sustain personal injury. In addition, there could be a potential increased risk of vehicular and pedestrian and possibly pedal cyclist collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.

Recommendation

- 2.2.8. The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document:
- ※ “Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m”;
 - ※ “The use of coloured high surfacing will be reviewed during detailed design”;
 - ※ “Offside primary signal head to be provided facilitating 68m SSD and additional warning of queuing vehicles”;
 - ※ “MOVA control to effectively manage queues as efficiently as possible reducing queue length”;
 - ※ “Junction could be configured to rest on Main Road green to further minimise vehicle stops”.
- 2.2.9. In addition, it is recommended that the limits and extents of the high skid resistant surface course material should be determined prior to the detailed design stage, in order to ensure that the combination of warning signing to Diagrams 543 and 584 and the high skid resistant surface course material provide effective mitigation to the Departure from Design Standard.

WSP Designers Response

- 2.2.10. Recommendations regarding signage is accepted. The provision of signs 543 and 584 are included as part of the proposed site access junction. This is shown on Drawing XXXXXXXX.
- 2.2.11. Recommendations regarding provision of an offside primary signal head is also accepted as shown on Site Access General Arrangement Drawing LAW-WSP-ZZ-ZZ-C-DR-0006.
- 2.2.12. Recommendations regarding the use of high coloured surfacing and traffic signal operation are also accepted and will be considered further during detailed design.

PROBLEM 3.2.3

Location

- 2.2.13. Location 4 - On the north bound approach to the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary

- 2.2.14. An identified Departure from Design Standard with regard to forward visibility and stopping sight distance to the back of queuing traffic on the A29 north bound approach to the traffic signal junction could lead to a potential increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles, whereby vehicle occupants could sustain personal injury.

Recommendation

- 2.2.15. The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction



intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document:

- ※ “Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m”;
- ※ “The use of coloured high surfacing will be reviewed during detailed design”;
- ※ “Offside primary signal head to be provided facilitating 68m SSD and additional warning of queuing vehicles”;
- ※ “MOVA control to effectively manage queues as efficiently as possible reducing queue length”;
- ※ “Junction could be configured to rest on Main Road green to further minimise vehicle stops”.

- 2.2.16. In addition, it is Recommended that the limits and extents of the high skid resistant surface course material should be determined prior to the detailed design stage, in order to ensure that the combination of warning signing to Diagrams 543 and 584 and the high skid resistant surface course material provide effective mitigation to the Departure from Design Standard.

WSP Designers Response

- 2.2.17. Recommendations regarding signage is accepted. The provision of signs 543 and 584 are included as part of the proposed site access junction. This is shown on Drawing XXXXXXXX.
- 2.2.18. Recommendations regarding provision of an offside primary signal head is also accepted as shown on Site Access General Arrangement Drawing LAW-WSP-ZZ-ZZ-C-DR-0006.
- 2.2.19. Recommendations regarding the use of high coloured surfacing and traffic signal operation are also accepted and will be considered further during detailed design.

PROBLEM 3.2.4

Location 5

- 2.2.20. On the south bound approach to the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary

- 2.2.21. Summary - Reducing the potential for skidding and enhancing braking capacity on the Westergate Street south bound approach to the proposed traffic signal junction, in order to minimise potential nose to tail shunt type vehicular collisions occurring and potential vehicular collisions occurring within the central area of the proposed traffic signal junction, whereby vehicle occupants could sustain personal injury. In addition, there could be a potential increased risk of vehicular/pedestrian/pedal cyclist collisions occurring, whereby vehicle occupants and pedestrians and pedal cyclists could sustain personal injury.

Recommendation

- 2.2.22. It is Recommended that a high skid resistant surface course material (formerly referred to as the wearing course), should be provided on the Westergate Street south bound approach to the proposed traffic signal junction.
- 2.2.23. It is suggested that as a minimum, the length of high skid resistant surface course material (formerly referred to as the wearing course), should draw a relationship between the potential vehicular approach speeds and, the minimum stopping distances identified in the Highway Code.



- 2.2.24. The shortest/overall stopping distances assume dry road conditions, a car with good brakes and an alert driver. It is acknowledged that generally, a longer linear distance is or can be provided in these circumstances.

WSP Designers Response

- 2.2.25. Recommendation accepted. The provision of high skid resistant surface course material will be considered during detailed design.

PROBLEM 3.2.5

Locations 6 & 7

- 2.2.26. The East-West Link Road between the Westergate Street and Meadow Way proposed traffic signal junction and the residential development areas (Drawing Nos. 3258/GA/004 Rev F & 3258/SK/016 Rev J).

Summary

- 2.2.27. Proposed phasing of development in addition to the Cala Homes site could result in a potential detriment to operational road safety due to capacity requirements. This could lead to subsequent driver frustration and injudicious vehicle manoeuvres being attempted and executed by drivers which in turn could lead to vehicular collisions occurring, whereby vehicle occupants could sustain personal injury. In addition, driver frustration and injudicious vehicle manoeuvres could lead to a detriment to operational pedestrian and pedal cyclist safety, with the resultant potential increased risk that personal injury could be sustained by pedestrians and pedal cyclists.

Recommendation

- 2.2.28. It is Recommended that until the full realignment of the A29 is complete, the East-West Link Road should not be utilised to provide an all vehicle route between the A29 Westergate Street and Meadow Way proposed traffic signal junction and Parcel SC1, in order to enhance operational road safety.
- 2.2.29. The use of the East-West Link Road to provide a bus and active travel route only between the A29 Westergate Street and Meadow Way proposed traffic signal junction and Parcel SC1 would appear to be able to be accommodated without any specific detriment to operational road safety.
- 2.2.30. However, there could well be items raised when any future scheme proposals for a bus and active travel route only are subjected to the rigours of the Road Safety Audit process.

WSP Designers Response

- 2.2.31. Recommendation accepted. WSP has agreed with WSCC during pre-application discussions that the East-West Link Road will not open to all traffic until the full realignment of the A29 is complete.

2.3 JUNCTIONS

PROBLEM 3.3.1

Location 8

- 2.3.1. The proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).



Summary

- 2.3.2. No provision for a traffic signal maintenance engineer to stop in immediate proximity to the Westergate Street and Meadow Way proposed traffic signal junction.

Recommendation

- 2.3.3. It is Recommended that a traffic signal maintenance engineer's layby or hardstanding area should be provided in proximity to the proposed traffic signal controlled junction. In determining a suitable location, the facility should be sited clear of the traffic lanes, traffic signal poles and signal heads and, any existing or proposed pedestrian and pedal cycle routes if possible.

WSP Designers Response

- 2.3.4. WSP has reviewed the recommendation and concluded that it was not possible to identify a suitable location where a layby could be provided on the A29 for traffic signal maintenance. However, it is noted that on-street parking will be available within the northern section of Pine Close and on Meadow Way. Given the infrequent nature of traffic signal maintenance, the use of Pine Close and Meadow Way it is considered that this will not generate a road safety issue.

2.4 WALKING, CYCLING AND HORSE RIDING

- 2.4.1. No problems were identified in this category at this Stage 1 RSA.

2.5 TRAFFIC SIGNS, CARRIAGEWAY MARKING AND LIGHTING

PROBLEM 3.5.1

Locations – General

- 2.5.1. Throughout the length of the proposed highway works (Drawing Nos. 3258/GA/004 Rev F & 3258/SK/016 Rev J).

Summary

- 2.5.2. Enhancing the conspicuousness of the proposed highway works in order to minimise potential vehicular collisions occurring and potential vehicular/pedestrian and pedal cyclist collisions occurring during the hours of darkness, which could result in vehicle occupants and pedestrians and pedal cyclists sustaining personal injury.

Recommendation

- 2.5.3. It is Recommended that at the detailed design stage of the project, a new and enhanced system of street lighting should be installed for the complete length and areas of the proposed highway works, thus enhancing the operational safety of the overall scheme proposals during the hours of darkness.

WSP Designers Response

- 2.5.4. Problem accepted, the recommended adjustments will be considered and will be agreed with the highway authority during the detailed design period.



3 DECISION LOG

- 3.1.1. Table 3-1 provides the Draft Decision Log, taking account of problems and recommendations identified within by the RSA and WSP's response and design organisation. Table follows the example shown in Table F4 of GG119. West Sussex County Council as Overseeing Organisation will need to complete their response before the RSA Designer's Response is re-issued with the agreed RSA action for each relevant point.



Table 3-1 - Decision Log



RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
Problem 3.2.1 On the south eastern and north western corners of the proposed traffic signal junction an identified Departure from Design Standard with regard to junction intervisibility could lead to a potential increased risk of side impact vehicular collisions occurring or nose to tail shunt type collisions occurring, whereby vehicle occupants could sustain personal injury.	The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document: ※ “Yellow box junction marking provided to assist with precautionary approach by west bound vehicles”; ※ “All red extending detector loops to be considered during detailed design to ensure junction is clear before allowing movements with poor intervisibility”; ※ “MOVA detection will facilitate precise stage change operation thereby reducing possibility of vehicles running amber lights and conflicting with pedestrian movements”.	Recommendation accepted, noting that a ‘Keep Clear’ box markings have been included on the westbound approach. This is shown on the updated Site Access General Arrangement Drawing LAW-WSP-ZZ-ZZ-C-DR-0006. Recommendations related to the provision of an all-red detector and use of MOVA detection are also accepted and will form part of the detailed design process for the junction.		
Problem 3.2.2 On the north bound approach to the proposed traffic signal junction an identified Departure from Design Standard with regard to forward visibility and stopping sight distance on the A29 north bound approach to the traffic signal junction could lead to a potential increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles, whereby vehicle occupants could sustain personal injury. In addition, there could be a potential increased risk of vehicular and pedestrian and possibly pedal cyclist collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.	The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document: ※ “Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m”; ※ “The use of coloured high surfacing will be reviewed during detailed design”; ※ “Offside primary signal head to be provided facilitating 68m SSD and additional warning of queuing vehicles”; ※ “MOVA control to effectively manage queues as efficiently as possible reducing queue length”; ※ “Junction could be configured to rest on Main Road green to further minimise vehicle stops”. In addition, it is recommended that the limits and extents of the high skid resistant surface course material should be determined prior to the detailed design stage, in order to ensure that the combination of warning signing to Diagrams 543 and 584 and the high skid resistant surface course material provide effective mitigation to the Departure from Design Standard. Recommendations regarding the use of high coloured surfacing and traffic signal operation are also accepted and will be considered further during detailed design.	Recommendations regarding signage is accepted. The provision of signs 543 and 584 are included as part of the proposed site access junction. This is shown on Drawing XXXXXXXX. Recommendations regarding provision of an offside primary signal head is also accepted as shown on Site Access General Arrangement Drawing LAW-WSP-ZZ-ZZ-C-DR-0006.		



Problem 3.2.3 On the north bound approach to the proposed traffic signal junction an identified Departure from Design Standard with regard to forward visibility and stopping sight distance to the back of queuing traffic on the A29 north bound approach to the traffic signal junction could lead to a potential increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles, whereby vehicle occupants could sustain personal injury.	The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document: ※ “Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m”; ※ “The use of coloured high surfacing will be reviewed during detailed design”; ※ “Offside primary signal head to be provided facilitating 68m SSD and additional warning of queuing vehicles”; ※ “MOVA control to effectively manage queues as efficiently as possible reducing queue length”; ※ “Junction could be configured to rest on Main Road green to further minimise vehicle stops”. In addition, it is Recommended that the limits and extents of the high skid resistant surface course material should be determined prior to the detailed design stage, in order to ensure that the combination of warning signing to Diagrams 543 and 584 and the high skid resistant surface course material provide effective mitigation to the Departure from Design Standard.	Recommendations regarding signage is accepted. The provision of signs 543 and 584 are included as part of the proposed site access junction. This is shown on Drawing XXXXXXXX. Recommendations regarding provision of an offside primary signal head is also accepted as shown on Site Access General Arrangement Drawing LAW-WSP-ZZ-ZZ-C-DR-0006. Recommendations regarding the use of high coloured surfacing and traffic signal operation are also accepted and will be considered further during detailed design.		
Problem 3.2.4 On the south bound approach to the proposed traffic signal junction in order to minimise potential nose to tail shunt type vehicular collisions occurring and potential vehicular collisions occurring within the central area of the proposed traffic signal junction, whereby vehicle occupants could sustain personal injury. In addition, there could be a potential increased risk of vehicular/pedestrian/pedal cyclist collisions occurring, whereby vehicle occupants and pedestrians and pedal cyclists could sustain personal injury.	It is Recommended that a high skid resistant surface course material (formerly referred to as the wearing course), should be provided on the Westergate Street south bound approach to the proposed traffic signal junction. It is suggested that as a minimum, the length of high skid resistant surface course material (formerly referred to as the wearing course), should draw a relationship between the potential vehicular approach speeds and, the minimum stopping distances identified in the Highway Code. The shortest/overall stopping distances assume dry road conditions, a car with good brakes and an alert driver. It is acknowledged that generally, a longer linear distance is or can be provided in these circumstances.	Recommendation accepted. The provision of high skid resistant surface course material will be considered during detailed design.		



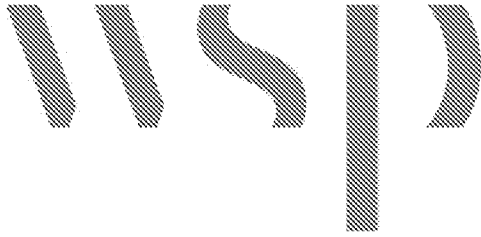
Problem 3.2.5 Proposed phasing of development in addition to the Cala Homes site could result in a potential detriment to operational road safety due to capacity requirements. This could lead to subsequent driver frustration and injudicious vehicle manoeuvres being attempted and executed by drivers which in turn could lead to vehicular collisions occurring, whereby vehicle occupants could sustain personal injury. In addition, driver frustration and injudicious vehicle manoeuvres could lead to a detriment to operational pedestrian and pedal cyclist safety, with the resultant potential increased risk that personal injury could be sustained by pedestrians and pedal cyclists.	It is Recommended that until the full realignment of the A29 is complete, the East-West Link Road should not be utilised to provide an all vehicle route between the A29 Westergate Street and Meadow Way proposed traffic signal junction and Parcel SC1, in order to enhance operational road safety. The use of the East-West Link Road to provide a bus and active travel route only between the A29 Westergate Street and Meadow Way proposed traffic signal junction and Parcel SC1 would appear to be able to be accommodated without any specific detriment to operational road safety. However, there could well be items raised when any future scheme proposals for a bus and active travel route only are subjected to the rigours of the Road Safety Audit process.	Recommendation accepted. WSP has agreed with WSCC during pre-application discussions that that the East-West Link Road will not open to all traffic until the full realignment of the A29 is complete.		
Problem 3.5.1 Enhancing the conspicuousness of the proposed highway works in order to minimise potential vehicular collisions occurring and potential vehicular/pedestrian and pedal cyclist collisions occurring during the hours of darkness, which could result in vehicle occupants and pedestrians and pedal cyclists sustaining personal injury.	It is Recommended that at the detailed design stage of the project, a new and enhanced system of street lighting should be installed for the complete length and areas of the proposed highway works, thus enhancing the operational safety of the overall scheme proposals during the hours of darkness.	*Problem accepted, the recommended adjustments will be considered and will be agreed with the highway authority during the detailed design period.		

Appendix A

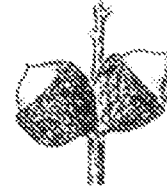
THE ROAD SAFETY AUDIT

115/1

CONFIDENTIAL



**ACORNS
PROJECTS
LIMITED**



**Westergate Street and Meadow Way, Westergate, West Sussex
Proposed Site Access Arrangements
Stage 1 Road Safety Audit**

For WSP

Prepared by Acorns Projects Limited

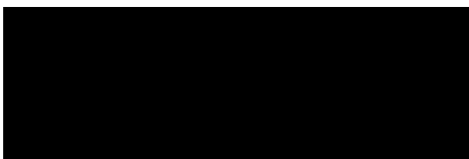
Safety Traffic Project Management & Highway Engineering Consultants

APRIL 2023

Acorns Projects Limited

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Revision History

This document has the following history:

Version No.	Version Date	Summary of Changes	Changes marked
1.0	01/04/2023	N/A	N/A

Approvals

This document requires the following approvals:

Name	Title
Adriano B. Cappella	Audit Team Leader
Lisa Allen	Audit Team Member

Distribution

This document has also been distributed to:

Name	Title & Organisation
Chris Williams	Associate Director - WSP
Tim Townsend	Principal Transport Planner, County Highways Team - Highways, Transport and Planning - West Sussex County Council

1.0 INTRODUCTION

1.1 This report results from a Stage 1 Road Safety Audit carried out on the Westergate Street and Meadow Way, Westergate, West Sussex, Proposed Site Access Arrangements Project, at the request of the Overseeing Organisation, i.e. the Local Highway Authority, West Sussex County Council, County Hall, Chichester, West Sussex, PO19 1RQ. The Design Organisation is WSP, Grosvenor House, 2 Grosvenor Square, Southampton, Hampshire, SO15 2BE. The Third Party Organisation is Cala Homes South Home Counties and Legal & General Homes, The Dorking Business Park, Station Road, Dorking, Surrey, RH4 1HJ.

1.2 The scheme proposals comprise a new traffic signal junction at Westergate Street and Meadow Way, Westergate, West Sussex, as part of a scheme for 400 residential dwellings with associated car parking. The proposed development site is located on land to the east of the A29 Westergate Street, and forms part of the Barnham Eastergate Westergate (BEW) strategic site allocated for 3,000 houses under Policy H SP2c of the Arun Local Plan 2011-2031.

Proposals for the wider Barnham Eastergate Westergate strategic development include the realignment of the A29 to the east of the Cala Homes site to bypass the existing railway level crossing at Woodgate and provide a grade separated crossing to eliminate vehicle queues associated with the level crossing. The realignment of the A29 will run from the existing A29 to the north of Eastergate and connect to the existing alignment to the south of the railway. The realigned A29 will connect with the Cala Homes site and existing A29 alignment, via an East-West Link Road. This Stage 1 Road Safety Audit includes an assessment of two scenarios for the East-West Link Road as follows:

- The East-West Link Road providing an all vehicle route between the A29 and Parcel SC1;
- The East-West Link Road providing a bus and active travel route only between the A29 and Parcel SC1.

1.3 The Road Safety Audit Team Membership was as follows:

Adriano B. Cappella IEng, FIHE, MCIHT, MSoRSA, HA RSA Certificate of Competency
(Audit Team Leader) Director, Acorns Projects Limited

Lisa Allen MSc, BEng (Hons), MCIHT, MSoRSA, HA RSA Certificate of Competency
(Audit Team Member) Associate Consultant, Acorns Projects Limited

- 1.4** The Audit took place at the Eaton Bray office of Acorns Projects Limited during January and April 2023. The Audit was undertaken in accordance with the Road Safety Audit Brief as contained within the Design Organisation E-Mail to Acorns Projects Limited dated the 20th December 2022. The Audit comprised an examination of the drawings and document provided by the Design Organisation and, are listed in Appendix A.
- 1.5** The drawings and document consisted of a copy of the site access general arrangement, the East-West Link Road highway alignment sketch and, the December 2022 WSP RSA Stage 1 Brief document. Copies of the drawings at both A3 and A4 size were provided for the Audit Team's use. Road traffic collision data, vehicular traffic flow data and, pedestrian and pedal cycle accessibility information is contained within the December 2022 WSP RSA Stage 1 Brief document. Public transport information has not been supplied for the purposes of review at this Stage 1 Road Safety Audit.
- 1.6** A visit to the site was undertaken between 13.25 pm and 14.40 pm during the afternoon of the 5th January 2023 by both Audit Team Members together. During the afternoon site visit, the weather was reasonably mild, cloudy and overcast and the existing carriageway surface was part damp and part dry. Vehicular traffic conditions at the time of the afternoon site visit were observed to be moderate. Nine pedestrians and two pedal cyclists were observed during the afternoon site visit.
- 1.7** The terms of reference of the Audit are as described in DMRB GG 119 Road Safety Audit. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and, has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation made to resolve the identified problem, the Audit Team may, on occasion, have referred to a Design Standard without touching on technical audit.
- 1.8** The Design Organisation has advised the following Departures from Design Standards within the December 2022 WSP RSA Stage 1 Brief document, which are discussed in detail in Items 2.2.1, 2.2.2 and 2.2.3 of this Stage 1 Road Safety Audit Report:
- Intervisibility between junction stop lines on A29 southern arm, Meadow Way and site access;
 - Forward visibility (SSD) on the A29 northbound approach to the traffic signals;
 - Forward visibility (SSD) to the back of queuing traffic on the A29 northbound approach to the traffic signals.

- 1.9** All Problems and Recommendations are referenced to the design drawings and the locations have been indicated on the A4 plan supplied for use by the Audit Team in Appendix B.
- 1.10** Issues identified, and observations made during this Stage 1 Road Safety Audit and site inspection which the Terms of Reference exclude from this report, but which the Audit Team wishes to draw to the attention of the Overseeing Organisation, i.e. the Local Highway Authority, West Sussex County Council, will be set out in a separate letter. These issues could include maintenance items and operational issues. The Audit Team has not identified any issues during this Stage 1 Road Safety Audit and site inspection that are considered to be outside the Terms of Reference.

2.0 ITEMS RAISED AT A PREVIOUS STAGE 1 ROAD SAFETY AUDIT

- 2.1** The safety aspects of the A29 Westergate Street/Meadow Way, Westergate, West Sussex - Proposed S278 Signalised Junction Project, were the subject of comment in the January 2017 Road Safety Audit Stage 1 Report undertaken by Ted Smith, Traffic Safety Consultant.
- 2.2** The Design Organisation, WSP | Parsons Brinckerhoff responded to the Road Safety Audit Stage 1 Report in April 2017, whereby the safety aspects raised were discussed and mitigating measures proposed.
- 2.3** The two issues raised in the January 2017 Road Safety Audit Stage 1 Report undertaken by Ted Smith, Traffic Safety Consultant have been resolved between the Design Organisation and the Overseeing Organisation.

3.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

3.1 LOCAL ALIGNMENT

3.1.1 No Problems identified in this category at this Stage 1 Road Safety Audit.

3.2 GENERAL

3.2.1 PROBLEM

Locations 1 & 2 - On the south eastern and north western corners of the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary - An identified Departure from Design Standard with regard to junction intervisibility could lead to a potential increased risk of side impact vehicular collisions occurring or nose to tail shunt type collisions occurring, whereby vehicle occupants could sustain personal injury.

Detail - The scheme proposals include the provision of a new traffic signal junction. The Stage 1 Road Safety Audit brief document advises of a Departure from Design Standard regarding intervisibility between the junction stop line on A29 southern arm and, the Meadow Way and site access arms of the proposed traffic signal junction. The obstructions to intervisibility are caused by the presence of existing residential boundary fences and hedges and a telecommunications mast and associated large cabinets as indicated at Location 1 and 2.

This Departure from Design Standards was previously approved by West Sussex County Council in their "no objection" response to planning application AL/15/17/PL, which included the same proposed traffic signal junction site access design. This Departure from Design Standards application has been updated to reflect guidance contained within the most recent 2019 version of the Traffic Signs Manual Chapter 6 as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document.

Concern arises that the physical restrictions to the junction intervisibility zones could lead to a potential increased risk of side impact vehicular collisions occurring within the central area of the proposed traffic signal junction, particularly should any red light traffic signal violations take place. This situation could result in vehicular occupants sustaining personal injury.

