Land off Swanstree Avenue, Sittingbourne

TRANSPORT ASSESSMENT

Report prepared for
Gladman Developments Ltd

May 2022

Report Reference 1464/5/D

ASHLEY HELME
ASSOCIATES

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Client:	Gladman Developments Ltd
Report Ref:	1464/5/D
Status:	Final
Date:	May 2022

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1 Introduction

1.1 Ashley Helme Associates Limited (AHA) are appointed by Gladman Developments Ltd (GDL) to prepare a Transport Assessment (TA) report to support the planning application for residential development on land off Swanstree Avenue, Sittingbourne (henceforth referred to as the Site). The location of the Site is indicated on Figure 1.1, in the context of the local highway network.

1.2 Proposed Development

1.2.1 The Site is presently agricultural/ field land. The proposed development comprises a residential development of up to 135 dwellings. All matters are reserved, except access.

1.3 Planning History

1.3.1 The applicant submitted a planning application in 2015 for a scheme at Swanstree Avenue for 540 dwellings and a 50no C3 retirement apartments. The application was refused by Swale Borough Council (SBC) in July 2016. The current application Site forms part of the red line boundary of the 2015 scheme.

1.3.2 AHA prepared the TA report (ref 1464/1/A) that accompanied the 2015 planning application. A TA Supplementary Report No 1 (ref 1464/3) was also prepared following comments from Kent County Council (KCC) officers.

1.4 Current Planning Application: 21/505498/OUT

1.4.1 The applicant submitted a planning application which was validated by Swale Borough Council (SBC) in October 2021. AHA prepared the following documents that accompanied the application:

(i) Transport Assessment: ref 1464/5/B, September 2021, and
(ii) Travel Plan: ref 1464/6/A, September 2021.

1.4.2 KCC provided comments in their consultation response dated 3 February 2022 (refer Appendix F). KCC highways officers require:

(i) Geometry information for the proposed Site access,
(ii) Speed survey information for Swanstree Avenue,
(iii) Swept path analysis of the proposed Site access junction for a 11.4m refuse vehicle,
(iv) Stage 1 Road Safety Audit of the proposed Site access junction on Swanstree Avenue,

(v) Addition of Bell Road/Woodstock Road/Park Avenue/Gore Court Road (roundabout) and Bell Road/Avenue of Remembrance/Stanhope Avenue (traffic signals) junctions to the TA study network,
(vi) New traffic surveys undertaken at all the TA study junctions,
(vii) New TRICS integration to establish up-to-date residential trip rates,
(viii) Revised trip distribution for movements to/from the west of the Site,
(ix) Consideration of a footway scheme on Highsted Road between Swanstree Avenue and Farm Crescent,
(x) Consideration of a shared footway/cycle scheme to link the proposed development with the nearby Eden Village residential area.

1.4.3 This revised TA report responds to all of the points raised by KCC.

1.5 Scope of the Report

1.5.1 The transport policy context for the proposed development is outlined in Chapter 2. The principles of the access strategy adopted for the proposed development are also discussed in Chapter 2, and this provides the means to achieve transport policy objectives. It is fundamental to the approach of the applicant, as represented in this TA, that a holistic view is taken of the consideration of access to the proposed development by all modes of transport.

1.5.2 The issues addressed within the TA fall broadly into the following areas:

(i) Accessibility by non-car modes, and
(ii) The vehicular traffic impact on the operational performance of the local highway network, assessed quantitatively for the TA defined study network.

1.5.3 The local highway network is described in Chapter 3. The proposed Site access arrangements are outlined in Chapter 4.

1.5.4 The transport sustainability of the proposed development is a key issue, as set out in the National Planning Policy Framework (NPPF, July 2021), and also Planning Practice Guidance (PPG, March 2014). Accessibility issues are identified in Chapter 2, and an accessibility appraisal of the Site by non-car modes is presented in Chapters 5 (Walk & Cycle) and 6 (Public Transport), using an accessibility mapping methodology.

1.5.5 The estimation of the development generated traffic and associated With Development traffic flows is presented in Chapter 7. Modelling of the impact of development traffic on the highway network is described in Chapter 8.