In addition, when pedestrians and pedal cyclists are crossing at the junction, the physical restrictions to the junction intervisibility zones could lead to a potential increased risk of vehicular and pedestrian and possibly pedal cyclist collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.

DESIGN ORGANISATION PROPOSED MITIGATION MEASURES

The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document:

- *“Yellow box junction marking provided to assist with precautionary approach by west bound vehicles”;*
- *“All red extending detector loops to be considered during detailed design to ensure junction is clear before allowing movements with poor intervisibility”;*
- *“MOVA detection will facilitate precise stage change operation thereby reducing possibility of vehicles running amber lights and conflicting with pedestrian movements”.*

RECOMMENDATION

It is Recommended that the above mitigation measures offered by the Design Organisation should be incorporated within the overall scheme proposals.

3.2.2 PROBLEM

Location 3 - On the north bound approach to the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary - An identified Departure from Design Standard with regard to forward visibility and stopping sight distance on the A29 north bound approach to the traffic signal junction could lead to a potential increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles, whereby vehicle occupants could sustain personal injury. In addition, there could be a potential increased risk of vehicular and pedestrian and possibly pedal cyclist collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.

Detail - The scheme proposals include the provision of a new traffic signal junction.

The Stage 1 Road Safety Audit brief document advises of a Departure from Design Standard regarding forward visibility and stopping sight distance on the A29 north bound approach to the traffic signal junction. The obstructions to forward visibility and stopping sight distance are caused by a combination of the presence of existing residential boundary fences on the western side of the A29 and the horizontal alignment of the A29, where a left hand bend is present.

This Departure from Design Standard was previously approved by West Sussex County Council in their “no objection” response to planning application AL/15/17/PL, which included the same proposed traffic signal junction site access design. This Departure from Design Standard application has been updated to reflect guidance contained within the most recent 2019 version of the Traffic Signs Manual Chapter 6 as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document.

The achievable forward visibility is limited by the left hand bend on the approach to the junction. Forward visibility to the nearside primary signal is 37m, equivalent to an approach speed of 27mph, and thus, the Traffic Signs Manual recommended visibility distance of 51m is not achievable.

As a result, concern arises that the physical restrictions to the forward visibility and stopping sight distance could lead to a potential increased risk of nose to tail shunt type vehicular collisions occurring, particularly if sudden or late braking is required by north bound drivers when signal changes take place. This situation could result in vehicular occupants sustaining personal injury.

In addition, when pedestrians and pedal cyclists are crossing at the junction, the physical restrictions to the forward visibility and stopping sight distance could lead to a potential increased risk of vehicular and pedestrian and possibly pedal cyclist collisions occurring, whereby pedestrians and pedal cyclists could sustain personal injury.

DESIGN ORGANISATION PROPOSED MITIGATION MEASURES

The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document:

- *“Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m”;*
- *“The use of coloured high surfacing will be reviewed during detailed design”;*

- *“Offside primary signal head to be provided facilitating 68m SSD and additional warning of queuing vehicles”;*
- *“MOVA control to effectively manage queues as efficiently as possible reducing queue length”;*
- *“Junction could be configured to rest on Main Road green to further minimise vehicle stops”.*

RECOMMENDATION

It is Recommended that the above mitigation measures offered by the Design Organisation should be incorporated within the overall scheme proposals.

In addition, it is Recommended that the limits and extents of the high skid resistant surface course material should be determined prior to the detailed design stage, in order to ensure that the combination of warning signing to Diagrams 543 and 584 and the high skid resistant surface course material provide effective mitigation to the Departure from Design Standard.

3.2.3 PROBLEM

Location 4 - On the north bound approach to the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary - An identified Departure from Design Standard with regard to forward visibility and stopping sight distance to the back of queuing traffic on the A29 north bound approach to the traffic signal junction could lead to a potential increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles, whereby vehicle occupants could sustain personal injury.

Detail - The scheme proposals include the provision of a new traffic signal junction. The Stage 1 Road Safety Audit brief document advises of a Departure from Design Standard regarding forward visibility and stopping sight distance to the back of queuing traffic on the A29 north bound approach to the traffic signal junction. The obstructions to forward visibility and stopping sight distance are caused by a combination of the presence of existing residential boundary fences on the western side of the A29 and the horizontal alignment of the A29, where a left hand bend is present.

This Departure from Design Standard was previously approved by West Sussex County Council in their “no objection” response to planning application AL/15/17/PL, which included the same proposed traffic signal junction site access design.

This Departure from Design Standard application has been updated to reflect guidance contained within the most recent 2019 version of the Traffic Signs Manual Chapter 6 as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document.

The Traffic Signs Manual recommended visibility distance of 51m is not achievable. The achievable forward visibility is limited by the left hand bend on the approach to the junction. This limits the visibility on the immediate approach to the junction, and to the back of queues shorter than 5 cars, to 49m. The back of any queue longer than 5 cars will be visible for 90m.

As a result, concern arises that the physical restrictions to the forward visibility and stopping sight distance to the back of queuing traffic on the A29 north bound approach to the traffic signal junction could lead to a potential increased risk of nose to tail shunt type vehicular collisions occurring, particularly if sudden or late braking is required by north bound drivers when approaching the rear of any queuing back from the traffic signal junction. This situation could result in vehicular occupants sustaining personal injury.

DESIGN ORGANISATION PROPOSED MITIGATION MEASURES

The Design Organisation offer the following mitigation measures to reduce and minimise the negative impact of the identified Departure from Design Standard with regard to junction intervisibility, as described within the December 2022 WSP Stage 1 Road Safety Audit Brief document:

- *“Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m”;*
- *“The use of coloured high surfacing will be reviewed during detailed design”;*
- *“Offside primary signal head to be provided facilitating 68m SSD and additional warning of queuing vehicles”;*
- *“MOVA control to effectively manage queues as efficiently as possible reducing queue length”;*
- *“Junction could be configured to rest on Main Road green to further minimise vehicle stops”.*

RECOMMENDATION

It is Recommended that the above mitigation measures offered by the Design Organisation should be incorporated within the overall scheme proposals.

In addition, it is Recommended that the limits and extents of the high skid resistant surface course material should be determined prior to the detailed design stage, in order to ensure that the combination of warning signing to Diagrams 543 and 584 and the high skid resistant surface course material provide effective mitigation to the Departure from Design Standard.

3.2.4 PROBLEM

Location 5 - On the south bound approach to the proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary - Reducing the potential for skidding and enhancing braking capacity on the Westergate Street south bound approach to the proposed traffic signal junction, in order to minimise potential nose to tail shunt type vehicular collisions occurring and potential vehicular collisions occurring within the central area of the proposed traffic signal junction, whereby vehicle occupants could sustain personal injury. In addition, there could be a potential increased risk of vehicular/pedestrian/pedal cyclist collisions occurring, whereby vehicle occupants and pedestrians and pedal cyclists could sustain personal injury.

Detail - The scheme proposals indicate that a new traffic signal installation will be provided at the Westergate Street junction with Meadow Way and the development site access road. In operational terms, the introduction of the new traffic signal junction with its respective south bound stop line will result in the creation of a new and potentially heavy braking area on the south bound approach to the new feature, which does not currently exist.

As a result, concern arises that a high skid resistant surface course material (formerly referred to as the wearing course), will be required on the south bound approach to the respective stop line of the proposed traffic signal junction. Whilst motorists should always be anticipating the unexpected, sudden or late braking may occur by motorists, particularly those who may be unfamiliar with the area.

This situation could result in a potential increased risk of nose to tail shunt type collisions occurring between a leading and any following vehicles on the north bound and east bound approaches to the proposed traffic signal junction stop lines, whereby vehicle occupants could sustain personal injury.

In addition, this situation could result in potential stop line overshoots and consequent side impact collisions occurring between vehicles within the central area of the proposed traffic signal junction when signal changes take place, whereby vehicle occupants could sustain personal injury.

Furthermore, this situation could lead to a potential increased risk of stop line overshoots and subsequent potential vehicular collisions occurring with pedestrians and pedal cyclists who may be crossing the carriageway. This could result in pedestrians and pedal cyclists sustaining personal injury, particularly those pedestrians who may be blind or visually impaired.

RECOMMENDATION

It is Recommended that a high skid resistant surface course material (formerly referred to as the wearing course), should be provided on the Westergate Street south bound approach to the proposed traffic signal junction.

It is suggested that as a minimum, the length of high skid resistant surface course material (formerly referred to as the wearing course), should draw a relationship between the potential vehicular approach speeds and, the minimum stopping distances identified in the Highway Code.

The shortest/overall stopping distances assume dry road conditions, a car with good brakes and an alert driver. It is acknowledged that generally, a longer linear distance is or can be provided in these circumstances.

3.2.5 PROBLEM

Locations 6 & 7 - The East-West Link Road between the Westergate Street and Meadow Way proposed traffic signal junction and the residential development areas (Drawing Nos. 3258/GA/004 Rev F & 3258/SK/016 Rev J).

Summary - Proposed phasing of development in addition to the Cala Homes site could result in a potential detriment to operational road safety due to capacity requirements. This could lead to subsequent driver frustration and injudicious vehicle manoeuvres being attempted and executed by drivers which in turn could lead to vehicular collisions occurring, whereby vehicle occupants could sustain personal injury. In addition, driver frustration and injudicious vehicle manoeuvres could lead to a detriment to operational pedestrian and pedal cyclist safety, with the resultant potential increased risk that personal injury could be sustained by pedestrians and pedal cyclists.

Detail - Proposals for the wider Barnham Eastergate Westergate strategic development include the realignment of the A29 to the east of the Cala Homes site to bypass the existing railway level crossing at Woodgate and provide a grade separated crossing to eliminate vehicle queues associated with the level crossing.

The realignment of the A29 will run from the existing A29 to the north of Eastergate and connect to the existing alignment to the south of the railway. The realigned A29 will connect with the Cala Homes site and existing A29 alignment, via an East-West Link Road. This could result in two potential scenarios as follows:

- The East-West Link Road providing an all vehicle route between the A29 and Parcel SC1;
- The East-West Link Road providing a bus and active travel route only between the A29 and Parcel SC1.

A technical assessment undertaken by the Design Organisation has concluded that the proposed Westergate Street and Meadow Way traffic signal junction cannot accommodate the combination of the additional traffic associated with the East-West Link Road, the Cala Homes development of 400 units and Phase 1 of Parcel SC1.

Concern arises that this situation could result in a potential detriment to operational road safety due to capacity requirements. This could lead to subsequent driver frustration and injudicious vehicle manoeuvres being attempted and executed by drivers which in turn could lead to vehicular collisions occurring, whereby vehicle occupants could sustain personal injury.

In addition, driver frustration and injudicious vehicle manoeuvres undertaken could lead to a detriment to operational pedestrian and pedal cyclist safety, with the resultant potential increased risk that personal injury could be sustained by pedestrians and pedal cyclists.

RECOMMENDATION

It is Recommended that until the full realignment of the A29 is complete, the East-West Link Road should not be utilised to provide an all vehicle route between the A29 Westergate Street and Meadow Way proposed traffic signal junction and Parcel SC1, in order to enhance operational road safety.

The use of the East-West Link Road to provide a bus and active travel route only between the A29 Westergate Street and Meadow Way proposed traffic signal junction and Parcel SC1 would appear to be able to be accommodated without any specific detriment to operational road safety.

However, there could well be Items raised when any future scheme proposals for a bus and active travel route only are subjected to the rigours of the Road Safety Audit process.

3.3 JUNCTIONS

3.3.1 PROBLEM

Location 8 - The proposed traffic signal junction (Drawing No. 3258/GA/004 Rev F).

Summary - No provision for a traffic signal maintenance engineer to stop in immediate proximity to the Westergate Street and Meadow Way proposed traffic signal junction.

Detail - The scheme proposals include the provision of a new traffic signal junction at Westergate Street and Meadow Way. The scheme proposals do not appear to include the provision of a traffic signal maintenance engineer's layby or hardstanding area adjacent to the proposed traffic signal controlled junction.

Failure to provide an appropriately located maintenance layby is likely to increase the risk of operatives parking their vehicles in un-safe locations in the vicinity of the signal apparatus.

Concern arises that erroneous parking adjacent to the new traffic signal installation in Westergate Street and Meadow Way will increase the risk of vehicular/site operative collisions occurring, whereby site operatives are likely to sustain personal injury. In addition, there could be a potential increased risk of vehicle/vehicle collisions occurring due to motorists attempting to avoid inappropriately parked vehicles.

RECOMMENDATION

It is Recommended that a traffic signal maintenance engineer's layby or hardstanding area should be provided in proximity to the proposed traffic signal controlled junction. In determining a suitable location, the facility should be sited clear of the traffic lanes, traffic signal poles and signal heads and, any existing or proposed pedestrian and pedal cycle routes if possible.

3.4 WALKING, CYCLING AND HORSE RIDING

3.1.1 No Problems identified in this category at this Stage 1 Road Safety Audit.

3.5 TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING

3.5.1 PROBLEM

Locations - General, throughout the length of the proposed highway works (Drawing Nos. 3258/GA/004 Rev F & 3258/SK/016 Rev J).

Summary - Enhancing the conspicuity of the proposed highway works in order to minimise potential vehicular collisions occurring and potential vehicular/pedestrian and pedal cyclist collisions occurring during the hours of darkness, which could result in vehicle occupants and pedestrians and pedal cyclists sustaining personal injury.

Detail - The scheme proposals indicate that a new traffic signal installation will be provided at the Westergate Street junction with Meadow Way and that a development site access road will be provided. In addition, the scheme proposals include the provision of new controlled pedestrian crossing facilities at the proposed traffic signal junction.

At this Stage 1 Road Safety Audit, new and enhanced street lighting proposals have not been submitted. As a result, concern arises that a new and enhanced system of street lighting will need to be provided to suit the proposed highway works. A lack of new or enhanced street lighting could result in a potential increased risk of vehicular collisions occurring during the hours of darkness, whereby vehicle occupants could sustain personal injury.

In addition, there could be a potential increased risk of pedestrian/pedal cyclist and vehicular collisions occurring when pedestrians and pedal cyclists cross the carriageways within the limits of the scheme proposals during the hours of darkness, whereby pedestrians and pedal cyclists could potentially sustain high levels of personal injury.

RECOMMENDATION

It is Recommended that at the detailed design stage of the project, a new and enhanced system of street lighting should be installed for the complete length and areas of the proposed highway works, thus enhancing the operational safety of the overall scheme proposals during the hours of darkness.

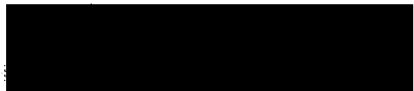
END OF PROBLEMS IDENTIFIED AND RECOMMENDATIONS OFFERED IN THIS STAGE 1 ROAD SAFETY AUDIT

4.0 ROAD SAFETY AUDIT TEAM STATEMENT

We certify that this Road Safety Audit has been carried out in accordance with DMRB GG 119.

ROAD SAFETY AUDIT TEAM LEADER

Adriano B. Cappella IEng, FIHE, MCIHT, MSoRSA, HA RSA Certificate of Competency

Signed : 

Associate Consultant

Acorns Projects Limited

Safety Traffic Project Management & Highway Engineering Consultants

Redwood House

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LU6 2SP

Date : 26th June 2023

ROAD SAFETY AUDIT TEAM MEMBER

Lisa Allen MSc, BEng (Hons), MCIHT, MSoRSA, HA RSA Certificate of Competency

Signed : 

Associate Consultant

Acorns Projects Limited

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Date : 26th June 2023

APPENDIX A

APPENDIX A

WESTERGATE STREET AND MEADOW WAY, WESTERGATE, WEST SUSSEX

PROPOSED SITE ACCESS ARRANGEMENTS

STAGE 1 ROAD SAFETY AUDIT

LIST OF WSP DRAWINGS SUBMITTED FOR AUDITING

DRAWING NO.	TITLE
3258/GA/004 Rev F	Site Access General Arrangement
3258/SK/016 Rev J	East-West Link Road Highway Alignment Sketch

LIST OF DOCUMENT REVIEWED AT THIS STAGE 1 ROAD SAFETY AUDIT

WSP - Cala Homes - RSA Stage 1 Brief - December 2022

APPENDIX B

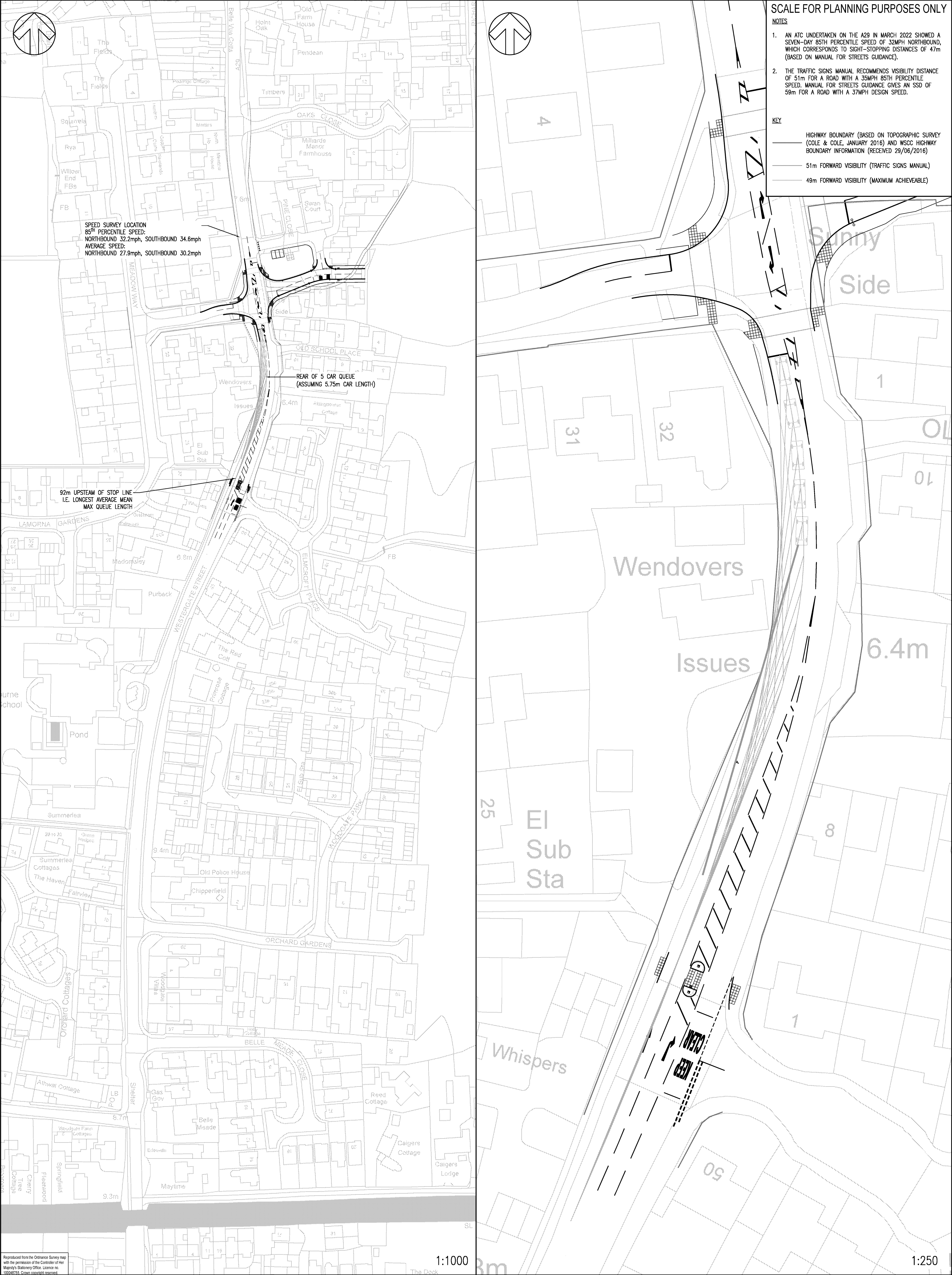
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Appendix B

WSP DRAWINGS

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SCALE FOR PLANNING PURPOSES ONLY

NOTES

1. AN ATC UNDERTAKEN ON THE A29 IN MARCH 2022 SHOWED A SEVEN-DAY 85TH PERCENTILE SPEED OF 32MPH NORTHBOUND, WHICH CORRESPONDS TO SIGHT-STOPPING DISTANCES OF 47m (BASED ON MANUAL FOR STREETS GUIDANCE).

2. THE TRAFFIC SIGNS MANUAL RECOMMENDS VISIBILITY DISTANCE OF 51m FOR A ROAD WITH A 35MPH 85TH PERCENTILE SPEED. MANUAL FOR STREETS GUIDANCE GIVES AN SSD OF 59m FOR A ROAD WITH A 37MPH DESIGN SPEED.

KEY

HIGHWAY BOUNDARY (BASED ON TOPOGRAPHIC SURVEY (COLE & COLE, JANUARY 2016) AND WSCC HIGHWAY BOUNDARY INFORMATION (RECEIVED 29/06/2016))

51m FORWARD VISIBILITY (TRAFFIC SIGNS MANUAL)

49m FORWARD VISIBILITY (MAXIMUM ACHIEVEABLE)

Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office. Licence no. 100048755. Crown copyright reserved.				1:1000				1:250			
PO3 22/09/2023 PM THIRD ISSUE				CW				AS SHOWN			
PO2 27/10/2022 PM SECOND ISSUE				CW				PROJECT NO: 70013258			
PO1 24/05/2017 MFB FIRST ISSUE				LRO				DESIGNED: MFB			
REV DATE BY DESCRIPTION				CHK APP				DRAWING NO: LAW-WSP-ZZ-ZZ-TP-DR-00002			
DRAWING STATUS: B3 - FOR PLANNING				REV: C				© WSP UK Ltd			

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wsp.com

CLIENT: CALA HOMES

ARCHITECT:

PROJECT: LAND AT WESTERGATE

TITLE: SITE ACCESS FORWARD VISIBILITY ON NORTHBOUND APPROACH TO SIGNALS

SCALE @ A1: AS SHOWN

CHECKED: LRB

APPROVED: CW

DESIGNED: MFB

DRAWN: MFB

DATE: October 2022

File name: \\UK.WSPGROUP\CONCENTRAL_DATA\PROJECTS\70013258\LAND AT WESTERGATE - CALA HOMES\WSP-MODE DEVELOPMENT\CD DRAWINGS\LANWSP-ZZ-ZZ-TP-DR-00002.DWG, issued on 22 September 2023 11:33:48, by Alex Philp

Appendix C

ROAD SAFETY AUDIT BRIEF GG119

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Appendix C. Road safety audit brief template

Table C.1 Project Summary

Date:	15/12/22
Document reference:	70013258_RSA
Prepared by:	WSP
On behalf of:	Cala Homes
AUTHORISATION SHEET	
Project:	Westergate Site Access
Report title:	RSA Stage 1 Brief
PREPARED BY:	
Name:	Ollie Thompson
Signed:	
Organisation:	WSP
Date:	16/12/22
I APPROVE THE RSA BRIEF AND INSTRUCT THE RSA TO TAKE PLACE ON BEHALF OF THE OVERSEEING ORGANISATION:	
Name:	West Sussex County Council does not approve RSA Briefs as per the 5 th bullet point of paragraph 29 of WSCC RSA Policy for Highway Works (https://www.westsussex.gov.uk/media/5556/roadsafety_auditpolicy.pdf)
Signed:	
Organisation:	West Sussex County Council
Date:	N/A

Table C.2 General Details

General details	
Highway scheme name and road number:	A29 Westergate Street
Type of scheme:	A new proposed signalised access junction for a 400 unit residential development scheme. The site is located on land to the east of the A29 Westergate Street, accessed via a new traffic signal junction at Meadow Way / Pine Close which is the subject of the RSA. The 400-unit development scheme is part of the Barnham Eastergate Westergate (BEW) strategic site allocated for 3,000 houses under Policy H SP2c of the Arun Local Plan 2011-2031. Please see details below of house this may impact on forecast traffic flows
RSA stage	Stage 1
Overseeing Organisation details	Design Organisation details
West Sussex County Council Ground Floor Northleigh County Hall Chichester PO19 1RQ	WSP Suite 1, Grosvenor House Grosvenor Square Southampton Hampshire SO15 2BE
Police contact details	Maintaining agent contact details
(N/A as Required for Stage 3 RSAs).	West Sussex County Council
RSA team membership	
Adriano Cappella – Acorns Project Limited.	
Terms of reference	
The Audit shall be undertaken in accordance with GG119.	

Table C.3 Scheme Details

Scheme description/objective
General
The works that form the main element of this Stage 1 RSA is the proposed signalised site access.
Design standards applied to the scheme design
Traffic Signs Manual Chapter 6 (Traffic Control) (DfT, 2019) Manual for Streets 2 (DfT, 2010)
Design speeds
60kph determined by CD 109 Highway Link Design (37mph) and based upon guidance contained within Traffic Signs Manual Chapter 6 is applicable
Speed limits
Mandatory 30mph speed limit
Existing traffic flows/queues
Weekday Average Flow from March 2022 Traffic Survey on A29 Westergate Street: - NB – 668 vehicles in the AM peak hour and 385 vehicles in the PM peak hour - SB – 498 vehicles in the AM peak hour and 686 vehicles in the PM peak hour
Forecast traffic flows
It is likely that the proposed 400-unit development site will generate 60 arrivals and 153 departures in the AM peak and 116 arrivals and 57 departures in the PM peak. Approximately 1,500 vehicles use the junction in each peak hour with 600-700 vehicles using the A29 in each direction. This proposed traffic signal junction may also provide access through to the BEW strategic site parcel SC1, which is currently subject to a live planning application under reference BN/11/22/OUT, via an East-West link Road. Phase 1 of Parcel SC1 (1,200 houses) also includes the construction of the northern part of the A29 realignment through the BEW site, whilst phase 2 of Parcel SC1 (2,000 houses) provides the full realignment including a new bridge over the Barnham to Chichester railway line. An annotated version of the Access and Movement plan and the framework masterplan that accompanied the planning application for parcel SC1 are included in Appendix F for reference. As part of the live planning application, the East-West Link Road is open to all vehicles, thereby providing connection between Parcel SC1 and existing A29. In Phase 1 of Parcel SC1 the forecast traffic flows are 296 arrivals and 245 departures in the AM Peak and 387 arrivals and 207 departures in the PM peak. In this scenario 1,600-1,700 vehicles use the junction in each peak hour. In Phase 2, with full realignment of the A29 complete, the forecast traffic flows are 83 arrivals and 323 departures in the AM Peak and 186 arrivals and 59 departures in the PM peak. In this scenario 800-1,000 vehicles use in the junction in each peak hour, with the reduction in flow a result of the A29 full realignment. Further to the live planning application for Parcel SC1, an alternative scenario is also being considered for the East-West Link Road whereby it will operate as a bus and active travel route until the full A29 realignment is complete. This significantly reduced the level of traffic turning right into the site from the A29 southern approach and westbound traffic flows along the East-West Link Road.

In this scenario the site will generate 60 arrivals and 153 departures in the AM peak (08:00 – 09:00) and 116 arrivals and 57 departures in the PM peak. Approximately 1,600-1,750 vehicles use the junction in each peak hour. A Technical Note is provided in Appendix G summarizing how the junction operates with and without the East-West Link Road being open to all traffic. <u>The RSA should therefore consider both scenarios for the East-West Link Road as follows:</u> <u>The East-West Link Road providing an all vehicle route between the A29 and Parcel SC1; and</u> <u>The East-West Link Road providing a bus and active travel route only between the A29 and Parcel SC.</u>
Pedestrian, cyclist and equestrian desire lines
A number of facilities are accessible on foot or by bicycle from the site, with Aldingbourne Primary School and Orminston Six Villages Academy / Eastergate CE Primary School are located 400m and 600m from the site respectively. Only Aldingbourne Primary School is likely to be accessed via the site access junction however, with internal footpaths provided direct access through the site to Orminston Six Villages Academy / Eastergate CE Primary. In addition there is Aldingbourne Sports Centre and Londis convenience store (part of Esso petrol station) located north along of the junction along the A29 and Prince of Wales public house on directly south of the level crossing. Barnham Railway station and village centre is approximately 3km walk / cycle via Barnham Road but this will likely be accessed through the internal footpaths to the north of the site rather than the site access junction.
Environmental constraints
None identified.

Table C.4 Locality

Description of locality
The development is located to the southern part of Westergate, on the eastern side of A29 Westergate Street. The site is bounded by A29 Westergate Street, residential housing to the north and agricultural land to the east. The site location is near the junction of A29 Westergate Street and Meadow Way.
General description
The A29 Westergate Street is a classified A road and provides a link from Fontwell onto Bognor Regis to the south. The road has junctions evenly spaced along its length providing access to mainly residential developments and is single-carriageway until just north of Bognor Regis. In the vicinity of the site the A29 has a posted speed limit of 30mph and street lighting, although 75 metres to the south of the site access there is a 20mph school zone for Aldingbourne Primary School. Woodgate level crossing is located approximately 550m south of the proposed access junction on A29 Westergate Street.
Relevant factors which may affect road safety
The A29 Westergate Street accommodates cyclists and pedestrians. There have been observations of parked cars on the footway partially obstructing the carriageway.

See above commentary on proposals for East-West Link Road connection to wider BEW strategic site

Table C.5 Analysis

Collision data analysis
Data from CrashMap has been analysed for the period covering (2017 – 2021). This has identified the occurrence of 11 ‘Slight’ collisions located on A29 Westergate Street and two ‘Serious’. There is a slight cluster of four collisions at the Westergate Street / Nyton Road junction and four at the Westergate Street / Hook Lane junction. However, these collisions are spread over a period of five years which does not suggest a linked causation factor between them. It is concluded that there does not exist any operational deficiencies with the local highway network.
Departures from standards
• Intervisibility between junction stop lines on A29 southern arm, Meadow Way and site access; • Forward visibility (SSD) on the A29 northbound approach to the traffic signals; and • Forward visibility (SSD) to the back of queuing traffic on the A29 northbound approach to the traffic signals. These departures from standards were previously approved by West Sussex County Council (WSCC) in their ‘no objection’ response to planning application AL/15/17/PL which included the same proposed signalised site access design. These Departures from Standards applications have been updated to reflect guidance contained within Traffic Signs Manual Chapter 6
Previous road safety audit stage reports, road safety audit response reports and evidence of agreed actions
A Stage 1 RSA has previously been undertaken, prior to publication of GG119 guidance
Strategic decisions
See Departures from Standards section above.
List of included documents and drawings
OSP – 20191 / SK07 – Sketch Site Layout (Appendix A)
3258/GA/004-F – Site Access General Arrangement (Appendix B)
70013258-RSA – Stage 1 Road Safety Audit Designers Response (Appendix B)
WSCC Departures Form (Appendix B)
Crashmap Screenshot (Appendix C)
March 2022 A29 Traffic Data (Appendix D)
Traffic Signal Staging (Appendix E)
BEW Illustrative Masterplan and Parcel SC1 Movement and Access Plan (Appendix F)

Table C.6 Checklist

Tick all that are included and provide reasons for those that are not included			
Site location plan (Appendix A)	✓	Scale layout plans (Appendix A)	✓
Departures and relaxations from standards (Appendix B)	✓	Construction/ typical details (not available at this time)	
Previous RSA reports (Appendix B – see appendix of Designers Response)	✓	Previous RSA response reports and evidence of agreed actions (Appendix B)	✓
Collision data and collision data analysis (Appendix C - See Crashmap screenshot – full collision data analysis to be included in Transport Assessment)	✓	Road traffic collision plot (Appendix C - CrashMap data has been used as collision data scope not yet re-confirmed with WSCC)	✓
Traffic signal staging (Appendix E)	✓	Traffic counts (Appendix D)	✓
Speed surveys (Appendix D - included as part of ATC).	✓	Pedestrian, cyclist and horse riding desire lines and volumes (details of ped / cycle desire lines are included within brief).	✓
Walking, cycling and horse riding assessment and reviews (has not yet been undertaken)		Items outside the scope of the RSA/ strategic decisions (See Departures from Standards applications)	✓
Other factors that may impact on road safety (None identified)	✓	Design speeds/ speed limits (See Departures from Standards applications)	✓
Design standards used (See Departures from Standards applications)	✓	Adjacent land uses (included within brief)	✓

Appendix C. Road safety audit brief template

Table C.1 Project Summary

Date:	24/11/22
Document reference:	70013258_RSA
Prepared by:	WSP
On behalf of:	Cala Homes
AUTHORISATION SHEET	
Project:	Westergate Site Access
Report title:	RSA Stage 1 Brief
PREPARED BY:	
Name:	Ollie Thompson
Signed:	
Organisation:	WSP
Date:	24/11/22
I APPROVE THE RSA BRIEF AND INSTRUCT THE RSA TO TAKE PLACE ON BEHALF OF THE OVERSEEING ORGANISATION:	
Name:	
Signed:	
Organisation:	West Sussex County Council
Date:	

Table C.2 General Details

General details	
Highway scheme name and road number:	A29 Westergate Street
Type of scheme:	A new proposed signalised access junction for a 400 unit residential development scheme. The site is located on land to the east of the A29 Westergate Street, accessed via a new traffic signal junction at Meadow Way / Pine Close. This access will also provide access through to the Bamham Eastergate Westergate strategic site parcel SC1, which is currently subject to a live planning application under reference BN/11/22/OUT, via an East-West link road. Whilst not part of the current application it is envisaged that this East-West link road would operate as a bus / pedestrian and cycle link between the Cala site and Parcel SC1 until the full A29 realignment is complete at which point it will revert to a link for all modes of transport.
RSA stage	Stage 1
Overseeing Organisation details	Design organisation details
West Sussex County Council Ground Floor Northleigh County Hall Chichester PO19 1RQ	WSP Suite 1, Grosvenor House Grosvenor Square Southampton Hampshire SO15 2BE
Police contact details	Maintaining agent contact details
(N/A as Required for Stage 3 RSAs).	West Sussex County Council
RSA team membership	
Adriano Cappella – Acorns Project Limited.	
Terms of reference	
The Audit shall be undertaken in accordance with GG119.	

Table C.3 Scheme Details

Scheme description/objective
General
The works that form the main element of this Stage 1 RSA is the proposed signalised site access.
Design standards applied to the scheme design
Traffic Signs Manual Chapter 6 (Traffic Control) (DfT, 2019) Manual for Streets 2 (DfT, 2010)
Design speeds
60kph determined by CD 109 Highway Link Design (37mph) and based upon guidance contained within Traffic Signs Manual Chapter 6 is applicable
Speed limits
Mandatory 30mph speed limit
Existing traffic flows/queues
Weekday Average Flow from March 2022 Traffic Survey on A29 Westergate Street: - NB – 668 vehicles in the AM peak hour and 385 vehicles in the PM peak hour - SB – 498 vehicles in the AM peak hour and 686 vehicles in the PM peak hour
Forecast traffic flows
It is likely that the proposed development site will generate 60 arrivals and 153 departures in the AM peak (08:00 – 09:00) and 116 arrivals and 57 departures in the PM peak. This access will also provide access through to the Bamham Eastergate Westergate strategic stie parcel SC1, which is currently subject to a live planning application under reference BN/11/22/OUT, via an East-West link road. Whilst not part of the current application it is envisaged that this East-West link road would operate as a bus / pedestrian and cycle link between the Cala site and Parcel SC1 until the full A29 realignment is complete, at which point it will revert to a link for all modes of transport. This however will be accompanied by a significant reduction in traffic flow on the A29 Westergate Street (as traffic diverts to the realigned route) and a reduction in using the junction from the proposed development owing to the alternative routes that will become available.
Pedestrian, cyclist and equestrian desire lines
A number of facilities are accessible on foot or by bicycle from the site, with Aldingbourne Primary School and Orminston Six Villages Academy / Eastergate CE Primary School are located 400m and 600m from the site respectively. Only Aldingbourne Primary School is likely to be accessed via the site access junction however, with internal footpaths provided direct access through the site to Orminston Six Villages Academy / Eastergate CE Primary. In addition there is Aldingbourne Sports Centre and Londis convenience store (part of Esso petrol station) located north along of the junction along the A29 and Prince of Wales public house on directly south of the level crossing.

Barnham Railway station and village centre is approximately 3km walk / cycle via Barnham Road but this will likely be accessed through the internal footpaths to the north of the site rather than the site access junction.

Environmental constraints

None identified.

Table C.4 Locality

Description of locality
The development is located to the southern part of Westergate, on the eastern side of A29 Westergate Street. The site is bounded by A29 Westergate Street, residential housing to the north and agricultural land to the east. The site location is near the junction of A29 Westergate Street and Meadow Way.
General description
The A29 Westergate Street is a classified A road and provides a link from Fontwell onto Bognor Regis to the south. The road has junctions evenly spaced along its length providing access to mainly residential developments and is single-carriageway until just north of Bognor Regis. In the vicinity of the site the A29 has a posted speed limit of 30mph and street lighting, although 75 metres to the south of the site access there is a 20mph school zone for Aldingbourne Primary School. Woodgate level crossing is located approximately 550m south of the proposed access junction on A29 Westergate Street.
Relevant factors which may affect road safety
The A29 Westergate Street accommodates cyclists and pedestrians. There have been observations of parked cars on the footway partially obstructing the carriageway.

Table C.5 Analysis

Collision data analysis
Data from CrashMap has been analysed for the period covering (2017 – 2021). This has identified the occurrence of 11 ‘Slight’ collisions located on A29 Westergate Street and two ‘Serious’. There is a slight cluster of four collisions at the Westergate Street / Nyton Road junction and four at the Westergate Street / Hook Lane junction. However, these collisions are spread over a period of five years which does not suggest a linked causation factor between them. It is concluded that there does not exist any operational deficiencies with the local highway network.
Departures from standards
• Intervisibility between junction stop lines on A29 southern arm, Meadow Way and site access; • Forward visibility (SSD) on the A29 northbound approach to the traffic signals; and • Forward visibility (SSD) to the back of queuing traffic on the A29 northbound approach to the traffic signals. These departures from standards were previously approved by West Sussex County Council (WSCC) in their ‘no objection’ response to planning application AL/15/17/PL which included the same proposed signalised site access design. These Departures from Standards applications have been updated to reflect guidance contained within Traffic Signs Manual Chapter 6
Previous road safety audit stage reports, road safety audit response reports and evidence of agreed actions
A Stage 1 RSA has previously been undertaken, prior to publication of GG119 guidance
Strategic decisions
See Departures from Standards section above.
List of included documents and drawings
OSP – 20191 / SK07 – Sketch Site Layout (Appendix A)
3258/GA/004-F – Site Access General Arrangement (Appendix B)
70013258-RSA – Stage 1 Road Safety Audit Designers Response (Appendix B)
WSCC Departures Form (Appendix B)
Crashmap Screenshot (Appendix C)
March 2022 A29 Traffic Data (Appendix D)
Traffic Signal Staging (Appendix E)

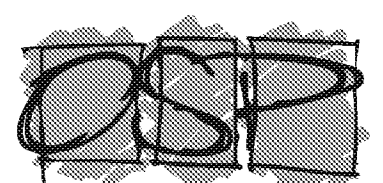
Table C.6 Checklist

Tick all that are included and provide reasons for those that are not included			
Site location plan (Appendix A)	✓	Scale layout plans (Appendix A)	✓
Departures and relaxations from standards (Appendix B)	✓	Construction/ typical details (not available at this time)	
Previous RSA reports (Appendix B – see appendix of Designers Response)	✓	Previous RSA response reports and evidence of agreed actions (Appendix B)	✓
Collision data and collision data analysis (Appendix C - See Crashmap screenshot – full collision data analysis to be included in Transport Assessment)	✓	Road traffic collision plot (Appendix C - CrashMap data has been used as collision data scope not yet re-confirmed with WSCC)	✓
Traffic signal staging (Appendix E)	✓	Traffic counts (Appendix D)	✓
Speed surveys (Appendix D - included as part of ATC).	✓	Pedestrian, cyclist and horse riding desire lines and volumes (details of ped / cycle desire lines are included within brief).	✓
Walking, cycling and horse riding assessment and reviews (has not yet been undertaken)		Items outside the scope of the RSA/ strategic decisions (See Departures from Standards applications)	✓
Other factors that may impact on road safety (None identified)	✓	Design speeds/ speed limits (See Departures from Standards applications)	✓
Design standards used (See Departures from Standards applications)	✓	Adjacent land uses (included within brief)	✓

Appendix A



- Potential M4(2) dwellings**
- Affordable 3 & 4 beds
 - 2D - Bayberry
 - 3E - Fir
 - 2BF
- Existing retained tree canopies
- Existing retained tree RPZ
- Proposed attenuation basin (surrounding bunds included)
- Existing hedgerows



Sketch Site Layout
Land East of Westergate, West Sussex
20191 / SK07
Scale 1:1000 @ A0 January 2022

Appendix B

REPORT N° 70013258-RSA

LAND AT WESTERGATE

STAGE 1 ROAD SAFETY AUDIT DESIGNERS
RESPONSE

PUBLIC

APRIL 2017

LAND AT WESTERGATE

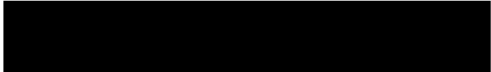
STAGE 1 ROAD SAFETY AUDIT DESIGNERS RESPONSE

Cala Homes

Type of document (version)
Public

Project no: 70013258
Date: April 2017

~
WSP | Parsons Brinckerhoff
Regus House
George Curl Way
Southampton
Hampshire


www.wsp-pb.com

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	First Issue			
Date	April 2017			
Prepared by	Chris Williams			
Signature				
Checked by	Luke Beeching			
Signature				
Authorised by	Luke Beeching			
Signature				
Project number	70013258			
Report number	70013258-RSA			
File reference	J:\70013258 - Land at Westergate -Cala Homes\C Documents\Road Safety Audit\Land at Westergate - RSA Designers Response.docx			

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1.2	DESIGNERS RESPONSE.....	1

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APPENDICES

A P P E N D I X A ROAD SAFETY AUDIT

1

DESIGNERS RESPONSE

1.1 INTRODUCTION

1.1.1 This document provides a designer's response to a Stage 1 Road Safety Audit carried out by Ted Smith Traffic Safety Consultants on behalf of Cala Homes in January 2017. The audit was completed on the proposed signalised site access junction at the existing A29 / Meadow Way junction, as shown on Drawing 3258/GA/004 Revision C. This junction will be used to access a development of 350 residential dwellings on land east of the A29.

1.1.2 For a full overview of the proposals, this document should be read in conjunction with the Transport Assessment completed for the site.

1.2 DESIGNERS RESPONSE

1.2.1 The table below provides extracts from the Stage 1 Road Safety Audit and a Designer's Response in italics to the right of each item raised.

Table 1.1 - RSA Issues Raised and Designer's Response

REF.	COMMENT	DESIGNERS RESPONSE
3.3.1	Location: (A) A29 Westergate Street, south of the junction with Meadow Way and the new access road. Summary: Risk of inadequate forward visibility of stop-line for waiting vehicles and/ or waiting pedestrians. Recommendation: The proposed junction design may need to be revisited with a view to investigating scope for shifting the northbound stop line and corresponding signal poles a few more metres further southwards of the currently shown position which may also provide safer scope for large vehicles turning sharp left manoeuvre from the new site access road. A high level off-side secondary signal head may also need to be included. The yellow box markings indicated for the southbound traffic flow may also need to be extended to also include the northbound through flows. It is further recommended that high friction surfacing should also be incorporated on the northbound approach for sufficient length to mitigate the potential northbound vehicle queuing and risk of failure to perceive the red lights associated with the signalised junction and pedestrian crossing facility.	<i>It has not been possible to relocate the A29 northbound stop-line further southwards due to the need to maintain junction inter-visibility between stop-lines. While full inter-visibility as measured in DMRB is not possible the current arrangement allows visibility between the A29 northbound and site access stop-line, which includes the extent of access road pedestrian crossing. Moving the A29 northbound stop-line further south would remove visibility between stop-lines.</i> <i>The ability to relocate the northbound stop-line further south is also limited by the residential property located on the south eastern corner of the junction, whereby such a modification would obstruct the visibility between the A29 northbound and site access road stop-line.</i> <i>The option of relocating the access road stop-line slightly westwards (to extend the limits of the junction inter-visibility further southwards on the A29 northbound) has been explored but this is not possible due to proximity of the pedestrian crossing on the access road to the A29 southbound lane.</i> <i>High friction surfacing will be incorporated into detailed design stages of the proposed junction.</i>

REF.	COMMENT	DESIGNERS RESPONSE
3.5.1	Location: (B) A29 Westergate Street, at the approaches to the new signalised junction. Summary: Risk of failure to perceive new junction control ahead. Recommendation: The proposed signing works should also include appropriate temporary warning signs to TSRGD Diagram 7014 for a slightly longer period of say six months to alert visiting drivers to the new signalised junction.	<i>It is agreed that temporary warning signs should be erected but timescales will need to be agreed with WSCC as part of the technical approval process.</i> <i>The junction design also includes provision of signage to Diagrams 543, 572, 584.1 of TSRGD to warn drivers on the A29 northbound of the traffic signal junction. This should help non-local drivers identify the junction ahead.</i>

Appendix A

ROAD SAFETY AUDIT

**“A29 WESTERGATE STREET/MEADOW WAY”
WESTERGATE, WEST SUSSEX**

PROPOSED S278 SIGNALISED JUNCTION

**Road Safety Audit
Stage 1 - Preliminary Design**

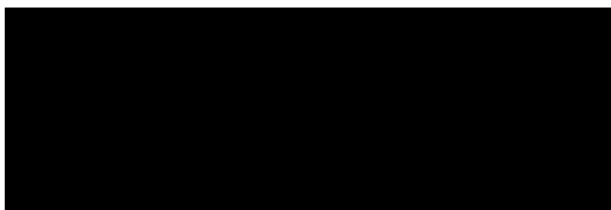
January 2017

Report Ref: 1703

CONTENTS

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2 Items raised at the previous Stage 1 Road Safety Audit	5
3 Items raised at this Stage 1 Road Safety Audit	6
4 Audit Team Statement	8
Appendix A List of Drawings & Documents Examined	9
Appendix B Key Plan	10

TED SMITH
Traffic Safety Consultant
1a The Parade
East Wittering
Chichester
West Sussex
PO20 8BN



1 INTRODUCTION

- 1.1 This report describes the results of a Stage 1 Preliminary Design Road Safety Audit of the proposed S278 Amended Signalised Access Junction Highway Works at the A29 Westergate Street at its existing junction with Meadow Way, north of Bognor Regis, West Sussex and proposed new access road into new Residential Development at the east side of the A29. The Road Safety Audit was carried out at the request of WSP UK, Regus House, Southampton International Business Park, George Curl Way, Southampton, Hampshire, SO18 2RZ, on behalf of Cala Homes.
- 1.2 The proposed works examined within this Stage 1 Audit of the Amended Design, consist of constructing a new access junction linking the A29 with the new Development Site that will serve up to approximately 350 dwellings and control of vehicular movements to and from Meadow Way. The traffic signals would also provide new controlled pedestrian crossing facilities around the junction.
- 1.3 Initially the access will serve 350 units (Detailed planning application for 101 dwellings and outline permission will be sought for the remaining 249 dwellings). However, in the longer term the signalised junction will form part of the proposed Barnham / Eastergate / Westergate Strategic Development Site involving approximately 2000 new dwellings east of the current Development Site and re-routing the A29, including closing the A29 at the Woodgate level crossing and bypassing it through the larger site.
- 1.4 The Road Safety Audit Team membership comprised as follows:
- | | |
|--|---------------------------|
| Ted Smith, CoC | Traffic Safety Consultant |
| Martin Brownsey, BSc, DipEM, MCIHT, CoC
Director, MB Projects Ltd | Highways Consultancy |
- Each member specialises in Highway Safety and Traffic Engineering and have operated independently of the design team responsible for the scheme and have had no involvement with the design of the proposals.
- 1.5 This Audit was carried out in the offices of the Team Members during January 2017, comprising of an examination of the drawings and documents listed in Appendix A and in accordance with the Audit Brief and instructions dated 13th October 2016 and 9th and 17th January 2017 from WSP. Since an inspection of the site was jointly carried out on the morning of Monday 25th November 2013 in connection with an earlier Design, during which time light to moderate traffic flows were observed and generally considered to be travelling at speeds within the low to middle range between 30mph and 40mph, a further site inspection was considered unnecessary at present. Whereas at that time a few pedestrians were also seen using the existing footways, no cyclists were seen in the near vicinity of proposed works.