1.5.6 The conclusions of the TA are presented in Chapter 9.

2 Policies & Principles of Access Strategy

2.1 A holistic approach is adopted for the desired access strategy. Due cognisance is taken of a range of relevant policy documents and considerations that represent current national and local policies. These include:

- National Planning Policy Framework (NPPF), July 2021,
- Planning Practice Guidance (PPG), March 2014,
- Swale Council Local Plan, Adopted July 2017,
- KCC Local Transport Plan 4 (2014-2031).

2.2 A general thrust of current national and local policies is to promote and deliver sustainable transport objectives, and this is a key factor in defining the access strategy for the proposed development.

2.3 There are a range of documents that provide advice and guidance identifying that the historic approach of adopting rigid highway design standards and considering this in isolation is not appropriate or desirable in today's world. This includes, for example, Manual for Streets (MfS) and the associated Manual for Streets 2 (MfS2).

2.4 NPPF: Achieving Sustainable Transport

2.4.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied.

2.4.2 Paragraph 7 of NPPF sets out that:

"The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs4. At a similarly high level, members of the United Nations – including the United Kingdom – have agreed to pursue the 17 Global Goals for Sustainable Development in the period to 2030. These address social progress, economic well-being and environmental protection."

2.4.3 In paragraph 10, NPPF makes it clear that:

"So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in ***favour of sustainable development****."*

2.5 NPPF: Promoting Sustainable Transport

2.5.1 The Government's commitment to sustainable development is emphasised in NPPF. Paragraph 104 advises development promoters to consider transport issues from the earliest stages of plan-making and development proposals, so that:

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

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

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

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

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

2.5.2 This is expanded in paragraph 105, which states:

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

The proposed development respects and reflects this NPPF transport sustainability related objective.

2.5.3 NPPF states in paragraph 110 that:

" In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

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

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

c) *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*

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

2.5.4 NPPF makes it clear in paragraph 111 that:

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

2.5.5 NPPF offers specific transport advice with respect to development proposals. In paragraph 112, NPPF sets out that development should:

"a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;

b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;

d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and

e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."

2.6 PPG

2.6.1 The Department for Communities and Local Government (DCLG) launched the Planning Practice Guidance (PPG) web-based resource on 6 March 2014. The PPG includes advice on

when transport assessments and transport statements are required, and what they should contain.

2.6.2 The PPG states that:

"Travel Plans, Transport Assessments and Statements can positively contribute to:

- *encouraging sustainable travel;*
- *lessening traffic generation and its detrimental impacts;*
- *reducing carbon emissions and climate impacts;*
- *creating accessible, connected, inclusive communities;*
- *improving health outcomes and quality of life;*
- *improving road safety; and*
- *reducing the need for new development to increase existing road capacity or provide new roads."*

2.6.3 With respect to Transport Assessments and Statements, PPG sets out that:

''The key issues to consider at the start of preparing a Transport Assessment or Statement may include:

- *the planning context of the development proposal;*
- *appropriate study parameters (i.e. area, scope and duration of study);*
- *assessment of public transport capacity, walking/ cycling capacity and road network capacity;*
- *road trip generation and trip distribution methodologies and/or assumptions about the development proposal;*
- *measures to promote sustainable travel;*
- *safety implications of development; and*
- *mitigation measures (where applicable) – including scope and implementation strategy.''*

2.6.4 With respect to Travel Plans, PPG sets out that:

''Travel Plans should set explicit outcomes rather than just identify processes to be followed (such as encouraging active travel or supporting the use of low emission vehicles). They should address all journeys resulting from a proposed development by anyone who may need to visit or stay and they should seek to fit in with wider strategies for transport in the area.

They should evaluate and consider:

- *benchmark travel data including trip generation databases;*

- *information concerning the nature of the proposed development and the forecast level of trips by all modes of transport likely to be associated with the development;*
- *relevant information about existing travel habits in the surrounding area;*
- *proposals to reduce the need for travel to and from the site via all modes of transport; and*
- *provision of improved public transport services.''*

2.7 Swale Council Local Plan (2017)

2.7.1 The Swale Borough Local Plan, which was adopted in July 2017, sets out the vision and development strategy for the area between 2014-2031.

2.7.2 The Swale Borough Local Plan identifies numerous core objectives, including:

"…11. Improve prosperity and environmental quality with efficient and sustainable transport networks.

12. Ensure timely delivery of the services and infrastructure to support strong communities".

2.7.3 A further place-based objective regarding Sittingbourne is to:

"Re-establish Sittingbourne as the principal town with investment in retail, leisure, culture and community services and further education, within new and improved green spaces and streets."