- 1.6 The terms of reference of the Road Safety Audit are as described in HD 19/15 (DMRB Volume 5: Section 2, Part 2) and the incorporated categories of checklists, as appropriate. The Road Safety Audit Team has examined and reported only on the road safety implications of this scheme as presented in the drawings and documents listed in the Appendix to this report, and has not examined or verified compliance of the design with any other criteria or standard.
- 1.7 The object of this Audit is to identify any existing road safety related problems that may be exacerbated or any new problems that may be introduced by the proposals.
- 1.8 Whereas details of any recorded injury accidents were not provided, a search of 'Crashmap' data system identified that within the five year period 1st January 2011 to 31st December 2015, one injury accident classified as 'Slight' is shown to have occurred in December 2013, some distance north of the junction with Meadow Way. A further three injury accidents were shown to have occurred south of Meadow Way, close to the junction with Elmcroft Place, in which one of those events was classified as Serious involving one vehicle during April 2015, whilst the other two were classified as Slight, one involving two vehicles during May 2011 and the other during June 2015 also with two vehicles. Consequently, there would not appear to be any existing problems that might be exacerbated by the proposals.
- 1.9 Details of predicted traffic flows were provided for this Audit, together with description of proposed traffic signal operations that were incorporated into the provided Extract of the Transport Assessment document.
- 1.10 Regarding Departures from Standards, notation on the Design Drawing indicates that "TD50/04 relating to allowance for Exceptions to Standards at traffic signalised at existing junctions within urban areas". Consequently, "Agreement from the Highway Authority would need to be sought for a Departure from Standard".
- 1.11 Any problems and recommendations identified in this report are considered of sufficient importance to warrant attention and where feasible, each are uniquely referenced on the Key Plans attached at Appendix B.

** ** *

2 ITEMS RAISED AT THE PREVIOUS STAGE 1 ROAD SAFETY AUDIT

- 2.1 A previous Road Safety Audit Report on the proposed S278 Highway Works was available for this amended Stage 1 Road Safety Audit.
- 2.2 The Road Safety related items raised at paragraphs A3.1 and A5.2 of that previous Stage 1 Report appear resolved in the Amended Design. However, items previously raised at paragraphs A3.2 and A5.1 appear to partially remain problems and are referred to again in this current Road Safety Audit Report.

** ** ** ** ** ** **

3 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT.

3.1 GENERAL

3.1.1 No road safety related items are identified in this category at this Stage 1.

3.2 LOCAL ALIGNMENT

3.2.1 No road safety related items are identified in this category at this Stage 1.

3.3 JUNCTIONS

3.3.1 **PROBLEM** *(Drawing ref: 3258/GA/004 Rev C & /ATR/003 Rev B)*

Location: (A) A29 Westergate Street, south of the junction with Meadow Way and the new access road.

Summary: Risk of inadequate forward visibility of stop line, waiting vehicle(s) and/or waiting pedestrians.

The proposed forward visibility distances indicated on the Design Drawings are shown as below Standard and will require a Departure to be sought. Whereas the current proposals for northbound drivers forward visibility of the offside primary signal head is shown as 59m and notation included that it accords with MfS SSD for a speed of 37mph, (which during the site inspection was generally observed as such passing speeds), the nearside primary signal head is shown to only be 37m. Whilst it appears that since the earlier Stage 1 some changes to the northbound stop line position may have been carried out, northbound drivers forward visibility of a vehicle waiting at the stop line or of any pedestrians waiting at the west side to cross the A29 carriageway or in the process stepping off the footway, may still be hidden from clear view. It also appears likely that the offside signal head may at times be hidden from view by passing southbound buses and other high sided vehicles.

It is also understood from the Designer that “the junction would serve approximately 350 dwellings and operate within capacity when assessed up to 2017. Queuing on the A29 reached 18 vehicles in the Northbound direction and 14 vehicles in the southbound direction in the AM peak and 11 vehicles in the Northbound direction and 21 vehicles in the Southbound direction in the PM peak”. Consequently, concern arises that risk of northbound tail-end shunt conflicts at this junction may be higher than other signalised junctions, especially when large numbers of vehicles previously queuing at the level crossing are released when gates are opened and also congestion may result, or danger arise if northbound vehicles unexpectedly swerve into the bellmouth of Meadow Way when passing stationary right turning traffic, as indicated on the Swept Path Analysis Drawing.

RECOMMENDATION

The proposed junction design may need to be revisited with a view to investigating scope for shifting the northbound stop line and corresponding signal poles a few more metres further southwards of the currently shown position, which may also provide safer scope for large vehicles turning sharp left manoeuvre from the new site access road. A high level off-side secondary signal head may also need to be included.

The yellow box markings indicated for the southbound traffic flow may also need to be extended to also include the northbound through flows.

It is further recommended that high friction surfacing should also be incorporated on the northbound approach for sufficient length to mitigate the potential northbound vehicle queuing and risk of failure to perceive the red lights associated with the signalised junction and pedestrian crossing facility.

3.4 NON MOTOR VEHICLE PROVISIONS

3.4.1 No road safety related items are identified in this category at this Stage 1.

3.5 SIGNS, ROAD MARKINGS AND STREET LIGHTING

3.5.1 **PROBLEM** *(Drawing ref: 3258/GA/004 Rev C)*

Location: (B) A29 Westergate Street, at the approaches to the new signalised junction.

Summary: Risk of failure to perceive new junction control ahead.

The proposed new signalised junction may not be perceived by some drivers, particularly those who may be non-local or visiting tourists using this annual holiday route.

RECOMMENDATION

The proposed signing works should also include appropriate temporary warning signs to TSRGD Diagram 7014 for a slightly longer period of say six months to alert visiting drivers to the new signalised junction.

** ** No further road safety related items are identified at this Stage 1. ** **

4 AUDIT TEAM STATEMENT

- 4.1 We certify that this Road Safety Audit has been carried out in accordance with HD 19/15.

ROAD SAFETY AUDIT TEAM LEADER

Ted Smith CoC
Traffic Safety Consultant
1a The Parade
East Wittering
Chichester
West Sussex
PO20 8BN

Signed

Date

23rd January 2017

ROAD SAFETY AUDIT TEAM MEMBER

Martin Brownsey BSc, DipEM, MCIHT, CoC
Director
MB Projects Ltd
Highways Consultancy
Farthings
Grants Lane
Oxted
Surrey
RH8 0RH

Signed

Date

23rd January 2017

APPENDIX A

LIST OF DOCUMENTS EXAMINED

Drawing No	Date	Scale	Description
3258/GA/04 Rev C	09/11/2016	1:250 @ A1	Site Access General Arrangement Option 3
3258/ATR/003 Rev B	13/01/2017	1:250 @ A1	Site Access A29 Northbound Swept Path Analysis
3258/ATR/010 Rev A	09/11/2017	1:250 @ A1	Site Access – Option 3 Swept Path Analysis for Bus, Articulated HGV, Large Refuse Truck and Car
Sketch Diagram----	--	--	AM & PM Peak Hour Traffic Flows
Report	30/11/2013	--	Stage 1 Road Safety Audit Report of a previous Design. (No Designers Response available)
Search of Crashmap	--	--	Recorded Injury Accident Plot 01/01/2011 to 31/12/2015
Report	January 2017	--	Extract of Section 4 (Development Proposal) from Transport Assessment Includes description of how the access junction and traffic signals will operate.
Email	13/10/2016, 09/01/2017 & 17/01/2017	--	Audit Brief Amended Design Drawings and Instructions (WSP)
**	**	**	**
**	**	**	**
**	**	**	**
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APPENDIX B

KEY PLAN

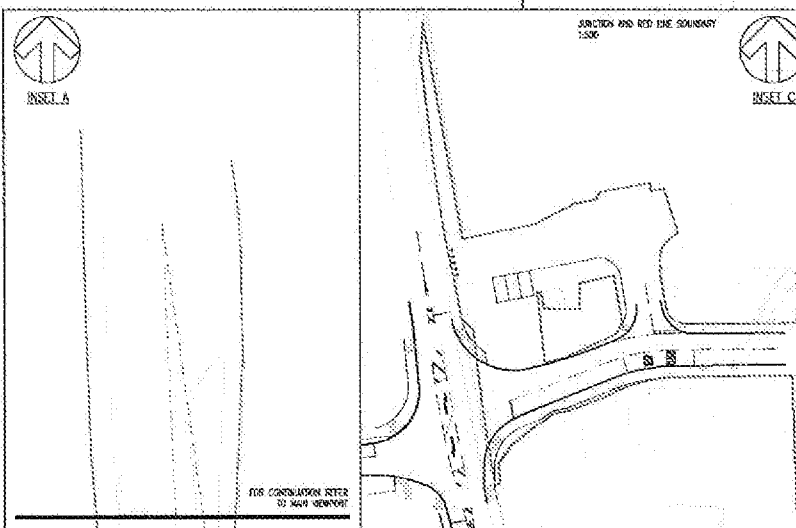
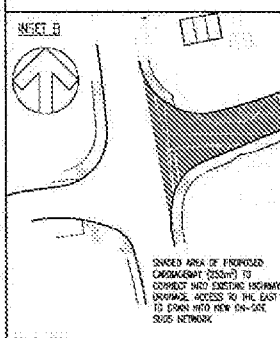
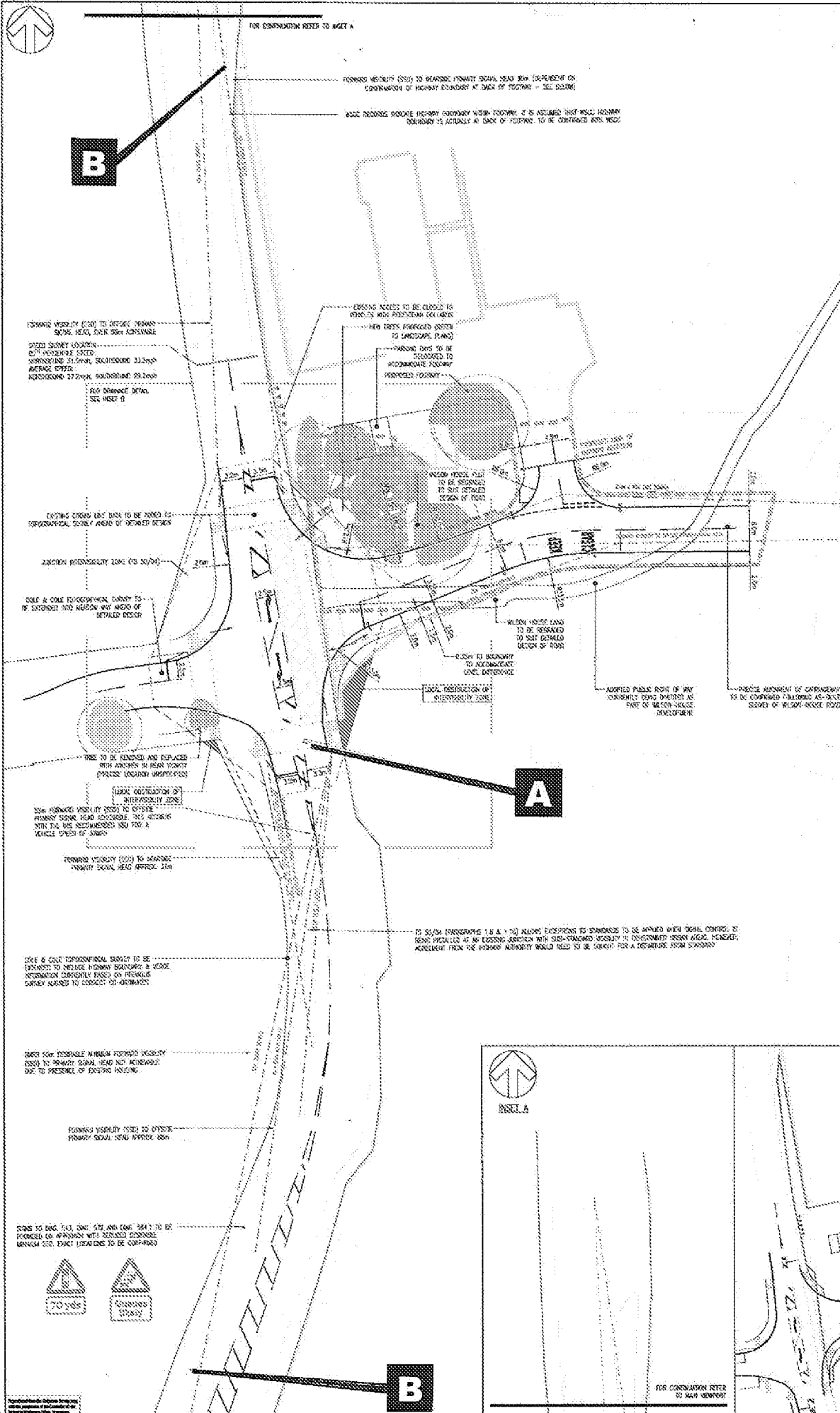
Copy of Drawing numbered 3258/GA/004 Rev C



DO NOT SCALE

1. DASH REDUCIBLE MINIMUM STOPPING DISTANCE (DSD) IS NOW FOR A ROAD WITH A 20MPH SPEED LIMIT (FORWARD DESIGN SPEED). ONE STOP BEHIND THE REDUCIBLE MINIMUM IS THE STOP FOR A ROAD WITH A 20MPH SPEED LIMIT ON THE REDUCIBLE APPROACH. AGREEMENT FROM THE HIGHWAY AUTHORITY WILL THEREFORE NEED TO BE SOUGHT FOR A REDUCIBLE MINIMUM STOPPING DISTANCE. REDUCIBLE MINIMUM STOPPING DISTANCE FOR A ROAD WITH A 20MPH DESIGN SPEED.
2. WE HAVE NOT YET BEEN TO BECOME AWARE OF ANY INFORMATION RELATED TO PROPOSED THAT MAY AFFECT THE CONSTRUCTION OR MAINTENANCE OF THIS PROJECT UNDER THE CDM REGULATIONS AND CONSIDERED WITH PROPOSED THESE. FURTHER INFORMATION WILL NEED TO BE REQUESTED FOR THE DESIGN DATED UPON ANY INFORMATION WHICH SUBSEQUENTLY BECOMES AVAILABLE.
3. THIS DESIGN IS BASED ON THE COLE & COLE TOPOGRAPHICAL SURVEY DATED JANUARY 2016 AND THE ADP ASPECTS INFORMATION DATED NOVEMBER 2012.
4. THE 2015 TOPOGRAPHICAL SURVEY COORDINATE SYSTEM HAS BEEN USED. THE ADP INFORMATION HAS BEEN USED AND ADJUSTED TO MATCH BASED ON THE PROPOSED ROADS LOCATIONS AND THE SURVEYED HERE CONSTRUCTION OUTLINES.
5. ALL LAND BOUNDARY INFORMATION IS INDICATIVE AND TO BE CONFIRMED BY ALL RELEVANT PARTIES.

- PROPERTY BOUNDARY (BASED ON TOPOGRAPHICAL SURVEY COLE & COLE JANUARY 2016 AND THE ADP ASPECTS INFORMATION DATED NOVEMBER 2012)
- OBSTRUCTION TO VISIBILITY ALONG HIGHWAY BOUNDARY (E.G. UNIMPAVED MEADOWS)
- RED LINE BOUNDARY (FROM OSP SITE LAYOUT PLAN DATED 01/11/2016)
- SUB-SALE BOUNDARY (BASED ON THE FILE OF DRAWING BY SUB-SALE PLAN 1' REVISION FROM DATA DATED ON 07/03/2016). BOUNDARY IS OUTSIDE COLE OF DESIGN DATED LINE WHICH SHOWN AT 0.5m WITHIN
- LAND IN OWNERSHIP OF MR & MRS (BASED ON DRAWING SHOWING OWNERS BOUNDARY) RECEIVED FROM DATA DATED ON 15/04/2016
- JUNCTION INTERSECTING ZONE (TO TO 50/50, 0.5m OFFSET FROM STOP LINES)
- VEHICLE SPURT (AS SHOWN)
- FORWARD VELOCITY (DSD) TO 20MPH (TO TO 50/50 AND TO 0/50)
- SPEED SURVEY LOCATION
- SIGNAL HEAD
- TACTILE PAVING (LEFT)
- TACTILE PAVING (RIGHT)
- EXISTING TREE CHANGES (BASED ON BUSBY TREES SURVEY DATED 22/06/2016)
- TREES TO BE REMOVED
- TREES TO BE RETAINED
- ADJUT PROTECTION AREAS
- FORESTRY PLANTATION
- PRECISE ALIGNMENT OF CARPARKWAY TO BE CONSIDERED FOLLOWING AS-PAVED SURVEY OF WILSON-ROSE ROAD



WSP WILSON-ROSE		CALAHONES		LAND AT WESTERGATE		76013258		3258/CA/004		C	
Rogers House, Sandringham International Business Park, George East Way, Sandringham, Norfolk, NR33 2RZ. Tel: +44 (0)2025 302523 Fax: +44 (0)2025 302521 www.wspgroup.com www.wilson-rose.com		OSP ARCHITECTURE		SITE ACCESS GENERAL ARRANGEMENT OPTION 3							
FOR INFORMATION ONLY											
FOR INFORMATION ONLY											

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SUBMISSION TO WEST SUSSEX COUNTY COUNCIL FOR DEPARTURES FROM STANDARD

Project Name	Land at Westergate, West Sussex
Applicant Organisation	WSP
Applicant Ref	70013258
Highway Authority Ref	As above
Applicant Contact Details	
Date Submitted	01/12/2022

1) PROJECT DETAILS

A	Description	Proposed S278 traffic signal site access junction at the existing A29 / Meadow Way junction and proposed new access road into residential development east of the A29. The junction will serve up to 400 dwellings
B	Location	As above
C	Road Category	
D	Road Type	S2
E	Design Speed	35mph (85th Percentile Speed) (determined by Traffic Signs Manual Chapter 6)
F	Speed Limit	30mph
G	Traffic Flows	AAWT 13,567 Two-way
H	NMU Flows	

2) DEPARTURE DETAILS

A	Discipline	Road Geometry
	Type	Forward visibility (SSD) on northbound approach to traffic signals
B	Relevant Standard(s)	The recommended visibility distances are shown in Table 2-1 in Chapter 6 of the Traffic Signs Manual. As the 85 th Percentile Speed is between 30-35mph a forward visibility of 51m is required. Junction visibility, DMRB CD 123 Geometric design of at-grade priority and signal-controlled junctions Section 7, paragraph 7.3, 7.31 and 7.32 Manual for Streets Table 7 and Para 7.5.3
	Clause	
C	Difference Between Standard(s) and proposed design	The Traffic Signs Manual recommended visibility distance of 51m is not achievable. The achievable forward visibility is limited by the lefthand bend on the approach to the junction. Forward visibility to the nearside primary signal is 37m, equivalent to a speed of 27mph.
D	Reason for Departure (overview)	Existing residential boundary fences on western side of A29.
E	Associated Project Departures	N/A
F	Other Options Considered	

3) JUSTIFICATION (POTENTIAL POSITIVE AND NEGATIVE IMPACTS)

A	Safety	Limited visibility of queuing traffic and primary signal heads in northbound direction may lead to rear-shunt accidents. Existing Safety issue associated with visibility to and from the A29 northbound carriageway at the junction with Meadow Way, although signalised junction will increase amount of stationary traffic at this location. Provision of controlled pedestrian crossings on all approaches will improve safety for pedestrians. An ATC undertaken on the A29 in March 2022, showed a seven-day average speed of 27.9mph and 85th percentile speed of 32.2mph northbound, which corresponds to sight stopping distance of 39m and 47m respectively (based on Manual for Streets 2 guidance) The achievable SSD of 49m to the offside primary signal head is greater than this.
B	Congestion/ Delay	
C	Environmental / sustainability	Provision of pedestrian crossings on all approaches encourages walking trips to / from the site
D	Capital and whole life cost/value	Can be delivered within land owned by WSCC or developer.
E	Accessibility	
F	Integration	
G	Structural	
H	Network resilience & Maintenance	

4) COMPENSATORY MEASURES

A	Included Measures	Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m. The use of coloured high surfacing will be reviewed during detailed design Offside primary signal head to be provided facilitating 68m SSD and additional warning of queueing vehicles. MOVA control to effectively manage queues as efficiently as possible reducing queue length Junction could be configured to rest on Main Road green to further minimise vehicle stops
B	Rejected Options	

5) DESIGN ORGANISATIONS CONCLUDING REMARKS

Given the constrained location of the junction and the existing sub-standard visibility on the A29 northbound approach, it is considered that the benefits of providing the junction outweigh the potential risks, provided that the compensatory measures discussed above are installed. The ATC undertaken on the A29 in March 2022 showed that a seven-day average

speed of 27.9mph northbound and an 85th percentile speed of 32.2mph northbound, which corresponds to sight stopping distances of 39m and 47m respectively (based on Manual for Streets guidance) which can be achieved.