2.7.4 Policy ST5 sets out 'The Sittingbourne Area Strategy'. A key aim is:

"…providing a wider range of services, including transport, education, health, leisure and cultural facilities;"

2.7.5 Policy CP2 identifies the need for sustainable development and, specifically, in respect to transport:

"…1. Contribute to transport network improvements, where capacity is exceeded and or safety standards are unacceptably compromised, with particular emphasis on those identified in the Infrastructure Delivery Schedule;

2. Make best use of capacity in the network by working together with transport providers to improve the transport network in the most sustainable way, and extending it where

necessary, as demonstrated by Transport Assessments and Travel Plans in support of development proposals;

3. Support the provision of major new transport infrastructure in accordance with national and local transport strategies;

4. Maintain and improve the highway network at key points to improve traffic flows and respond to the impact of new development and regeneration, as set out in the Local Transport Strategy;

5. Improve safety, through measures such as adequate parking, lighting and traffic management schemes;

6. Achieve alternative access to all services through promoting access to sustainable forms of transport particularly bus, cycling and rail transport and improving interchange between them from the earliest stages of development;

7. Provide integrated walking and cycling routes to link existing and new communities with local services and facilities, public transport and the Green Grid network; and

8. Facilitate greater use of waterways for commercial traffic, where this would not have an unacceptable adverse environmental impact, through working with the Port of Sheerness and other bodies."

2.7.6 Policy DM6 outlines the management of transport demand and impact. It states:

"1. Development proposals generating a significant amount of transport movements will be required to support their proposal with the preparation of a Transport Assessment (including a Travel Plan), which will be based on the Council's most recent strategic modelling work. The Highways Agency may also require a Transport Assessment if development is deemed to impact on the strategic road network.

2. In assessing impacts on the highway network, development proposals will:

a. demonstrate that opportunities for sustainable transport modes have been taken up;

b. ensure that where the residual cumulative impact of development on traffic generation would be in excess of the capacity of the highway network and/or lead to a decrease in safety, environmentally acceptable improvements to the network are agreed by the Borough Council and the Highway Authority and provided. Such works will be carried out by the developer or a contribution made towards them in accordance with Policy CP 6. If

such works cannot be carried out and the residual cumulative impacts of development are severe, then the development will be refused.

c. *avoid the formation of a new direct access onto the strategic or primary distributor route network where possible, or unless identified by the Local Plan. Other proposals for new access onto the networks will need to demonstrate that they can be created in a location acceptable to the Borough Council and appropriate Highway Authority. Proposals involving intensification of any existing access onto a strategic, primary or other route will need to demonstrate that it is of a suitable capacity and safety standard or can be improved to achieve such a standard;*

d. *integrate air quality management and environmental quality into the location and design of, and access to, development and, in so doing, demonstrate that proposals do not worsen air quality to an unacceptable degree especially taking into account the cumulative impact of development schemes within or likely to impact on Air Quality Management Areas; and*

e. *not result in the loss of usable wharfage or rail facilities.*

3. The location, design and layout of development proposals will demonstrate that:

a. *priority is given to the needs of pedestrians and cyclists, including the disabled, through the provision of safe routes which minimise cyclist/pedestrian and traffic conflict within the site and which connect to local services and facilities;*

b. existing public rights of way are retained, or exceptionally diverted, and new routes created in appropriate locations;

c. access to public transport is integrated into site design and layout where appropriate;

d. the safe and efficient delivery of goods and supplies and access for emergency and utility vehicles can be accommodated; and

e. it includes facilities for charging plug-in and other ultra low emission vehicles on major developments."

2.8 KCC Local Transport Plan 4 (2014-2031)

2.8.1 The Local Transport Plan (LTP4) explains how Kent County Council will work towards their transport vision over the coming years. The plan builds on the success of the previous LTP3 (2011-

2016) and incorporates the strategic priorities from Growth without Gridlock (2010), Kent's transport delivery plan.

2.8.2 The LTP4 states the 'Outcomes for Transport', and says that the ambition for Kent is:

"To deliver safe and effective transport, ensuring that all Kent's communities and businesses benefit, the environment is enhanced and economic growth is supported."

2.8.3 The LTP4 states that this ambition will be realised through five overarching policies which align with the vision in' Increasing Opportunities, Improving Outcomes: KCC's Strategic Statement 2015-2020'. The five 'Outcomes for Transport' and their policies are as follows:

- *'Outcome 1: Economic growth and minimised congestion,*
  Policy: Deliver resilient transport infrastructure and schemes that reduce congestion and improve journey time reliability to enable economic growth and appropriate development, meeting demand from a growing population,

- *Outcome 2: Affordable and accessible door-to-door journeys,*
  Policy: Promote affordable, accessible and connected transport to enable access for all to jobs, education, health and other services,

- *Outcome 3: Safer travel,*
  Policy: Provide a safer road, footway and cycleway network to reduce the likelihood of casualties, and encourage other transport providers to improve safety on their networks,

- *Outcome 4: Enhanced environment,*
  Policy: Deliver schemes to reduce the environmental footprint of transport, and enhance the historic and natural environment,

- *Outcome 5: Better health and wellbeing,*
  Policy: Provide and promote active travel choices for all members of the community to encourage good health and wellbeing, and implement measures to improve local air quality.'

2.8.4 The underlying theme of the LTP is to promote policies and measures to foster and achieve improved opportunities for travel choices by non-car modes. This provides the context for specific local measures to be considered, promoted and introduced.

2.9 Principles of the Access Strategy

2.9.1 The access strategy for the development provides the means to achieve the identified policy objectives by optimising the opportunity for access to/from the Site by non-car modes. This is in accordance with all local and national policies.

2.9.2 The accessibility of the Site for those travelling on foot and cycle is reviewed in Chapter 5, and takes account of the existing and proposed facilities. The current accessibility of the Site by public transport is outlined in Chapter 6 herein, together with the development proposals for public transport. The proposed development takes account of the needs of the mobility impaired.

2.9.3 The Access Strategy for the development is cohesive, reflecting the need to appropriately consider and enable provision for the movement of people and goods. This is in accordance with the aims and spirit of NPPF. This includes considering, inter alia:

- Permeability of the Site from/connection to the surrounding locality, for all modes of transport, motorised and non-motorised,
- Internal access arrangements, all to be the subject of reserved matters application(s), should minimise distance travelled by all modes (where appropriate),
- Emergency access requirements must be met.

2.9.4 The development proposals adopt an integrated approach to managing travel demand, offering safe and sustainable access for all by a choice of sustainable transport alternatives, between homes and employment and a range of services and facilities, such as retail, health, education, and leisure.

2.10 Summary

2.10.1 In summary, the development proposal respects and promotes the principles of transport sustainability, and is consistent with national and local transport policy objectives.

3 Highway Network

3.1 The location of the Site is indicated on Figure 1.1 in the context of the local highway network.

3.2 The Site has frontage on Swanstree Avenue, which is public highway.

3.3 Swanstree Avenue

3.3.1 Swanstree Avenue is a single carriageway road which is 5.5m wide in the vicinity of the Site. There is a 2.5m shared footway/cycleway on the north side of Swanstree Avenue. The south (Site) side of Swanstree Avenue has a grass verge.

3.3.2 The Swanstree Avenue Site frontage is within a 30mph speed limit zone. There are cushions on the carriageway at regular intervals along Swanstree Avenue to control speeds. Swanstree Avenue benefits from street lighting.

3.4 Study Network

3.4.1 The original TA report (1464/5/B) included the following TA study network of junctions:

REF	JUNCTION	CONTROL
SJ1	Site Access/Swanstree Avenue	refer Chapter 4,
SJ2	Rectory Road/Swanstree Avenue	Priority control,
SJ3	Rectory Road/A2 Canterbury Road/Murston Road	Traffic signals,
SJ4	Swanstree Avenue/A2 Canterbury Road/Vincent Road	Traffic signals,
SJ5	Highsted Road/Swanstree Avenue	Priority control,
SJ6	Brenchley Road/Bell Road/Capel Road	Traffic signals.

3.4.2 KCC Consultation Response 3 February 2022

3.4.2.1 KCC highways officers require two junctions to be added to the TA study network. These are:

REF	JUNCTION	CONTROL
SJ7	Bell Road/Woodstock Road/Park Avenue/Gore Court Road	Mini-roundabout,
SJ8	Bell Road/Avenue of Remembrance/Stanhope Avenue	Traffic signals.