6) ATTACHMENTS AND OTHER INFORMATION

A	List of Attachments	3258-GA-004-F
B	Consultations	
C	Other Information	

7) DECISION – (HIGHWAY AUTHORITY USE ONLY)

NAME 1			
ROLE			
SIGNED		DATE	
NAME 2			
ROLE			
SIGNED		DATE	
MARK ONE BOX:	1- APPROVED ☐	2-APPROVED WITH COMMENTS ☐	3- REJECTED ☐
COMMENTS			

SUBMISSION TO WEST SUSSEX COUNTY COUNCIL FOR DEPARTURES FROM STANDARD

Project Name	Land at Westergate, West Sussex
Applicant Organisation	WSP
Applicant Ref	70013258
Highway Authority Ref	As above
Applicant Contact Details	
Date Submitted	27/10/2022

1) PROJECT DETAILS

A	Description	Proposed S278 traffic signal site access junction at the existing A29 / Meadow Way junction and proposed new access road into residential development east of the A29. The junction will serve up to 400 dwellings
B	Location	As above
C	Road Category	
D	Road Type	S2
E	Design Speed	35mph (85th Percentile Speed) (determined by Chapter 6 of the Traffic Signs Manual)
F	Speed Limit	30mph
G	Traffic Flows	AAWT 13,567 Two-way
H	NMU Flows	

2) DEPARTURE DETAILS

A	Discipline	Road Geometry
	Type	Intervisibility between junction stop lines
B	Relevant Standard(s)	Junction intervisibility zone, Traffic Signs Manual Chapter 6
	Clause	
C	Difference Between Standard(s) and proposed design	The standard requires visibility from a line 2.5m behind each stop line to a line 2.5m behind the adjacent stop lines. Between the southern A29 arm, Meadow Way and the eastern junction arm there are obstructions blocking this intervisibility.
D	Reason for Departure (overview)	Existing residential boundary fences, hedges and telecommunications mast on A29. Proposed controlled pedestrian crossings at junction require stoplines to be set back further than a standard crossroads configuration.
E	Associated Project Departures	N/A
F	Other Options Considered	Location of stop-lines located further forward to improve intervisibility. This however leads to confusing tactile paving layouts for adjacent crossings on south western site of the junction.

3) JUSTIFICATION (POTENTIAL POSITIVE AND NEGATIVE IMPACTS)

A	Safety	Obstructed intervisibility will mean vehicles turning cannot see some potential hazards from the stationary waiting location, such as crossing pedestrians or stopped cars. Vehicles turning south from the eastern arm will be most affected. Controlled pedestrian crossings will reduce chance of pedestrians crossing road in conflict with vehicles. Proposed signal staging configured so pedestrian stage operates following main road or Meadow Way to minimise potential conflict with the hedges, fences and telecommunications mast between site access and pedestrian crossing on southern arm.
B	Congestion/ Delay	
C	Environmental / sustainability	Provision of pedestrian crossings on all approaches encourages walking trips to / from the site.
D	Capital and whole life cost/value	Can be delivered within land owned by WSCC or developer.
E	Accessibility	
F	Integration	
G	Structural	
H	Network resilience & Maintenance	

4) COMPENSATORY MEASURES

A	Included Measures	Yellow box junction marking provided to assist with precautionary approach by west bound vehicles. All red extending detector loops to be considered during detailed design to ensure junction is clear before allowing movements with poor intervisibility. MOVA detection will facilitate precise stage change operation thereby reducing possibility of vehicles running amber lights and conflicting with pedestrian movements.
B	Rejected Options	

5) DESIGN ORGANISATIONS CONCLUDING REMARKS

Given the constrained location of the junction it is considered that the benefits of providing the junction and pedestrian crossings outweigh the potential risks, especially if the compensatory measures discussed above are implemented.

6) ATTACHMENTS AND OTHER INFORMATION

A	List of Attachments	3258/GA/004 Rev F
B	Consultations	
C	Other Information	

7) DECISION – (HIGHWAY AUTHORITY USE ONLY)

NAME 1			
ROLE			
SIGNED		DATE	
NAME 2			
ROLE			
SIGNED		DATE	
MARK ONE BOX:	1- APPROVED ☐	2-APPROVED WITH COMMENTS ☐	3- REJECTED ☐
COMMENTS			

SUBMISSION TO WEST SUSSEX COUNTY COUNCIL FOR DEPARTURES FROM STANDARD

Project Name	Land at Westergate, West Sussex
Applicant Organisation	WSP
Applicant Ref	70013258
Highway Authority Ref	As above
Applicant Contact Details	
Date Submitted	01/12/2022

1) PROJECT DETAILS

A	Description	Proposed S278 traffic signal site access junction at the existing A29 / Meadow Way junction and proposed new access road into residential development east of the A29. The junction will serve up to 400 dwellings
B	Location	As above
C	Road Category	
D	Road Type	S2
E	Design Speed	35mph (85th Percentile Speed) (determined by Traffic Signs Manual Chapter 6)
F	Speed Limit	30mph
G	Traffic Flows	AAWT 13,567 Two-way
H	NMU Flows	

2) DEPARTURE DETAILS

A	Discipline	Road Geometry
	Type	Forward visibility (SSD) to the back of queuing traffic on northbound approach to traffic signals
B	Relevant Standard(s)	The recommended visibility distances are shown in Table 2-1 in Chapter 6 in the Traffic Signs Manual, as the 85 th Percentile Speed is 35mph a forward visibility of 51m is required. Junction visibility, DMRB CD 123 Geometric design of at-grade priority and signal-controlled junctions Section 7, paragraph 7.3, 7.31 and 7.32 Manual for Streets Table 7 and Para 7.5.3
	Clause	
C	Difference Between Standard(s) and proposed design	The Traffic Signs Manual Recommend visibility distance of 51m is not achievable. The achievable forward visibility is limited by the lefthand bend on the approach to the junction. This limits the visibility in the immediate approach to the junction, and to the back of queues shorter than 5 cars, to 49m. The back of any queue longer than 5 cars will be visible for 90m. An ATC undertaken on the A29 in March 2022, the results showed a seven-day average speed of 27.9mph and 85th percentile speed of 32mph northbound, which corresponds to sight stopping distance of 39m and 47m respectively (based on Manual for Streets 2 guidance) The achievable SSD of 49m is greater than this.
D	Reason for Departure (overview)	Existing residential boundary fences on western side of A29.
E	Associated Project Departures	N/A

F	Other Options Considered	
----------	---------------------------------	--

3) JUSTIFICATION (POTENTIAL POSITIVE AND NEGATIVE IMPACTS)

A	Safety	Limited visibility of queuing traffic and primary signal heads in northbound direction may lead to rear-shunt accidents. Existing Safety issue associated with visibility to and from the A29 northbound carriageway at the junction with Meadow Way, although signalised junction will increase amount of stationary traffic at this location. Provision of controlled pedestrian crossings on all approaches will improve safety for pedestrians.
B	Congestion/ Delay	
C	Environmental / sustainability	Provision of pedestrian crossings on all approaches encourages walking trips to / from the site
D	Capital and whole life cost/value	Can be delivered within land owned by WSCC or developer.
E	Accessibility	
F	Integration	
G	Structural	
H	Network resilience & Maintenance	

4) COMPENSATORY MEASURES

A	Included Measures	Installation of signs to Diagram 543 and Diagram 584 (TSRGD) to be provided on A29 northbound approach to signals. This is recommended in Chapter 6 of Traffic Signs Manual for junctions where the visibility to the signal heads is less than 80m. The use of coloured high surfacing will be reviewed during detailed design Offside primary signal head to be provided facilitating 68m SSD and additional warning of queueing vehicles. MOVA control to effectively manage queues as efficiently as possible reducing queue length Junction could be configured to rest on Main Road green to further minimise vehicle stops
B	Rejected Options	

5) DESIGN ORGANISATIONS CONCLUDING REMARKS

Given the constrained location of the junction and the existing sub-standard visibility on the A29 northbound approach, it is considered that the benefits of providing the junction outweigh the potential risks, provided that the compensatory measures discussed above are installed. The ATC undertaken on the A29 in March 2022 showed that a seven-day average speed of 27.9mph northbound and an 85th percentile speed of 32mph northbound, which

corresponds to sight stopping distances of 39m and 47m respectively (based on Manual for Streets guidance) which can be achieved.

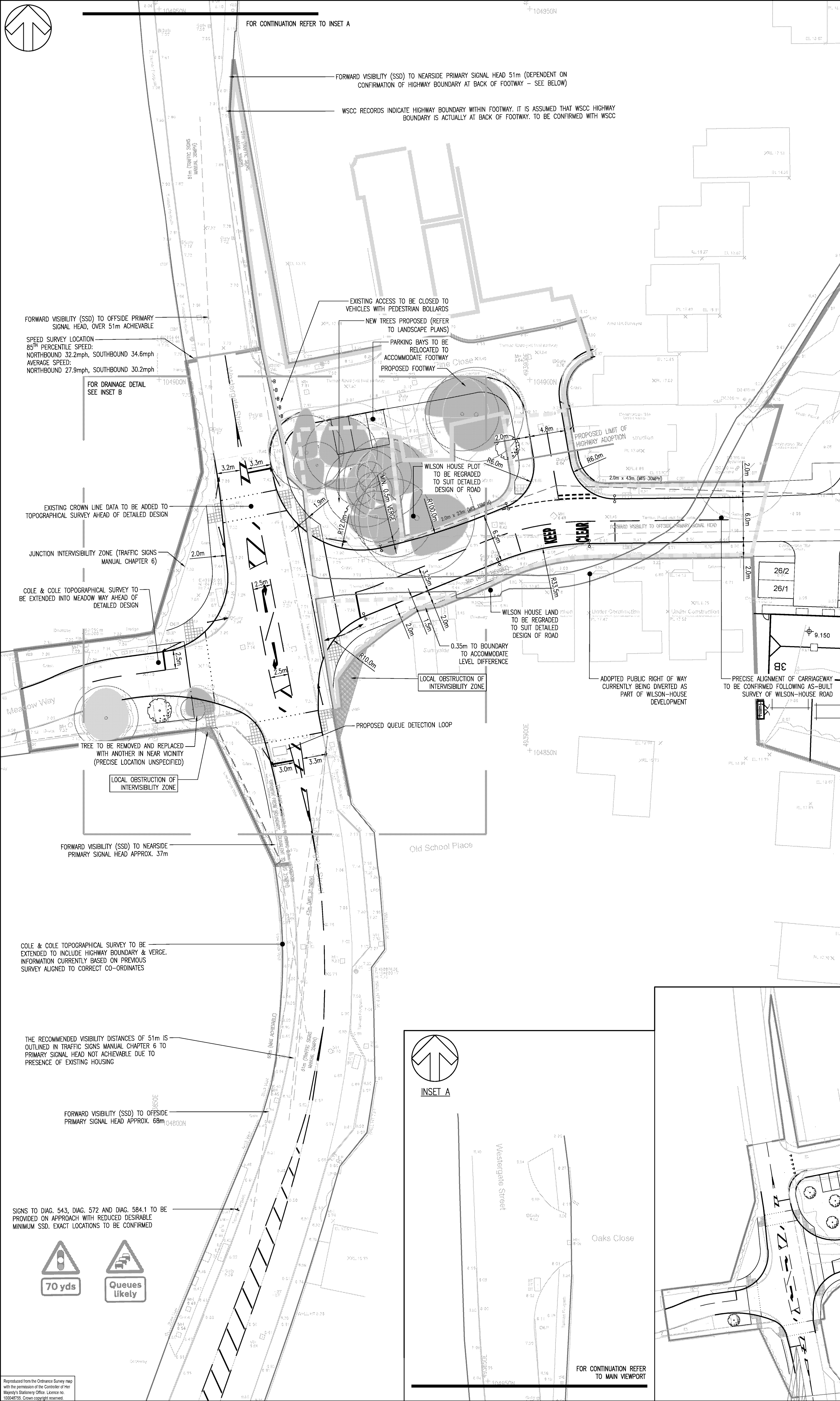
6) ATTACHMENTS AND OTHER INFORMATION

A	List of Attachments	3258-GA-004-F 3258-SK-017-B
B	Consultations	
C	Other Information	

7) DECISION – (HIGHWAY AUTHORITY USE ONLY)

NAME 1			
ROLE			
SIGNED		DATE	
NAME 2			
ROLE			
SIGNED		DATE	
MARK ONE BOX:	1- APPROVED ☐	2-APPROVED WITH COMMENTS ☐	3- REJECTED ☐
COMMENTS			

J:\70013258 - Land at Westergate - Cala Homes\E Models and Drawings\DEVELOPMENT\AUTOCAD\GA General Arrangement\3258-GA-004.dwg 02/12/2022 12:55:43 Moss, Philip



DO NOT SCALE

NOTES

1.

DESIGN GUIDANCE IS TAKEN FROM TRAFFIC SIGNS MANUAL CHAPTER 6 ON THE BASIS THAT THE A29 HAS A SPEED LIMIT OF BELOW 40MPH. BASED ON TRAFFIC SURVEYS COMPLETED IN MARCH 2022 THE RECOMMENDED SIGHT STOPPING DISTANCE FOR THE A29 IS 51M, TAKING ACCOUNT OF 85TH PERCENTILE SPEEDS OF 32-35MPH.

2.

WE HAVE NOT SOUGHT TO BECOME AWARE OF ANY INFORMATION RELATED TO HAZARDS THAT MIGHT AFFECT THE CONSTRUCTION OR MAINTENANCE OF THIS PROJECT. UNDER THE CDM REGULATIONS ANY DESIGNERS WHO PROGRESS THESE PROPOSALS FURTHER WILL NEED TO RECONSIDER THE DESIGN BASED UPON ANY INFORMATION WHICH SUBSEQUENTLY BECOMES AVAILABLE.

3.

THIS DESIGN IS BASED ON THE COLE & COLE TOPOGRAPHICAL SURVEY DATED JANUARY 2016 AND THE ADP ARCHITECTS MASTERPLAN DATED NOVEMBER 2012.

4.

THE 2016 TOPOGRAPHICAL SURVEY COORDINATE SYSTEM HAS BEEN USED; THE ADP MASTERPLAN WAS MOVED AND ALIGNED TO MATCH BASED ON THE PROPOSED HOUSE LOCATIONS AND THE SURVEYED HOUSE CONSTRUCTION OUTLINES.

5.

ALL LAND BOUNDARY INFORMATION IS INDICATIVE AND TO BE CONFIRMED BY ALL RELEVANT PARTIES.

KEY

—

HIGHWAY BOUNDARY (BASED ON TOPOGRAPHIC SURVEY (COLE & COLE, JANUARY 2016) AND WSCC HIGHWAY BOUNDARY INFORMATION (RECEIVED 29/06/2016)

- - -

OBSTRUCTION TO VISIBILITY ALONG HIGHWAY BOUNDARY (E.G. UNTRIMMED HEDGEROWS)

RED LINE BOUNDARY (FROM OSP SITE LAYOUT PLAN RECEIVED 02/02/2017)

SUB-SALE BOUNDARY (BASED ON .dwg FILE OF DRAWING 'B1 SUB-SALE PLAN 1' RECEIVED FROM CALA HOMES ON 07/03/2016). BOUNDARY IS OUTSIDE EDGE OF GREEN DASHED LINE WHEN SHOWN AT 0.5m WIDTH

LAND IN OWNERSHIP OF MR N PINE (BASED ON DRAWING SHOWING ORANGE BOUNDARY RECEIVED FROM CALA HOMES ON 23/06/2016)

JUNCTION INTERVISIBILITY ZONE

VISIBILITY SPLAY (AS SHOWN)

FORWARD VISIBILITY TO SIGNAL

SPEED SURVEY LOCATION

→

SIGNAL HEAD

▨

TACTILE PAVING (BUFF)

▨

TACTILE PAVING (RED)

○

EXISTING TREE CANOPIES (BASED ON BOSKY TREES SURVEY DATED 22/06/2016)

●

TREES TO BE REMOVED

●

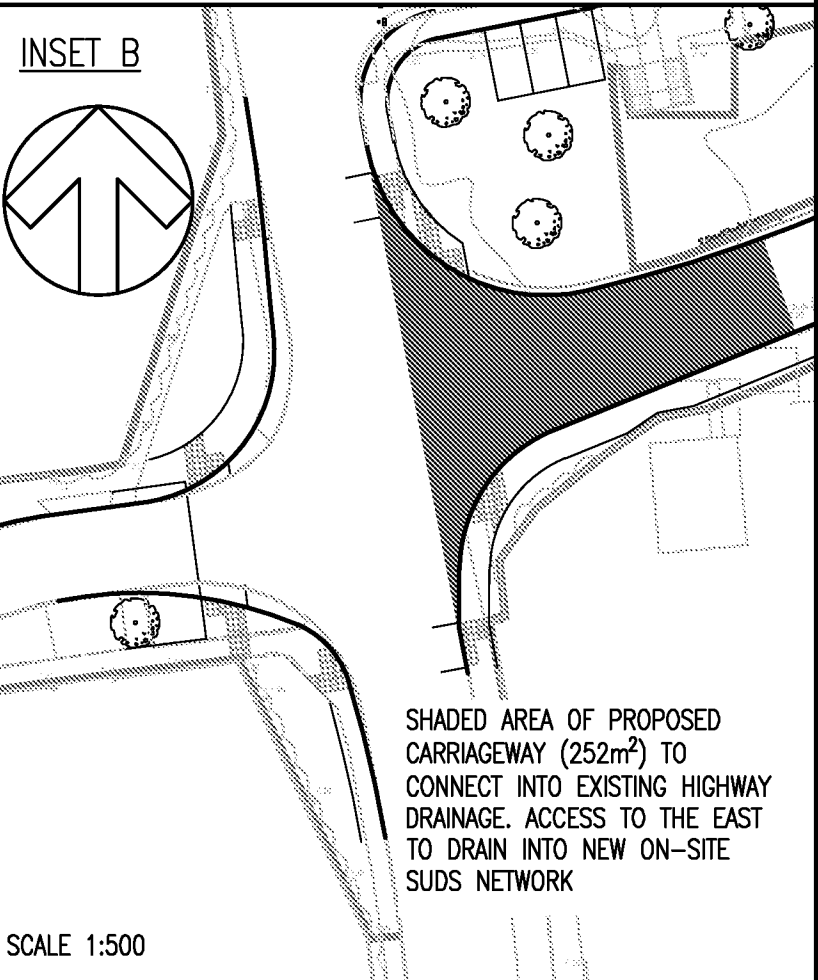
TREES TO BE RETAINED

○

ROOT PROTECTION AREAS

●

PEDESTRIAN BOLLARD



Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office. Licence no. 100048735. Crown copyright reserved.					
F	02/12/2022	PM	DRAWING UPDATED	CW	CW
E	02/02/2017	MFB	REDLINE UPDATED	CW	CW
D	19/11/2016	FL	PROPOSED QUEUE DETECTION LOOP ADDED	MFB	LRB
C	09/11/2016	SL	CHANGED TREES TO BE RETAINED TO REMOVE	MFB	LRB
B	21/10/2016	MFB	NOTES AMENDED	LRB	LRB
A	17/10/2016	PM	FIRST ISSUE	LRB	LRB
REV	DATE	BY	DESCRIPTION	CHK	APD
DRAWING STATUS					
FOR INFORMATION ONLY					

Regus House, Southampton International Business Park
George Curl Way, Southampton, Hampshire, SO18 2RZ
Tel: +44 (0)2380 302529 Fax: +44 (0)2380 302001
www.wspgroup.com www.pbworld.com

CLIENT:

CALA HOMES

ARCHITECT:

OSP ARCHITECTURE

PROJECT:

LAND AT WESTERGATE

TITLE:

SITE ACCESS
GENERAL ARRANGEMENT

SCALE @ A1:	1:250	CHECKED:	LRB	APPROVED:	LRB
CAD FILE:	3258-GA-004.DWG	DESIGN-DRAWN:	MFB	DATE:	December 2022
PROJECT NO:	70013258	DRAWING NO:	3258/GA/004	REV:	F
© WSP Group Ltd					

Appendix C

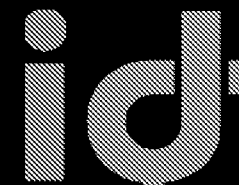
Crashmap Screenshot

2017 to 2021 data for all casualties and all vehicle types.

Source: www.crashmap.co.uk 02/12/22



Appendix D



Intelligent Data Collection Limited Westergate

Client: WSP
Project Number: ID06295
Site Number: Site 1
Week Commencing: 28/02/2022
Road Name: A29 Westergate Street
Survey Type: ATC
Direction AB **Flow from** Pine Close (S) **to** Oaks Close (N)
Direction BA **Flow from** Oaks Close (N) **to** Pine Close (S)

Revision	Rev A			
Date	11.03.2022			
Prepared by	Harveer Dole			
Signature				
Checked by	Luke Martin			
Signature				
Project Director	Paul O'Neill			
Signature				
Project Number	ID06295			
File Ref	ID06295 Westergate - ATC Site 1			

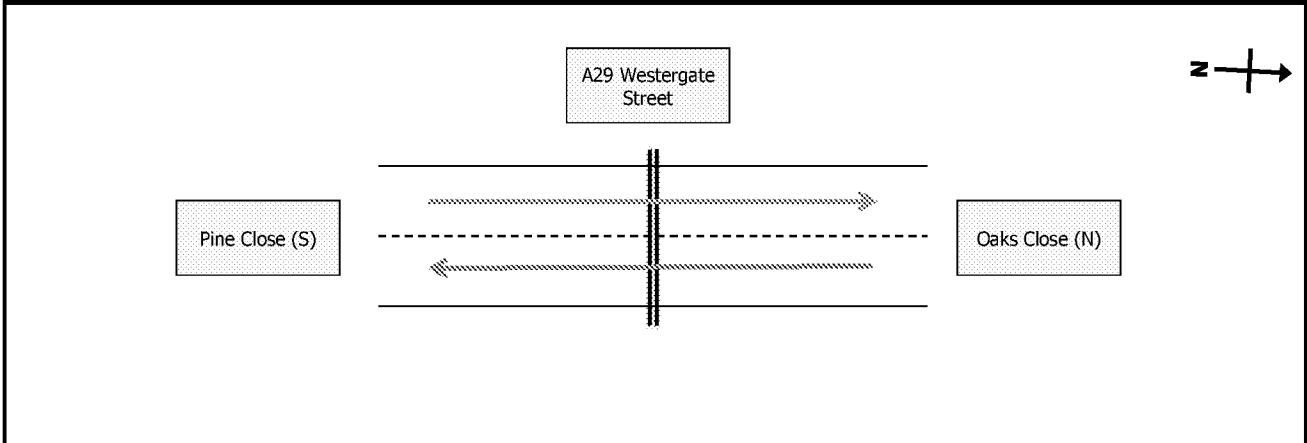
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Intelligent Data Collection Limited

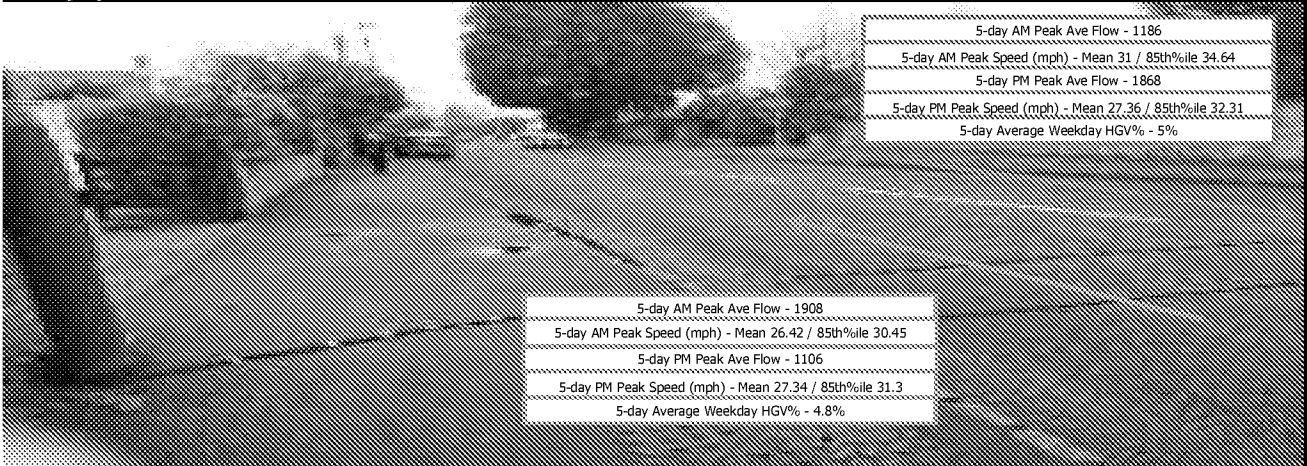


Road Name	A29 Westergate Street		
Direction AB	Pine Close (S)	to:	Oaks Close (N)
Direction BA	Oaks Close (N)	to:	Pine Close (S)
Site Co-Ordinates	ATC Start Date	ATC Finish Date	PSL
50.836367, -0.668506	01/03/2022	09/03/2022	30
Link to location on Google Maps			
Click Here			

Location Plan



Photograph Record



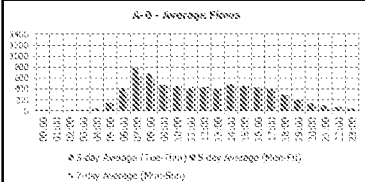
Comments

The minimum speed threshold to include vehicles in the reports is 5mph. Unclassified vehicles are excluded.