3.4.2.2 It is assumed that the expanded TA study network, comprising SJ1-SJ8, is now **agreed** with KCC. The revised TA study junction network (SJ1-SJ8) is shown on Figure 3.1. The local highway authority KCC is responsible for all of the TA study junctions.

3.5 Existing Junction Geometry

3.5.1 The existing study network junctions are presented on the following drawings:

REF	JUNCTION	DRAWING
SJ2	Rectory Road/Swanstree Avenue	1464/03,
SJ3	Rectory Road/A2 Canterbury Road/Murston Road	1464/10,
SJ4	Swanstree Avenue/A2 Canterbury Road/Vincent Road	1464/09,
SJ5	Highsted Road/Swanstree Avenue	1464/04,
SJ6	Brenchley Road/Bell Road/Capel Road	1464/05.
SJ7	Bell Road/Woodstock Road/Park Avenue/Gore Court Road	1464/19,
SJ8	Bell Road/Avenue of Remembrance/Stanhope Avenue	1464/07.

3.5.2 SJ2: Rectory Road/Swanstree Avenue

3.5.2.1 Rectory Road forms a priority controlled 'T' junction with Swanstree Avenue to the north-east of the Site. Rectory Road forms the minor arm of the junction. The existing junction arrangements are presented on Drg No 1464/03.

3.5.2.2 The junction is subject to a 30mph speed limit and is located within a residential area. There are speed cushions on Swanstree Avenue in the vicinity of the junction.

3.5.2.3 There is footway on all sides of the junction. There is a pedestrian refuge, with dropped kerbs and tactile paving, on Swanstree Avenue immediately to the west of Rectory Road. There is an existing bus stop on the south side of Swanstree Avenue and the junction benefits from street lighting.

3.5.3 SJ3: Rectory Road/A2 Canterbury Road/Murston Road

3.5.3.1 SJ3 is a traffic signal-controlled crossroads junction located about 560m north of SJ2. The existing SJ3 arrangements are shown on Drg No 1464/10.

3.5.3.2 Murston Road is a single carriageway road and forms the northern arm of the junction. A2 Canterbury Road forms the eastern and western arms of the junction; Rectory Road forms the southern arm of the junction. A2 Canterbury Road is a single carriageway road which flares to form a two lane entry on the eastern arm and a three lane entry on the western arm at the traffic signals. The eastern arm of the junction has a right turn lane for movements into Murston Road. The western arm of the junction has a right turn lane for movements into Rectory Road. Rectory Road is a single carriageway road which flares to form two lane entry at the junction. There is a left turn lane from Rectory Road into the western arm of A2 Canterbury Road.

3.5.3.3 On the western arm of the A2 Canterbury Road, there is a bus stop lay-by circa 60m west of the junction. There is also an existing bus stop on the north side of the eastern arm of the junction. There are warnings of vehicle width restrictions half a mile on Murston Road, north of SJ3.

3.5.3.4 There is footway on all sides of SJ3. There is a staggered pedestrian refuge on the Canterbury Road (W) approach and push-button crossing assistance is available. There is a pedestrian crossing on Rectory Road, with dropped kerbs and tactile paving. The junction benefits from street lighting.

3.5.3.5 Two improvement schemes have been identified for SJ3. These are:

(i) Mitigation scheme associated with planning application ref 16/507689/OUT (Land at Teynham, Kent), and

(ii) Local Plan Improvement Scheme, which is a long-term solution to resolve expected capacity restraints.

It is understood that KCC would like to deliver the Local Plan scheme. However, the mitigation scheme (for the Teynham development) may be implemented if the long-term solution cannot be delivered in the Local Plan timeframe.

3.5.3.6 The mitigation scheme for SJ3 comprises:

(i) Implement MOVA system,
(ii) Widen Rectory Road to provide and extended flare of approximately 20m.

3.5.4 SJ4: Swanstree Avenue/A2 Canterbury Road/Vincent Road

3.5.4.1 SJ4 is a traffic signal-controlled crossroads junction located about 450m east of SJ3. The existing SJ4 arrangements are shown on Drg No 1464/09.

3.5.4.2 Vincent Road and Swanstree Avenue are single carriageway roads, forming the northern and southern arms of the junction. A2 Canterbury Road is a single carriageway road which flares to form a two-lane entry at the traffic signals on the eastern and western arms of the junction. There is a right turn lane on the eastern arm of the junction for movements into Vincent Road. On the western arm of the junction, there is a right turn lane for movements into Swanstree Avenue.

3.5.4.3 There is footway on all sides of the junction. There are staggered pedestrian refuges on the A2 Canterbury Road approaches and push-button crossing assistance is available on A2

Canterbury Road (E). There is a pedestrian refuge on Swanstree Avenue, with dropped kerbs and tactile paving. Vincent Road also benefits from dropped kerbs and tactile paving. The junction benefits from street lighting.

3.5.4.4 Two additional improvement schemes have been identified for SJ4. These are:

(i) Mitigation scheme associated with planning application ref 16/507689/OUT (Land at Teynham, Kent), and

(ii) Local Plan Improvement Scheme, which is a long-term solution to resolve expected capacity restraints.

It is understood that KCC would like to deliver the Local Plan scheme. However, the mitigation scheme (for the Teynham development) may be implemented if the long-term solution cannot be delivered in the Local Plan timeframe.

3.5.4.5 The mitigation scheme for SJ4 comprises:

(i) Reinstall MOVA system,
(ii) Provide 3 lanes on A2(E) approach arm,
(iii) Provide 2 lane exit on A2(W) arm,
(iv) Reduce existing 2 lane exit to 1 lane on A2(E) exit arm,
(v) Relocate central pedestrian island on A2(E) slightly to the north.

3.5.5 SJ5: Highsted Road/Swanstree Avenue

3.5.5.1 SJ5 is a priority-controlled junction and is located near to the north-west corner of the Site. The existing arrangements are presented on Drg No 1464/04.

3.5.5.2 Highsted Road forms the minor arm of the junction and gives way to traffic on Swanstree Avenue. Right turn movements from Swanstree Avenue to Highsted Road are not permitted and an island on Swanstree Avenue physically prevents this turn. The junction is located within a 30mph speed limit and speed cushions are present on Swanstree Avenue in the vicinity of the junction to control speeds.

3.5.5.3 There is shared footway/cycleway on the north side of Swanstree Avenue. There is a pedestrian refuge on Highsted Road with dropped kerbs and tactile paving. The junction benefits from street lighting.

3.5.6 SJ6: Brenchley Road/Bell Road/Capel Road

3.5.6.1 SJ6 is a traffic signal-controlled crossroads junction located about 570m west of SJ5. The existing SJ6 arrangements are shown on Drg No 1464/05.

3.5.6.2 Brenchley Road is a single carriageway road which flares to form a two lane entry at the traffic signals. Brenchley Road forms the eastern arm of the junction. Capel Road is a single carriageway road which forms the western arm of the junction. Bell Lane forms the northern and southern arms of the junction and comprises two lane entry on both arms at the traffic signals. There is a left turn lane on Brenchley Road for movements into the southern arm of Bell Lane. There is a right turn lane from the southern arm of Bell Lane into Brenchley Road and a left turn lane from the northern arm of Bell Lane into Brenchley Road.

3.5.6.3 There is footway on all sides of the junction. All approach arms include a pedestrian refuge at the junction and offer pedestrian crossing assistance (ie push button). There is shared footway/ cycleway on the north side of Brenchley Road and Capel Road. The junction benefits from street lighting.

3.5.7 SJ7: Bell Road/Woodstock Road/Park Avenue/Gore Court Road

3.5.7.1 SJ7 is a mini-roundabout junction located about 450m south-west of SJ6. The existing SJ7 arrangements are shown on Drg No 1464/19.

3.5.7.2 All four approaches to the mini-roundabout comprise a single lane with entry to the junction controlled by give-way markings.

3.5.7.3 There is footway around all of the junction and crossing assistance is provided at:

(i) Bell Road: Pedestrian island with dropped kerbs and tactile paving,
(ii) Woodstock Road: Dropped kerbs and tactile paving,
(iii) Park Avenue: Dropped kerbs and tactile paving,
(iv) Gore Court Road: Pedestrian island with dropped kerbs and tactile paving.

3.5.7.4 The junction benefits from street lighting.

3.5.8 SJ8: Bell Road/Avenue of Remembrance/Stanhope Avenue

3.5.8.1 S8 is a traffic signal controlled staggered crossroads junction located about 185m north-east of SJ6. The existing SJ8 arrangements are shown on Drg No 1464/07.

3.5.8.2 The Stanhope Avenue and Bell Road approaches to the junction are marked with a single lane. The Avenue of Remembrance approach is marked with two lanes.