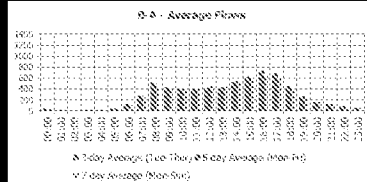
Prepared by	Harveer Dole	Checked by	Luke Martin	Project Director	Paul O'Neill
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Flow Reporting

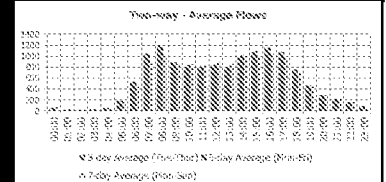
A-B Hourly Summary Data			
Time Interval	3-day Average (Tue-Thur)	5-day Average (Mon-Fri)	7-day Average (Mon-Sun)
00:00	14	14	20
01:00	8	7	8
02:00	6	7	9
03:00	18	18	18
04:00	35	36	33
05:00	147	145	121
06:00	412	409	333
07:00	778	770	621
08:00	881	868	666
09:00	455	470	450
10:00	411	446	445
11:00	404	417	433
12:00	420	421	439
13:00	391	401	427
14:00	476	478	464
15:00	452	457	444
16:00	435	425	406
17:00	384	386	361
18:00	289	286	285
19:00	206	207	204
20:00	127	131	126
21:00	94	95	90
22:00	67	69	66
23:00	34	37	36
0700-1000	1917	1908	1639
1600-1900	1717	1705	1683



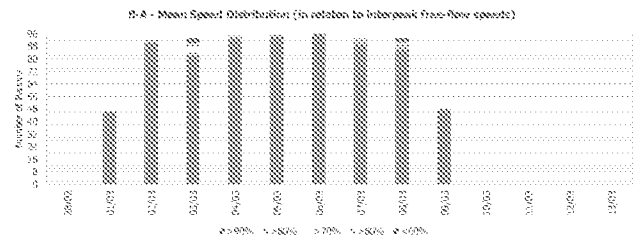
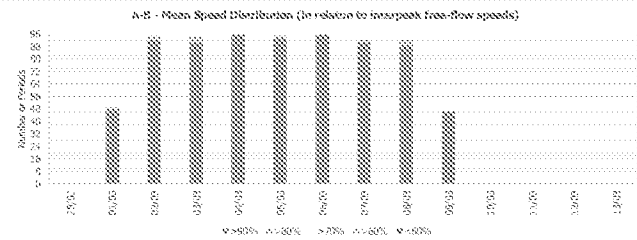
B-A Hourly Summary Data			
Time Interval	3-day Average (Tue-Thur)	5-day Average (Mon-Fri)	7-day Average (Mon-Sun)
00:00	34	31	36
01:00	11	11	15
02:00	6	6	8
03:00	12	11	12
04:00	17	17	15
05:00	35	39	35
06:00	115	114	98
07:00	289	275	231
08:00	512	468	423
09:00	418	414	392
10:00	388	387	397
11:00	389	402	424
12:00	410	421	451
13:00	405	424	434
14:00	522	538	522
15:00	611	634	577
16:00	1250	1230	1090
17:00	882	880	860
18:00	442	452	496
19:00	253	256	237
20:00	153	157	153
21:00	122	124	119
22:00	85	86	83
23:00	50	49	50
0700-1000	1199	1186	1047
1600-1900	1854	1866	1836



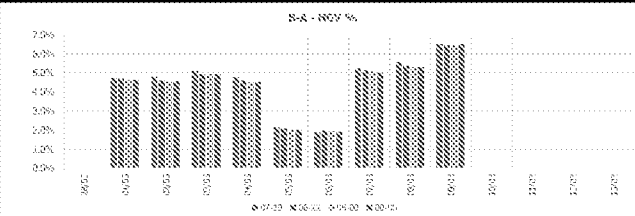
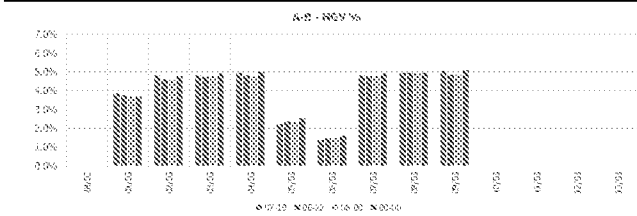
Two-Way Hourly Summary Data			
Time Interval	3-day Average (Tue-Thur)	5-day Average (Mon-Fri)	7-day Average (Mon-Sun)
00:00	48	46	57
01:00	19	18	23
02:00	12	13	17
03:00	30	29	30
04:00	53	53	48
05:00	182	183	156
06:00	528	523	431
07:00	1039	1045	852
08:00	1193	1165	951
09:00	884	884	843
10:00	799	832	841
11:00	793	819	856
12:00	830	842	889
13:00	796	825	861
14:00	998	1016	986
15:00	1063	1091	1021
16:00	1250	1230	1090
17:00	882	880	860
18:00	446	456	493
19:00	249	249	229
20:00	129	129	129
21:00	119	119	119
22:00	85	85	85
23:00	50	50	50
0700-1000	3115	3094	2685
1600-1900	2571	2574	2686



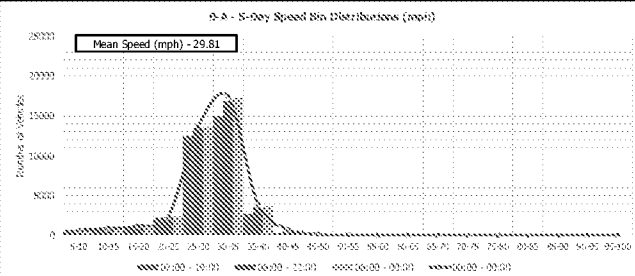
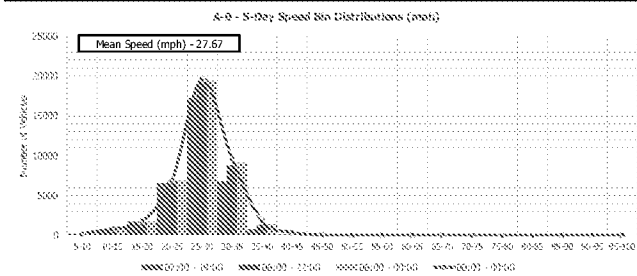
Mean Speed Distributions



HGV%



Speed Bin Distributions



Intelligent Data Collection Limited

Period Commencing: 28/02/2022

Road Name: A29 Westergate Street

Flow from : Pine Close (S)

Vehicle Classification: All Vehicles

to: Oaks Close (N)

Prepared by: Harveer Dole

Checked by: Luke Martin



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	3-day Average (Tue-Thur)	5-day Average (Mon-Fri)	7-day Average (Mon-Sun)
Hour Starting	28/02/2022	01/03/2022	02/03/2022	03/03/2022	04/03/2022	05/03/2022	06/03/2022	07/03/2022	08/03/2022	09/03/2022	10/03/2022	11/03/2022	12/03/2022	13/03/2022			
00:00	*	*	18	12	19	30	46	10	10	17	*	*	*	*	14	14	20
01:00	*	*	11	12	7	10	13	4	5	4	*	*	*	*	8	7	8
02:00	*	*	5	5	14	15	18	3	6	7	*	*	*	*	6	7	9
03:00	*	*	22	13	18	15	19	18	14	23	*	*	*	*	18	18	18
04:00	*	*	29	36	40	20	24	33	39	40	*	*	*	*	36	36	33
05:00	*	*	163	145	137	62	38	142	133	147	*	*	*	*	147	145	121
06:00	*	*	426	407	381	143	64	426	399	416	*	*	*	*	412	409	333
07:00	*	*	747	724	752	207	137	752	758	753	*	*	*	*	738	738	821
08:00	*	*	720	656	616	327	210	665	679	669	*	*	*	*	681	668	568
09:00	*	*	450	452	502	457	328	456	474	486	*	*	*	*	466	470	450
10:00	*	*	385	381	463	473	409	397	402	402	*	*	*	*	411	446	445
11:00	*	*	404	394	460	455	506	426	384	424	*	*	*	*	404	417	433
12:00	*	400	435	423	461	454	480	382	423	*	*	*	*	420	421	439	
13:00	*	367	389	397	421	474	420	412	*	*	*	*	*	391	401	427	
14:00	*	355	462	447	381	407	437	463	501	*	*	*	*	378	378	363	
15:00	*	457	352	430	482	394	413	454	*	*	*	*	*	452	457	444	
16:00	*	438	431	328	328	322	322	322	*	*	*	*	*	433	432	398	
17:00	*	416	411	361	365	336	242	365	389	*	*	*	*	394	385	361	
18:00	*	302	290	274	335	309	187	258	331	*	*	*	*	299	298	286	
19:00	*	176	212	223	234	199	189	184	212	*	*	*	*	206	207	204	
20:00	*	129	117	134	143	112	109	139	126	*	*	*	*	127	131	126	
21:00	*	89	85	97	109	96	50	86	106	*	*	*	*	94	95	90	
22:00	*	66	61	82	86	79	36	60	59	*	*	*	*	67	69	66	
23:00	*	26	37	34	57	42	26	30	37	*	*	*	*	34	37	36	
Summary Data																	
0700-1900	0	2886	5601	5464	5806	4708	4216	5641	5670	2734	0	0	0	0	5589	5634	5341
0600-2200	0	3280	6441	6325	6673	5258	4628	6476	6513	3150	0	0	0	0	6427	6476	6093
0600-0000	0	3372	6539	6441	6816	5379	4690	6566	6609	3150	0	0	0	0	6528	6582	6195
0000-0000	0	3372	6787	6664	7051	5531	4848	6776	6816	3388	0	0	0	0	6757	6809	6404
0700-1000	0	0	1917	1912	1870	991	672	1911	1939	1898	0	0	0	0	1917	1908	1639
1600-1900	0	1167	1142	1000	1148	1010	761	1018	1160	0	0	0	0	0	1117	1106	1051
Peak Hour Analysis																	
07:00-10:00	0	0	55	304	328	482	328	389	385	322	0	0	0	0	328	322	361
18:00-19:00	0	453	487	461	521	504	513	511	511	424	0	0	0	0	473	473	494
19:00-20:00	0	438	441	365	365	336	242	365	389	331	0	0	0	0	423	423	404

Note: Peak Hour Analysis calculates and then highlights the highest flow within the period listed

Intelligent Data Collection Limited

Period Commencing: 28/02/2022

Road Name: A29 Westergate Street

Flow from : Oaks Close (N)

Vehicle Classification: All Vehicles

to: Pine Close (S)

Prepared by: Harveer Dole

Checked by: Luke Martin



Hour Starting	Monday 28/02/2022	Tuesday 01/03/2022	Wednesday 02/03/2022	Thursday 03/03/2022	Friday 04/03/2022	Saturday 05/03/2022	Sunday 06/03/2022	Monday 07/03/2022	Tuesday 08/03/2022	Wednesday 09/03/2022	Thursday 10/03/2022	Friday 11/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	3-day Average (Tue-Thur)	5-day Average (Mon-Fri)	7-day Average (Mon-Sun)
00:00	*	*	39	34	36	54	50	16	32	30	*	*	*	*	34	31	36
01:00	*	*	16	10	12	20	32	11	9	8	*	*	*	*	11	11	15
02:00	*	*	7	5	10	11	13	3	5	6	*	*	*	*	6	6	8
03:00	*	*	14	9	10	11	24	7	11	13	*	*	*	*	12	11	12
04:00	*	*	13	19	15	11	9	17	19	16	*	*	*	*	17	17	15
05:00	*	*	28	30	42	27	24	51	37	44	*	*	*	*	35	39	35
06:00	*	*	105	111	113	55	43	108	120	127	*	*	*	*	116	114	98
07:00	*	*	280	282	303	143	59	268	254	260	*	*	*	*	269	275	231
08:00	*	*	423	526	472	284	114	499	513	525	*	*	*	*	512	498	413
09:00	*	*	410	397	394	337	257	417	440	426	*	*	*	*	418	414	392
10:00	*	*	402	382	406	461	392	362	379	388	*	*	*	*	388	387	397
11:00	*	*	381	382	429	522	454	427	381	412	*	*	*	*	389	402	424
12:00	*	414	369	417	458	533	537	429	440	*	*	*	*	*	410	421	451
13:00	*	430	388	404	473	459	471	450	397	*	*	*	*	*	405	424	434
14:00	*	484	540	540	583	491	452	558	524	*	*	*	*	*	522	538	522
15:00	*	535	587	623	623	565	451	364	533	533	*	*	*	*	533	533	522
16:00	*	533	538	522	538	463	26	564	512	*	*	*	*	*	522	522	532
17:00	*	676	701	645	682	386	258	708	706	*	*	*	*	*	682	686	595
18:00	*	425	438	461	483	301	229	441	462	*	*	*	*	*	447	452	405
19:00	*	218	267	276	277	190	172	245	250	*	*	*	*	*	253	256	237
20:00	*	154	161	144	183	156	126	148	154	*	*	*	*	*	153	157	153
21:00	*	112	114	128	137	121	89	117	133	*	*	*	*	*	122	124	119
22:00	*	88	97	90	109	84	68	65	65	*	*	*	*	*	85	86	83
23:00	*	55	44	42	52	74	38	38	60	*	*	*	*	*	50	49	50
Summary Data															Summary Data		
0700-1900	0	3736	5699	5795	6166	4830	3894	5883	5888	1989	0	0	0	0	5777	5859	5485
0600-2200	0	4220	6346	6454	6876	5352	4324	6501	6545	2116	0	0	0	0	6420	6510	6092
0600-0000	0	4363	6487	6586	7037	5510	4430	6604	6670	2116	0	0	0	0	6556	6644	6225
0000-0000	0	4363	6604	6693	7162	5644	4582	6709	6783	2233	0	0	0	0	6669	6758	6347
0700-1000	0	0	1163	1239	1169	824	430	1154	1204	1189	0	0	0	0	1199	1186	1047
1600-1900	0	1813	1869	1806	1883	1089	784	1909	1927	0	0	0	0	0	1854	1868	1635
Peak Hour Analysis															Peak Hour Analysis		
07:00-10:00	0	0	373	375	380	387	387	389	510	383	0	0	0	0	383	388	383
10:00-13:00	0	0	525	527	623	535	413	513	535	413	0	0	0	0	531	534	517
13:00-16:00	0	0	513	539	569	533	389	569	569	513	0	0	0	0	538	538	535

Note: Peak Hour Analysis calculates and then highlights the highest flow within the period listed

Intelligent Data Collection Limited

Period Commencing: 28/02/2022
 Road Name: A29 Westergate Street
 Flow from : Two-way Total
 Vehicle Classification: All Vehicles

Prepared by: Harveer Dole
 Checked by: Luke Martin



Hour Starting	Monday 28/02/2022	Tuesday 01/03/2022	Wednesday 02/03/2022	Thursday 03/03/2022	Friday 04/03/2022	Saturday 05/03/2022	Sunday 06/03/2022	Monday 07/03/2022	Tuesday 08/03/2022	Wednesday 09/03/2022	Thursday 10/03/2022	Friday 11/03/2022	Saturday 12/03/2022	Sunday 13/03/2022	3-day Average (Tue-Thur)	5-day Average (Mon-Fri)	7-day Average (Mon-Sun)
00:00	*	*	57	46	55	84	96	26	42	47	*	*	*	*	48	46	57
01:00	*	*	27	22	19	30	45	15	14	12	*	*	*	*	19	18	23
02:00	*	*	12	10	24	26	31	6	11	13	*	*	*	*	12	13	17
03:00	*	*	36	22	28	26	43	25	25	36	*	*	*	*	30	29	30
04:00	*	*	42	55	55	31	33	50	58	56	*	*	*	*	53	53	48
05:00	*	*	191	175	179	89	62	193	170	191	*	*	*	*	182	183	156
06:00	*	*	531	518	494	198	107	534	519	543	*	*	*	*	528	523	431
07:00	*	*	1027	1086	1055	350	196	1058	1040	1003	*	*	*	*	1039	1045	852
08:00	*	*	1183	1218	1188	611	324	1134	1158	1172	*	*	*	*	1193	1185	983
09:00	*	*	860	849	896	854	823	873	914	912	*	*	*	*	884	884	843
10:00	*	*	787	843	869	934	801	929	776	790	*	*	*	*	799	832	841
11:00	*	*	785	776	889	977	960	853	765	845	*	*	*	*	793	819	856
12:00	*	814	804	840	919	1032	1027	811	863	*	*	*	*	*	830	842	889
13:00	*	797	777	801	894	933	1009	870	809	*	*	*	*	*	796	825	861
14:00	*	979	1002	987	1084	898	889	1021	1025	*	*	*	*	*	998	1016	986
15:00	*	1012	1024	1055	1047	845	777	1048	1040	*	*	*	*	*	1063	1081	1023
16:00	*	1183	1178	1202	1182	652	358	1182	1182	*	*	*	*	*	1149	1153	1038
17:00	*	1092	1112	1006	1047	722	500	1073	1095	*	*	*	*	*	1076	1071	956
18:00	*	727	728	735	818	610	416	699	793	*	*	*	*	*	746	750	691
19:00	*	394	479	499	511	389	361	429	462	*	*	*	*	*	459	462	441
20:00	*	283	278	278	326	268	235	287	280	*	*	*	*	*	280	289	279
21:00	*	201	199	225	246	217	139	203	239	*	*	*	*	*	216	219	209
22:00	*	154	158	172	195	163	104	125	124	*	*	*	*	*	152	155	149
23:00	*	81	81	76	109	116	64	68	97	*	*	*	*	*	84	85	87
Summary Data															Summary Data		
0700-1900	0	6622	11300	11259	11972	9538	8110	11524	11558	4723	0	0	0	0	11366	11493	10826
0600-2200	0	7500	12787	12779	13549	10610	8952	12977	13058	5266	0	0	0	0	12848	12986	12185
0600-0000	0	7735	13026	13027	13853	10889	9120	13170	13279	5266	0	0	0	0	13083	13226	12421
0000-0000	0	7735	13391	13357	14213	11175	9430	13485	13599	5621	0	0	0	0	13426	13567	12751
0700-1000	0	0	3080	3151	3039	1815	1102	3065	3143	3087	0	0	0	0	3115	3094	2685
1600-1900	0	2980	3011	2806	3031	2099	1545	2927	3087	0	0	0	0	0	2971	2974	2686
Peak Hour Analysis															Peak Hour Analysis		
07:00-10:00	0	0	1183	1218	1188	611	324	1134	1158	1172	0	0	0	0	1193	1185	983
10:00-13:00	0	1182	1184	1182	1147	1017	1017	1048	1095	1092	0	0	0	0	1181	1181	1181
13:00-16:00	0	1183	1178	1202	1182	652	358	1182	1182	1182	0	0	0	0	1149	1153	1038

Note: Peak Hour Analysis calculates and then highlights the highest flow within the period listed

Intelligent Data Collection Limited

Client: WSP
 Project Number: ID06295
 Site Number: Site 1
 Flow from: Pine Close (S) to: Oaks Close (N)



5-day Summary

	Speeds (Mph)																				
Time	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	Mean	99th %ile
00:00	0	0	0	3	17	31	19	11	3	2	0	0	0	0	0	0	0	0	0	34.81	-
01:00	0	0	0	1	9	17	12	4	0	0	0	0	0	0	0	0	0	0	0	33.89	-
02:00	0	0	0	0	7	20	8	2	2	1	0	0	0	0	0	0	0	0	0	35.76	-
03:00	0	0	0	3	11	32	32	21	8	1	0	0	0	0	0	0	0	0	0	36.27	45.40
04:00	0	1	0	2	19	56	82	48	4	4	1	0	0	0	0	0	0	0	0	37.04	41.84
05:00	0	1	4	6	149	372	233	70	25	7	0	0	0	0	0	0	0	0	0	34.43	39.88
06:00	1	8	15	135	942	995	302	43	8	3	3	0	0	0	0	0	0	0	0	31.19	35.21
07:00	35	200	349	993	2162	796	77	9	1	0	0	0	0	0	0	0	0	0	0	26.32	30.38
08:00	78	131	251	1070	1918	491	58	5	0	0	3	0	0	0	0	0	0	0	0	25.56	29.78
09:00	9	47	148	447	1429	558	71	11	0	0	0	0	0	0	0	0	0	0	0	27.38	31.19
10:00	20	53	96	496	1359	574	69	4	1	3	0	0	0	0	0	0	0	0	0	27.33	31.08
11:00	7	43	68	504	1387	505	49	9	1	0	0	0	0	0	0	0	0	0	0	27.32	30.81
12:00	9	55	176	517	1393	506	75	6	0	0	0	0	0	0	0	0	0	0	0	26.88	31.03
13:00	8	22	43	301	1286	656	80	5	1	1	0	0	0	0	0	0	0	3	0	28.38	31.95
14:00	2	31	106	416	1556	696	57	5	0	0	0	0	0	0	0	0	0	0	0	27.90	31.47
15:00	12	51	151	600	1385	495	44	3	3	0	0	0	0	0	0	0	0	0	0	26.76	30.74
16:00	8	72	131	505	1319	454	44	4	1	0	0	0	0	0	0	0	0	0	0	26.67	30.51
17:00	5	71	140	459	1085	474	64	8	1	0	0	0	0	0	0	0	0	0	0	26.86	31.09
18:00	1	15	42	231	934	468	86	10	1	1	0	0	1	0	0	0	0	0	0	28.50	32.31
19:00	1	6	9	90	591	438	78	21	7	0	0	0	0	0	0	0	0	0	0	29.99	33.51
20:00	2	8	9	60	288	320	85	12	3	1	0	0	0	0	0	0	0	0	0	30.30	34.70
21:00	0	0	1	26	184	273	67	15	5	1	0	0	0	0	0	0	0	0	0	31.54	35.88
22:00	0	1	1	5	123	170	84	19	7	4	0	0	0	0	0	0	0	0	0	32.77	38.23
23:00	0	1	0	5	61	99	36	13	4	2	0	0	0	0	0	0	0	0	0	32.98	40.75
07:00 - 19:00	194	791	1701	6339	17213	6773	774	79	10	5	3	0	1	0	0	0	0	3	0	26.89	31.03
06:00 - 22:00	198	813	1735	6850	19219	8799	1306	170	33	10	6	0	1	0	0	0	0	3	0	27.37	31.57
06:00 - 00:00	198	815	1736	6860	19402	9068	1426	202	44	16	6	0	1	0	0	0	0	3	0	27.43	31.67
00:00 - 00:00	198	817	1740	6875	19614	9996	1812	358	86	31	7	0	1	0	0	0	0	3	0	27.67	32.01

7-day Summary

Time	Speeds (Mph)																			Mean	99th %ile
	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100		
00:00	0	0	0	6	41	67	28	14	4	2	0	0	0	0	0	0	0	0	0	34.17	35.00
01:00	0	0	0	1	12	20	24	8	1	0	0	0	0	0	0	0	0	0	0	34.82	-
02:00	0	1	0	2	16	26	16	5	6	1	0	0	0	0	0	0	0	0	0	35.02	-
03:00	0	0	0	4	13	38	45	28	10	3	1	0	0	0	0	0	0	0	0	36.51	45.40
04:00	0	1	0	2	20	67	100	61	5	4	1	0	0	0	0	0	0	0	0	37.16	41.61
05:00	0	2	4	6	15	55	414	267	82	29	8	0	0	0	0	0	0	0	0	34.67	40.07
06:00	1	8	16	137	1014	1077	343	48	10	5	3	0	0	0	0	0	0	0	0	31.54	35.89
07:00	35	202	351	1010	2274	932	141	20	1	0	0	0	0	0	0	0	0	0	0	27.61	31.90
08:00	78	136	264	1097	2200	662	92	10	0	0	3	0	0	0	0	0	0	0	0	26.53	30.63
09:00	11	55	194	535	1866	875	94	12	0	0	0	0	0	0	0	0	0	0	0	27.70	31.38
10:00	23	78	125	617	1947	777	81	5	1	3	0	0	0	0	0	0	0	0	0	27.39	31.13
11:00	7	64	120	673	1868	717	73	11	1	0	0	0	0	0	0	0	0	0	0	27.99	30.91
12:00	11	63	230	671	1928	715	93	8	0	2	0	0	0	0	0	0	0	0	0	27.01	31.03
13:00	11	41	84	438	1833	893	105	7	2	1	0	0	0	0	0	0	0	0	3	28.21	31.82
14:00	2	35	124	563	2038	873	69	8	0	1	0	0	0	0	0	0	0	0	0	27.83	31.31
15:00	15	94	162	708	1795	749	60	4	3	0	1	0	0	0	0	0	0	0	0	27.16	30.99
16:00	10	77	148	580	1665	673	71	9	1	1	0	0	0	0	0	0	0	0	0	27.14	30.98
17:00	5	72	147	539	1386	633	90	11	1	1	0	0	0	0	0	0	0	0	0	27.35	31.40
18:00	1	16	47	270	1160	660	116	12	1	2	0	0	1	0	0	0	0	0	0	28.83	32.60
19:00	1	6	11	119	768	572	115	29	8	0	0	0	0	0	0	0	0	0	0	29.95	33.74
20:00	2	8	13	76	345	421	114	23	6	1	0	0	0	0	0	0	0	0	0	30.63	35.23
21:00	0	0	2	32	218	344	93	20	7	1	1	0	0	0	0	0	0	0	0	31.74	36.46
22:00	0	1	2	7	166	218	100	23	8	4	0	0	0	0	0	0	0	0	0	32.33	37.98
23:00	0	1	2	9	90	121	46	14	4	2	0	0	0	0	0	0	0	0	0	32.73	39.38
07:00 - 19:00	209	893	1956	7701	21860	9159	1085	117	11	11	4	0	1	0	0	0	0	3	0	27.17	31.21
06:00 - 22:00	213	915	1968	8065	24205	11573	1750	237	42	18	8	0	1	0	0	0	0	3	0	27.62	31.72
06:00 - 00:00	213	917	2002	8081	24461	11912	1896	274	54	24	8	0	1	0	0	0	0	3	0	27.68	31.82
00:00 - 00:00	213	921	2006	8102	24718	12544	2376	472	109	42	10	0	1	0	0	0	0	3	0	27.91	32.16

Intelligent Data Collection Limited

Client: WSP
 Project Number: ID06295
 Site Number: Site 1
 Flow from: Oaks Close (N) to: Pine Close (S)



5-day Summary

Time	Speeds (Mph)																			Mean	99th %ile
	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100		
00:00	0	0	1	1	22	61	53	30	11	6	2	0	0	0	0	0	0	0	0	36.65	41.88
01:00	0	0	0	0	8	26	16	11	5	0	0	0	0	0	0	0	0	0	0	35.89	-
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04:00	0	0	0	0	6	19	33	28	9	3	1	0	0	0	0	0	0	0	0	39.38	-
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06:00	2	5	3	6	105	318	190	43	10	2	0	0	0	0	0	0	0	0	0	33.84	38.64
07:00	5	15	16	51	355	910	246	41	8	0	0	0	0	0	0	0	0	0	0	31.98	35.93
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09:00	6	6	14	69	755	1329	276	28	1	0	0	0	0	0	0	0	0	0	0	31.25	34.66
10:00	4	1	22	119	813	1157	171	21	6	5	0	0	0	0	0	0	0	0	0	30.63	33.85
11:00	1	6	13	93	1018	1173	196	21	2	0	0	0	0	0	0	0	0	0	0	30.52	33.61
12:00	0	6	7	117	1069	1248	246	32	4	0	0	0	0	0	0	0	0	0	0	30.68	34.00
13:00	7	3	11	72	845	1301	266	22	7	5	0	0	0	0	0	0	3	0	0	31.26	34.55
14:00	8	15	46	105	1151	1562	309	30	1	2	0	0	0	0	0	0	0	0	0	30.79	34.34
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16:00	287	373	464	529	1550	1016	142	14	3	1	0	0	0	0	0	0	0	0	0	24.67	30.39
17:00	180	225	270	494	1383	1331	218	24	1	0	2	0	0	0	0	0	0	0	0	26.75	32.18
18:00	3	14	23	129	1008	1232	262	33	6	0	0	0	0	0	0	0	0	0	0	30.66	34.35
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22:00	0	5	2	8	77	229	128	52	9	3	1	0	0	0	0	0	0	0	0	34.03	39.41
23:00	0	1	1	1	35	124	72	33	12	9	3	0	0	0	0	0	0	0	0	35.72	42.95
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00:00 - 00:00	694	866	1159	2332	13655	17405	3864	704	127	45	11	2	0	0	0	0	3	0	3	29.81	34.30

7-day Summary

Time	Speeds (Mph)																			Mean	99th %ile
	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100		
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03:00	0	1	0	1	11	44	21	14	4	1	1	0	1	0	0	0	0	0	0	35.29	-
04:00	0	0	0	0	7	31	37	30	10	3	1	0	0	0	0	0	0	0	0	38.72	-
05:00	0	0	4	1	30	96	93	46	7	2	0	1	0	0	0	0	0	0	3	36.29	49.61
06:00	2	5	3	6	113	357	227	53	14	2	0	0	0	0	0	0	0	0	0	34.22	39.08
07:00	7	21	18	54	378	995	305	57	11	2	1	0	0	0	0	0	0	0	0	32.45	36.78
08:00	10	30	68	176	1269	1531	288	37	4	1	0	1	0	0	0	0	0	0	0	30.51	34.24
09:00	7	7	18	81	939	1674	371	39	2	0	0	0	0	0	0	0	0	0	0	31.43	34.92
10:00	6	1	31	176	1103	1556	282	32	7	5	0	0	0	0	0	3	0	0	0	30.70	34.00
11:00	2	36	30	119	1378	1611	283	34	6	0	0	0	0	0	0	0	0	0	0	30.44	33.74
12:00	1	9	14	155	1442	1786	360	37	5	0	0	0	0	0	0	0	0	0	0	30.73	34.04
13:00	11	3	17	86	1184	1769	353	32	9	5	0	0	0	0	0	3	0	0	0	31.22	34.53
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17:00	182	227	276	492	1566	1654	317	41	3	1	2	0	1	0	0	0	0	0	0	28.06	33.04
18:00	3	14	23	144	1154	1510	346	39	7	0	0	0	0	0	0	0	0	0	0	30.94	34.59
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20:00	1	1	4	26	283	573	259	65	8	5	1	0	0	0	0	0	0	0	0	32.90	37.42
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22:00	0	5	3	12	106	296	164	61	14	3	2	0	0	0	0	0	0	0	0	33.96	39.46
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07:00 - 19:00	696	895	1202	2464	15181	19409	3802	448	65	20	3	1	1	0	0	3	3	0	0	29.73	33.98
06:00 - 22:00	700	903	1213	2366	16337	21691	4797	686	106	33	4	4	1	0	0	3	3	0	0	30.03	34.33
06:00 - 00:00	700	909	1218	2579	16494	22156	5062	796	135	46	9	4	2	0	0	3	3	0	0	30.12	34.44
00:00 - 00:00	700	910	1224	2584	16599	22502	5340	967	180	60	13	5	3	0	0	3	3	0	3	30.24	34.59

Intelligent Data Collection Limited

Client: WSP
Project Number: ID06295
Site Number: Site 1
Flow from: Two-way Total



5-day Summary

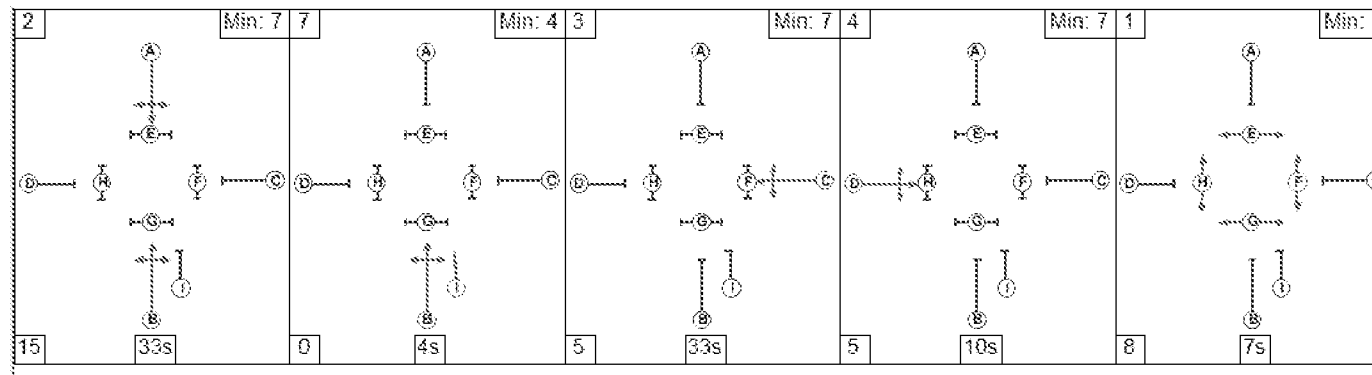
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01:00	0	0	0	1	17	43	28	15	5	0	0	0	0	0	0	0	0	0	0	35.02	-
02:00	0	0	0	0	10	35	15	12	2	2	0	0	0	0	0	0	0	0	0	36.01	-
03:00	0	1	0	4	19	63	44	30	9	1	1	0	0	0	0	0	0	0	0	35.41	45.40
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07:00	40	215	365	1044	2517	1706	323	50	9	0	0	0	0	0	0	0	0	0	0	29.15	33.15
08:00	87	160	318	1243	3099	1818	235	26	3	0	3	0	0	0	0	0	0	0	0	27.66	31.55
09:00	15	53	162	516	2184	1987	347	39	1	0	0	0	0	0	0	0	0	0	0	29.32	32.93
10:00	24	54	118	615	2172	1731	240	25	7	8	0	0	0	0	0	0	0	0	0	28.98	32.46
11:00	8	49	91	597	2405	1678	245	30	3	0	0	0	0	0	0	0	0	0	0	28.92	32.21
12:00	9	61	183	634	2462	1754	321	38	4	0	0	0	0	0	0	0	0	0	0	28.78	32.51
13:00	15	25	54	373	2131	1957	346	27	8	6	0	0	0	0	0	0	3	3	0	29.82	33.25
14:00	10	46	152	521	2707	2258	366	35	1	2	0	0	0	0	0	0	0	0	0	29.35	32.90
15:00	182	209	340	893	2771	1892	235	17	6	1	0	0	0	0	0	0	0	0	0	27.25	31.70
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17:00	185	296	410	943	2468	1805	282	32	2	0	2	0	0	0	0	0	0	0	0	26.81	31.64
18:00	4	29	65	360	1942	1700	348	43	7	1	0	0	1	0	0	0	0	0	0	29.58	33.33
19:00	2	7	12	142	1031	1190	313	66	11	0	0	0	0	0	0	0	0	0	0	30.88	34.66
20:00	3	9	12	79	511	767	269	67	10	4	1	0	0	0	0	0	0	0	0	31.56	36.06
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22:00	0	6	3	13	200	399	212	71	16	7	1	0	0	0	0	0	0	0	0	33.40	38.88
23:00	0	2	1	6	96	223	108	46	16	11	3	0	0	0	0	0	0	0	0	34.35	42.03
07:00 - 19:00	874	1642	2943	8773	29727	21756	3474	380	55	19	5	0	1	0	0	0	3	3	0	28.07	32.36
06:00 - 22:00	882	1672	2886	9170	32687	25621	4774	663	107	33	9	2	1	0	0	0	3	3	1	28.49	32.81
06:00 - 00:00	882	1680	2890	9189	32983	26243	5294	780	139	51	13	2	1	0	0	0	3	3	0	28.56	32.92
00:00 - 00:00	882	1683	2899	9207	33269	27001	5676	1062	213	76	18	2	1	0	0	0	3	3	3	28.74	33.16

7-day Summary

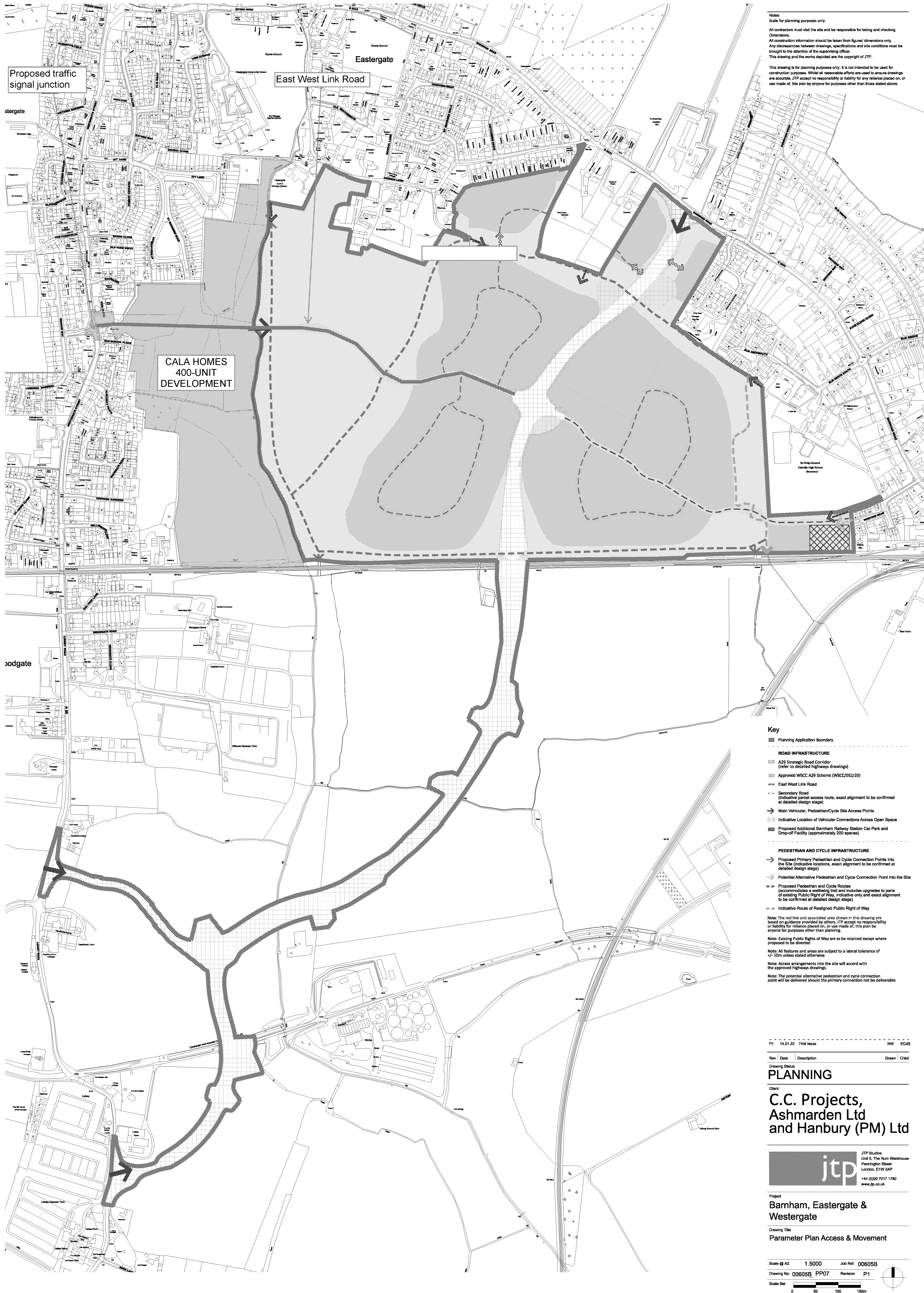
	Speeds (Mph)																				
Time	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90	90-95	95-100	Mean	99th %ile
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07:00	42	223	369	1064	2652	1927	446	77	12	2	1	0	0	0	0	0	0	0	0	30.03	34.30
08:00	88	166	332	1273	3469	2193	330	47	4	1	3	1	0	0	0	0	0	0	0	28.52	32.44
09:00	18	62	172	616	2805	2549	465	51	2	0	0	0	0	0	0	0	0	0	0	29.57	33.15
10:00	29	79	156	793	2950	2333	333	37	8	8	0	0	0	0	0	3	0	0	0	29.04	32.57
11:00	9	100	150	792	3246	2328	356	45	7	0	0	0	0	0	0	0	0	0	0	28.86	32.32
12:00	12	72	244	826	3370	2501	453	45	5	2	0	0	0	0	0	0	0	0	0	28.87	32.54
13:00	22	44	101	524	3017	2662	458	39	11	6	0	0	0	0	0	0	3	3	0	29.72	33.17
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15:00	186	212	354	1023	3362	2638	352	30	9	1	1	0	0	0	0	0	0	0	0	27.96	32.12
16:00	298	450	614	1119	3410	2055	322	37	5	3	0	0	0	0	0	0	0	0	0	26.81	31.30
17:00	187	299	423	1031	2952	2287	407	52	4	2	2	0	1	0	0	0	0	0	0	27.70	32.22
18:00	4	30	70	414	2314	2170	462	51	8	2	0	0	1	0	0	0	0	0	0	29.88	33.60
19:00	2	7	14	179	1313	1487	418	88	14	1	0	1	0	0	0	0	0	0	0	31.00	34.96
20:00	3	9	17	102	628	994	373	88	14	6	1	0	0	0	0	0	0	0	0	31.77	36.32
21:00	0	1	3	42	433	781	299	81	20	6	1	2	0	0	0	0	0	0	0	32.68	37.51
22:00	0	6	5	19	272	514	264	84	22	7	2	0	0	0	0	0	0	0	0	33.14	38.81
23:00	0	2	4	10	141	290	147	63	19	12	3	0	1	0	0	0	0	0	0	34.22	41.14
07:00 - 19:00	905	1788	3158	10165	37041	28568	4887	565	76	31	7	1	2	0	0	0	3	3	3	28.45	32.59
06:00 - 22:00	913	1818	3211	10631	40542	33264	6547	923	148	51	12	4	2	0	0	0	3	3	3	28.83	33.03
06:00 - 00:00	913	1826	3220	10660	40955	34068	6958	1070	189	70	17	4	3	0	0	0	3	3	3	28.90	33.13
00:00 - 00:00	913	1831	3230	10686	41307	35046	7716	1439	289	102	23	5	4	0	0	0	3	3	3	29.08	33.37

Appendix E

120 second cycle with Microprocessor Optimised Vehicle Activation (MOVA)



Appendix F



Proposed traffic
signal junction

East West Link Road

CALA HOMES
400-UNIT
DEVELOPMENT

Notes:
Scale for planning purposes only
All contractors must visit the site and be responsible for taking and checking Dimensions.
All construction information should be taken from figured dimensions only.
Any discrepancies between drawings, specifications and site conditions must be brought to the attention of the supervising officer.
This drawing and the works depicted are the copyright of JTP.

This drawing is for planning purposes only. It is not intended to be used for construction purposes. Whilst all reasonable efforts are used to ensure drawings are accurate, JTP accept no responsibility or liability for any reliance placed on, or use made of, this plan by anyone for purposes other than those stated above.

Key

- Planning Application Boundary

ROAD INFRASTRUCTURE

- A29 Strategic Road Corridor (refer to detailed highway drawings)
- Approved WSCC A29 Scheme (WSCC/052/20)
- East West Link Road
- Secondary Road (indicative parcel access route, exact alignment to be confirmed at detailed design stage)
- Main Vehicular, Pedestrian/Cycle Site Access Points
- Indicative Location of Vehicular Connections Across Open Space
- Proposed Additional Barnham Railway Station Car Park and Drop-off Facility (approximately 200 spaces)

PEDESTRIAN AND CYCLE INFRASTRUCTURE

- Proposed Primary Pedestrian and Cycle Connection Points into the Site (indicative locations, exact alignment to be confirmed at detailed design stage)
- Potential Alternative Pedestrian and Cycle Connection Point into the Site
- Proposed Pedestrian and Cycle Routes (accommodates a wellbeing trail and includes upgrades to parts of existing Public Rights of Way, indicative only and exact alignment to be confirmed at detailed design stage)
- Indicative Route of Realigned Public Right of Way

Note: The red line and associated area shown in this drawing are based on guidance provided by others. JTP accept no responsibility or liability for reliance placed on, or use made of, this plan by anyone for purposes other than planning.

Note: Existing Public Rights of Way are to be retained except where proposed to be diverted

Note: All features and areas are subject to a lateral tolerance of +/- 10m unless stated otherwise

Note: Access arrangements into the site will accord with the approved highway drawings

Note: The potential alternative pedestrian and cycle connection point will be delivered should the primary connection not be deliverable

P1 14.01.22 First Issue NW EC&S

Rev	Date	Description	Drawn	Chkd

Drawing Status

PLANNING

Client

**C.C. Projects,
Ashmarden Ltd
and Hanbury (PM) Ltd**

JTP Studios
Unit 5, The Rum Warehouse
Pannington Street
London, E1W 2AP
+44 (0)20 7017 1780
www.jtp.co.uk

Project

**Barnham, Eastergate &
Westergate**

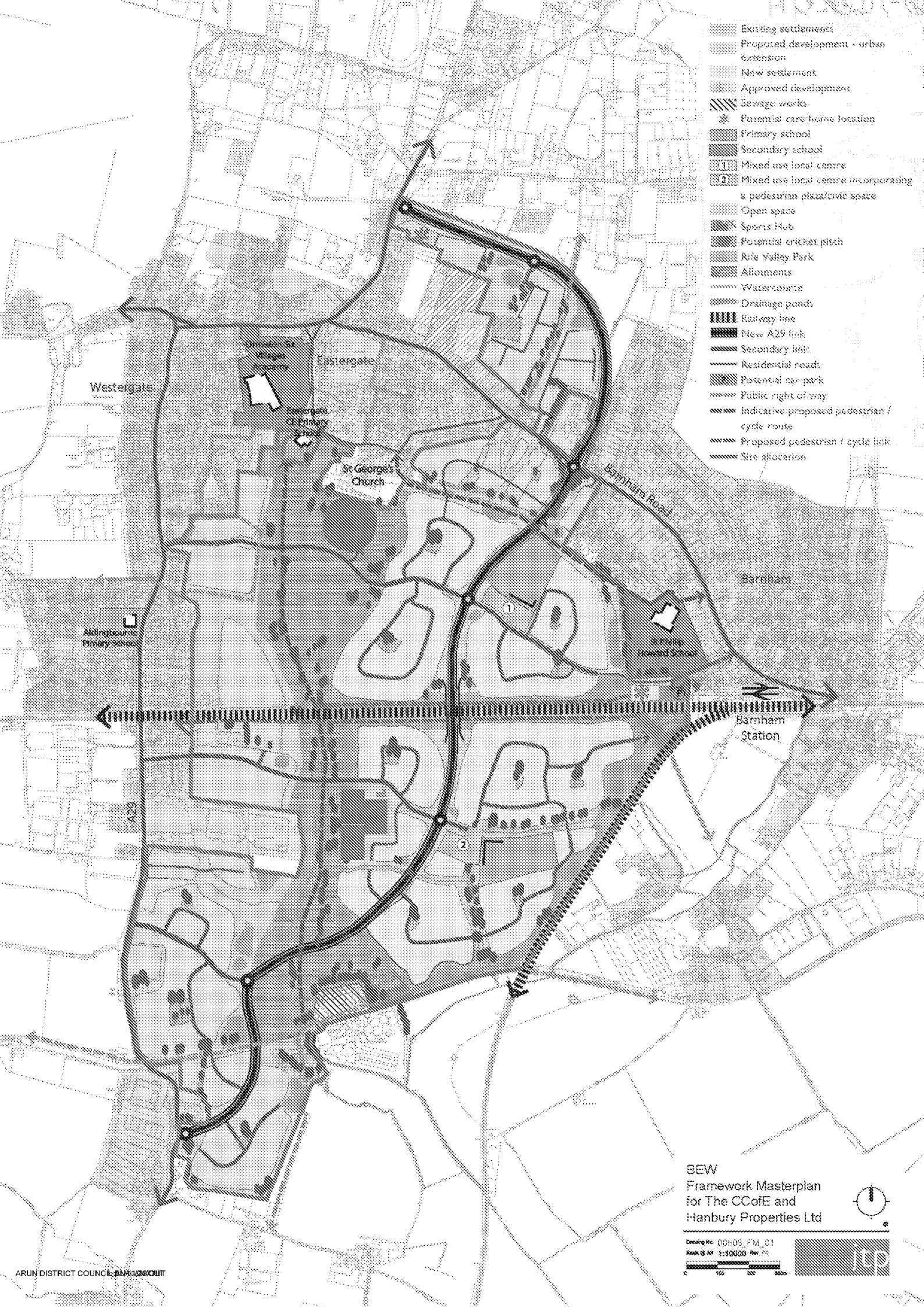
Drawing Title

Parameter Plan Access & Movement

Scale @ A2 1:5000 Job Ref. 00605B

Drawing No. 00605B_PP07 Revision P1

Scale Bar 0 50 100 150m



- Existing settlements
- Proposed development - urban extension
- New settlement
- Approved development
- Sewage works
- Potential care home location
- Primary school
- Secondary school
- 1 Mixed use local centre
- 2 Mixed use local centre incorporating a pedestrian plaza/civic space
- Open space
- Sports Hub
- Potential cricket pitch
- Rife Valley Park
- Allotments
- Watercourse
- Drainage ponds
- Railway line
- New A29 link
- Secondary link
- Residential roads
- Potential car park
- Public right of way
- Indicative proposed pedestrian / cycle route
- Proposed pedestrian / cycle link
- Site allocation

Appendix G



TECHNICAL NOTE 1 – Site Access Assessment

DATE:	07 December 2022	CONFIDENTIALITY:	Public
SUBJECT:	Westergate Site Access Assessment		
PROJECT:	Land at Westergate - 70013258	AUTHOR:	Ollie Thompson / Phil Moss
CHECKED:	Chris Williams	APPROVED:	Andrew Blacker

INTRODUCTION

WSP has been appointed by Cala Homes to provide Transportation and Highways advice in support of a planning application for the development of land located at Westergate, West Sussex.

The site is located on land to the east of the A29 Westergate Street, accessed via a new traffic signal junction at Meadow Way / Pine Close. The proposed development will provide up to a total of 400 dwellings with associated car parking. The site is bordered by existing residential development to the west and by agricultural land to the east and forms part of the Barnham / Eastergate / Westergate (BEW) strategic development site.

Proposals for the wider BEW strategic development include the realignment of the A29 to the east of the Cala Homes site to bypass the existing railway level crossing at Woodgate and provide a grade separated crossing to eliminate vehicle queues associated with the level crossing. The realignment of the A29 will run from the existing A29 to the north of Eastergate and connect to the existing alignment to the south of the railway. The realigned A29 will connect with the Cala Homes site and existing A29 alignment, via an East-West Link Road.

A planning application for BEW Parcel SC1 (BN/11/22/OUT) located to the east of the Cala Homes site is currently being determined and includes the following phasing:

- ✧ Phase 1: 1,200 homes, 61 C2 care home units, 2FE primary schools, A29 realignment north of the Chichester to Barnham railway line; and
- ✧ Phase 2: Phase 1 + 2,000 homes and full realignment of the A29.

As part of the Cala site, it is proposed that a bridge will be constructed over the Lindsey Rife to connect the A29 Westergate Street, Cala site and BEW parcel SC1 via the East-West Link Road.

Following on from a review of the Transport Assessment (TA) submitted in the support of the planning application for BEW Parcel SC1, This Technical Note provides as an assessment of the proposed A29 Westergate Street / Meadow Way / Pine Close site access junction. This has been completed with and without the BEW SC1 parcel and associated infrastructure improvements (with / without realignment of A29 and East-West Link Road).

SITE ACCESS DESIGN

The proposed site access will be achieved via a four-arm signalised junction with Meadow Way and A29 Westergate Street as shown on Drawing 3258-GA-006 included in **Appendix A**. The proposed access junction is the same layout which supported the 2017 planning application.

It is recommended that the junction will operate with Microprocessor Optimised Vehicle Actuation (MOVA) to minimise vehicle delays on all approaches. The proposed junction will generally operate in three stages with the A29 running together in each direction, before Meadow Way and the site access run independently. To aid right turning movements from the A29, ghost-island right turn lanes are provided.



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Finally, northbound traffic will also benefit from the extension of the green phase whilst southbound traffic is held. This will ensure any traffic turning right into the site will clear the junction if they have not found a suitable gap during the green phase.

SITE ACCESS CAPACITY ASSESSMENT

This Section of the Technical Note provides a junction capacity assessment of the proposed A29 Westergate Street / Meadow Way / Pine Close site access junction. The junction has been assessed using the LinSig 3 software by JCT Consultancy. LinSig provides an assessment of the impact of traffic signals on traffic capacity, queues and delays at a junction. Geometry measurements for the junction capacity assessments has been derived from a Topographical survey mapping.

LinSig models provide an indication of Degree of Saturation as a percentage and the Mean Maximum Queue in Passenger Carrying Units (PCUs) for each junction approach, the average delay per vehicle on each approach, recorded in seconds and the Practical Reserve Capacity (PRC), which is a measure of the junction's total capacity (as a percentage). When reviewing the PRC of a junction the following should be considered:

- ✧ A positive figure indicates the junction operates with reserve capacity;
- ✧ A negative figure less than -10% shows that a junction would be broadly at capacity; and
- ✧ A negative figure more than 10% indicates that the junction cannot accommodate the demand.

For Degree of Saturation, the thresholds can be categorised as follows:

- ✧ Less than 90%: Any queues that have built up will be able to disperse during the relevant stage in each cycle;
- ✧ 90-100%: Indicates that an approach is close to its theoretical capacity and any queue that has built up does not fully clear within each cycle; and
- ✧ More than 100%: Indicates that an approach is over its theoretical capacity and significant queues are likely as a result.

Assessment Scenarios

A number of scenarios have been assessed as shown in Table 1 to reflect various stages of BEW build-out and traffic modelling completed to-date within the Parcel SC1 TA. For reference, all transport modelling contained within the Parcel SC1 TA was based upon traffic flow outputs from the WSCC Strategic Transport Model.



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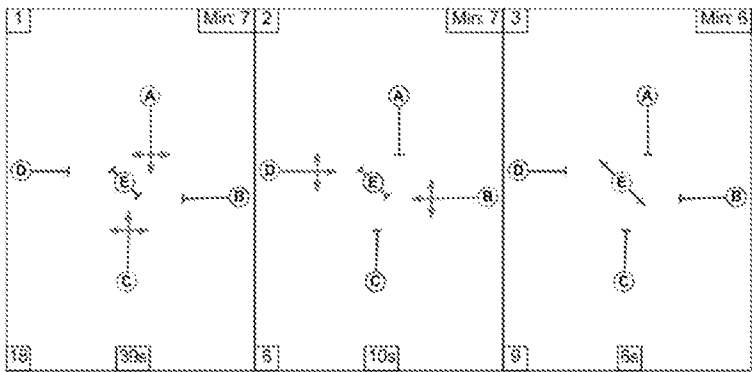
Table 1 – Assessment Scenarios

Scenario	Name	Corresponding Parcel SC1 TA Scenario	Reason for Assessment
1	2031 Cala Homes site without Parcel SC1	2031 Do-Minimum	Assessment of revised signal staging and increase in Cala development to 400 units
2	2031 Cala Homes site with TEMPRO growth	N/A	Assessment of 400 unit Cala site interpedently from Parcel SC1 traffic modelling
3	2031 Cala Homes site with Parcel SC1 Phase 1	2031 Do-Something	Assessment of revised signal staging and increase in Cal a development to 400 units
4	2031 Cala Homes site with Parcel SC1 excluding East-West Link Road	N/A	Assessment of alternative access strategy without provision of East West Link
5	2038 Cala Home site with Parcel SC1 Phase 1 and 2	2038 Do-Something	Assessment of revised signal staging and increase in Cal a development to 400 units

Traffic Signal Staging

For all assessments completed within this Technical Note, the junction capacity assessments have used revised traffic signal staging in comparison with the Parcel SC1 TA. The Parcel S1C TA reported results with the pedestrian crossing stage being called every cycle and every other cycle, as shown in Figure 1.

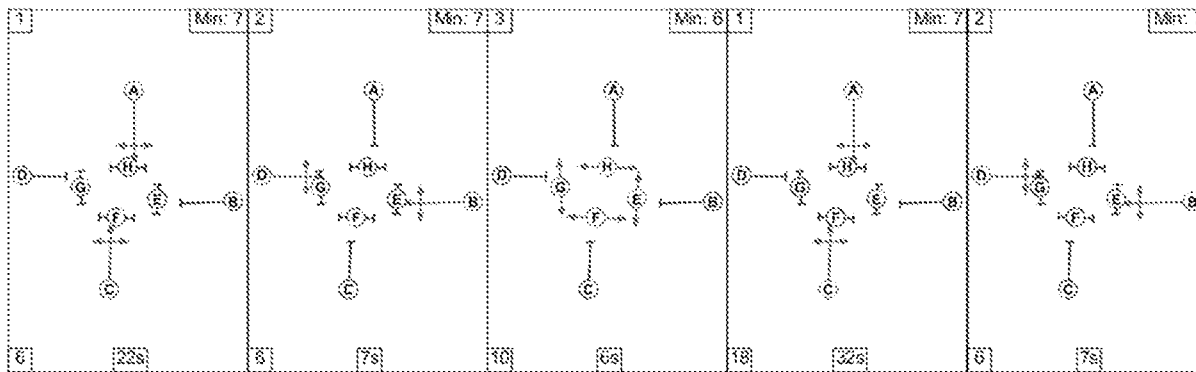
Figure 1 – Parcel SC1 TA LinSig staging for A29 Westergate Street / Meadow Way / Development Access Junction





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This Technical Note includes capacity assessments with revised traffic signal staging for the following reasons:

- Through WSP's experience in working with WSCC it would not be acceptable for Development Access and Meadow way to operate together in one stage with the staging ultimately needing to be changed during detailed design to have Meadow Way and Development Access operating as independent stages. This is because of the skewed nature of the junction and also the limited demand from Meadow Way leading to drivers exiting the Development Access believing they had unopposed priority, thereby increasing the potential for vehicle collisions to occur and overall safety concern.
- The Parcel SC1 TA transport modelling has made no allowance for the number of right turn movements between A29 southern approach and Development Access despite the additional demand created by the provision of the East-West Link Road. For example, in the 2031 Do-Something scenario there are 260 vehicles in the AM peak and 327 vehicles in the PM peak that make this movement, which is an average of 4-5 vehicles per minute in the AM peak and 5-6 vehicles per minute in the PM peak. This level of demand cannot be accommodated within the ghost island right turn lane and will block the A29 northbound traffic flow. Whilst this can be mitigated through the implementation of a queue detector on the A29 and early cut-off of the southbound A29 signal stage (as proposed in paragraph 4.3.2 of the Transport Assessment completed in support of AL/15/17/PL) this has not been modelled within the Parcel SC1 TA.

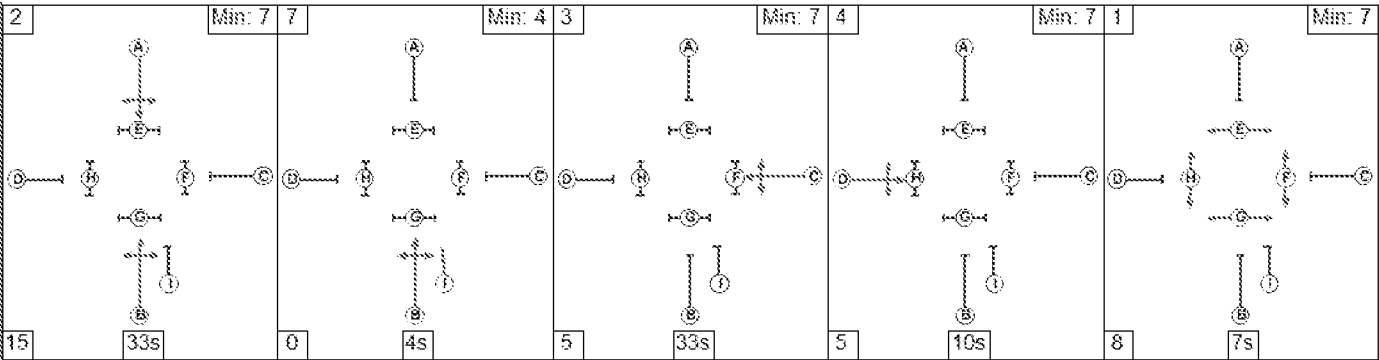
In combination these factors mean that the transport modelling presented in the SC1 Parcel TA is incorrect and the junction likely to operate significantly differently in reality in comparison with that reported. Taking this into account, the following traffic signal staging shown in Figure 2 has been used within this Technical Note to provide a robust assessment of the future operation of the junction.



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Figure 2 – Revised Traffic Signal Staging



Proposed Development Trip Rate

The assessment of the Cala Homes site within this Technical Note has also been updated to reflect that the proposed increase from 350 dwellings to 400 dwellings. The trip rate for the proposed development has been calculated through traffic surveys of Meadow Way and Ivy Lane undertaken on 1st March 2022. This uses the same methodology as the Transport Assessment, produced in support of planning application AL/15/17/PL. The total vehicles accessing and egressing each of the cul-de-sacs was divided by the number of dwellings served by each of them to calculate a trip rate per dwelling. The AM and PM arrival and departure trip rates have been averaged between Meadow Way and Ivy and are presented in Table 1. The trip rates outlined in Table 2 were then multiplied by the proposed 400 dwellings to provide the following trip generation

Table 2 – Proposed Development Trip Rates

Time Period	Arrival	Departure	Two-way
AM	0.151	0.382	0.533
PM	0.290	0.142	0.432



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Table 3 – Proposed Development Trip Generation

Time Period	Arrival	Departure	Two-way
AM	60	153	213
PM	116	57	173

For all assessments the trip generation shown in Table 3 has been used to replace that included within the Parcel SC1 TA assessments given this assumed a development quantum of 350 units.

Scenario 1 Junction Capacity Assessment – 2031 Cala Homes Site without Parcel SC1

Table 4 below summarises how the junction is forecast to operate in 2031 with only the Cala Homes site coming forward, using traffic model data taken from Parcel SC1 TA and revised trip generation shown in Table 3 to account for the increase from 350 units to 400 units. The results show that the junction operates well within capacity during each of the AM and PM peaks.

Table 4 – Scenario 1 – 2031 Cala Homes site without Parcel SC1

Arm	Approach	Scenario 1 - AM			Scenario 1 - PM		
		Degree of Sat (%)	Average Delay (S)	Mean Max Queue	Degree of Sat (%)	Average Delay (S)	Mean Max Queue
A	A29 North	78.3	36.8	17	78.5	32.0	23
B	Site Access	75.7	86.2	6	49.7	84.7	2
C	A29 South	79.8	34.3	23	55.1	21.7	13
D	Meadow Way	78.8	115.8	5	71.4	108.6	4
Overall Junction		PRC: 12.8% Cycle Time: 120s			PRC: 14.7% Cycle Time: 120s		



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Scenario 2 Junction Capacity Assessment – 2031 Cala Homes site with TEMPRO growth

Table 5 below summarises how the junction is forecast to operate in 2031 with only the Cala Homes site coming forward, using TEMPRO traffic growth rates from baseline 2022 traffic surveys. These growth rates assumed an 8.0% and 8.3% uplift in baseline traffic flows in the AM and PM peaks, respectively. This provides an independent assessment of the junction operation without use of traffic flows from the Parcel SC1 TA. The results show that the junction operates within capacity during each of the AM and PM peaks.

Table 5 – Scenario 2 – 2031 TEMPRO Test – Cala Homes site without BEW Parcel SC1

Arm	Approach	Scenario 2 - AM			Scenario 2- PM		
		Degree of Sat (%)	Average Delay (S)	Mean Max Queue	Degree of Sat (%)	Average Delay (S)	Mean Max Queue
A	A29 North	65.6	30.1	16	89.5	41.5	31
B	Site Access	75.7	86.2	6	49.7	84.7	2
C	A29 South	78.6	32.8	23	50.9	21.5	11
D	Meadow Way	26.5	75.5	1	19.4	73.6	1
Overall Junction		PRC: 14.6% Cycle Time: 120s			PRC: 0.5% Cycle Time: 120s		



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Scenario 3 Junction Capacity Assessment – 2031 Cala Homes site with Parcel SC1 Phase 1

Table 6 provide a summary of the junction capacity assessments where the 400 unit Cala Homes site and Phase 1 of Parcel SC1 are complete, including the East-West Link Road and A29 realignment north of the Barnham to Chichester railway line. The results in Table 6 show that the junction is forecast to operate significantly over capacity both the AM and PM peaks. The A29 South and Site Access are forecast to operate over capacity, with queue lengths on the A29 southern approach extending through the A29 level crossing south of the site access junction.

Table 6 – Scenario 3 – Cala Homes site with BEW Parcel SC1 Phase 1 Junction Modelling Results

Arm	Approach	Scenario 3 - AM			Scenario 3- PM		
		Degree of Sat (%)	Average Delay (S)	Mean Max Queue	Degree of Sat (%)	Average Delay (S)	Mean Max Queue
A	A29 North	63.9	29.3	15	71.7	30.1	19
B	Site Access	121.2	431.7	33	130.2	544.7	35
C	A29 South	124.6	438.4	114	127.8	481.4	104
D	Meadow Way	88.8	156.5	6	72.4	109.0	4
Overall Junction		PRC: -38.4% Cycle Time: 120s			PRC: -44.6% Cycle Time: 120s		



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Scenario 4 Junction Capacity Assessment – 2031 Cala Homes site with Parcel SC1 Phase 1 excluding East-West Link Road

As a comparison of the results for Scenario 3, Table 7 provides a summary of junction capacity assessments where the 400 unit Cala Homes site and Phase 1 of Parcel SC1 are complete but without the East-West Link Road. Within this scenario the turning movements to / from the Development Access have been reduced to match Scenario 1, with additional movements from Scenario 3 assumed to be re-assigned to travel through the junction to access Parcel SC1 via one of the alternative access points further north. Despite these additional northbound and southbound movements on the A29 the junction is forecast to operate within capacity in both the AM and PM peaks.

Table 7 – Scenario 4 – Cala Homes site with BEW Parcel SC1 excluding East-West Link Road Junction Modelling ResultsArm	Approach	Scenario 4 - AM			Scenario 4- PM		
		Degree of Sat (%)	Average Delay (S)	Mean Max Queue	Degree of Sat (%)	Average Delay (S)	Mean Max Queue
A	A29 North	86.2	42.5	22	84.5	36.5	26
B	Site Access	81.5	99.2	7	49.7	84.7	2
C	A29 South	83.5	36.4	25	64.5	23.9	16
D	Meadow Way	79.5	117.4	5	74.5	114.3	4
Overall Junction		PRC: 4.5% Cycle Time: 120s			PRC: 6.5% Cycle Time: 120s		



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Scenario 5 Junction Capacity Assessment – 2038 Cala Homes site with Parcel SC1 Phase 1 and 2

Table 8 provides a summary of junction capacity assessments where the 400 unit Cala Homes site and phase 1 and 2 of Parcel SC1 are complete, including the East-West Link Road and full A29 realignment. Given the anticipated reduction in traffic flows along the existing A29 in this scenario, the junction is forecast to operate well within capacity.

Table 8 – Scenario 5 – Cala Home site with BEW Parcel SC1 Phase 1 and 2

Arm	Approach	Scenario 5 - AM			Scenario 5- PM		
		Degree of Sat (%)	Average Delay (S)	Mean Max Queue	Degree of Sat (%)	Average Delay (S)	Mean Max Queue
A	A29 North	66.3	52.9	7	46.4	26.0	10
B	Site Access	66.1	48.7	10	45.5	78.4	2
C	A29 South	67.2	45.1	13	33.4	23.4	5
D	Meadow Way	65.8	86.2	4	46.7	66.5	3
Overall Junction		PRC: 33.9% Cycle Time: 120s			PRC: 92.7% Cycle Time: 120s		

CONCLUSION

This Technical Note has provided an overview of capacity assessments for the proposed site access for a development of 400 dwellings on land east of the A29 in Westergate, West Sussex. The proposed site access will be achieved via a four-arm signalised junction with Meadow Way and A29 Westergate Street.

The capacity assessments summarised within this Technical Note have been based on a revised traffic signal staging, which robustly assess the safe operation of the junction at various stages of the BEW build-out. These capacity assessment have highlighted the following key points:

1. The proposed site access junction is able to accommodate the proposed Cala Homes development of 400 units as a standalone site, when assessed using both traffic flows from the Parcel SC1 TA and 2022 traffic survey data uplifted to 2031 using TEMPRO;



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2. The proposed site access junction cannot accommodate the additional traffic associated with the East-West Link Road, Cala Homes development of 400 units and phase 1 of Parcel SC1. This is because of the reassignment of traffic through the Cala Homes site as a result of new connection to the A29 formed by the East-West Link Road;
3. The site access junction operates within capacity with Parcel SC1 without the East-West Link Road when assuming traffic has to divert through the junction and along the existing A29; and
4. The access junction operates within capacity with the Cala Homes development of 400 units and phase 1 and 2 of Parcel SC1, including the East-West Link Road and full realignment of the A29.

WSP therefore recommend that until the full realignment of the A29 is complete, the East-West Link Road is developed as a bus and active modes link between the Cala Homes Site and Parcel SC1. This will allow the development of both sites to come forward without leading to capacity and safety issues at the A29 / Meadow Way / Development Access junction.



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