3.5.8.3 There is footway on all sides of the junction. There are pedestrian refuges on the Bell Road and Avenue of Remembrance approaches, although push-button crossing assistance is not available. The junction benefits from street lighting.

3.6 Accident History

3.6.1 The latest five-year accident records for the TA study junctions as well as the Site frontage has been purchased from Kent County Council (KCC). The data covers:

(i) SJ1-SJ6: 01.10.15 – 30.09.20, and
(ii) SJ7 and SJ8: 01.10.16 – 30.09.21.

A plan of the reported accidents is included in Appendix A.

3.6.2 Distribution of Accidents

3.6.2.1 A summary of the KCC accident data for SJ1-SJ6 is set out below:

	2015 (from 01/10)	2016	2017	2018	2019	2020 (to 30/09)	**TOTAL**
Swanstree Ave (SJ1)	-	-	-	-	-	-	**0**
SJ2	-	-	0	-	-	-	**0**
SJ3	-	1	2	-	3	-	**6**
SJ4	-	1	1	-	1	-	**3**
SJ5	-	-	-	-	1	-	**1**
SJ6	1	3	-	1	-	-	**5**
TOTAL	**1**	**5**	**3**	**1**	**5**	**0**	**15**

3.6.2.2 A summary of the KCC accident data for SJ7 and SJ8 is set out below:

	2016 (from 01/10)	2017	2018	2019	2020	2021 (to 30/09)	**TOTAL**
SJ7	-	1	1	-	-	1	**3**
SJ8	-	1	1	-	-	1	**3**
TOTAL	**0**	**2**	**2**	**0**	**0**	**2**	**6**

3.6.3 Severity

3.6.3.1 The severity of the recorded accidents is set out below:

	Slight	Serious	Fatal	**TOTAL**
Swanstree Avenue (near SJ1)	-	-	-	**0**
SJ2	0	-	-	**0**
SJ3	5	1	-	**6**
SJ4	3	-	-	**3**
SJ5	1	-	-	**1**
SJ6	3	2	-	**5**
SJ7	3	-	-	**3**
SJ8	2	1	-	**3**
TOTAL	**17**	**4**	**0**	**21**

3.6.3.2 The overwhelming majority of accidents are classified as slight injury accidents. There has been a total of 3no. serious accidents in the selected five-year period.

3.6.3.3 There have been no recorded accidents along the Swanstree Avenue Site frontage. SJ3 and SJ6 have had 5 or more accidents in the latest five-year period. All other junctions have had 3 or fewer accidents.

3.6.4 SJ3: Rectory Road/A2 Canterbury Road/Murston Road

3.6.4.1 There have been a total of 6 accidents recorded in the five-year selection period at SJ3. The majority of these accidents are classified as slight. However, one accident was classified as serious.

3.6.4.2 The accident type/ frequency of the accidents at SJ3 is as follows:

TYPE	**FREQUENCY**
Rear End Shunt/ Collision	4
Pedestrian	2.

3.6.4.3 There are four accidents that involve a rear end shunt/collision. The descriptions of each accident involving a rear end shunt/collision is as follows:

(i) Car 1 turning right into Rectory Road and car 2 travelling north-west on A2 Canterbury Road. Car 1 turned right on a red signal as car 2 travelled through a green signal and collision occurred.

(ii) Car 1 travelling along A2 Canterbury Road went through a red light and struck the offside of car 2, travelling south on Murston Road

(iii) Car 2, travelling south on A2 Canterbury Road was stationary at the traffic lights when it was hit from behind from car 1.

(iv) Car 2, travelling south on A2 Canterbury Road was stationary at the traffic lights when it was hit from behind from car 1. Car 2 then went into the rear of car 3.

3.6.4.4 Review of this data shows these accidents occurred due to driver red light violation or misjudgement. There is no regular occurrence of a particular accident type that raises concern. Consequently, a scheme of mitigation is not required or justified.

3.6.5 SJ6: Brenchley Road/Bell Road/Capel Road

3.6.5.1 There have been 5 recorded accidents within the five-year selection period at SJ6. Three of these accidents were recorded as slight and two of these accidents were recorded as serious.

3.6.5.2 The recorded accident descriptions at SJ6 are listed below:

(i) Cyclist collided with an opened car door,
(ii) Goods vehicle collided with a car which had disobeyed a red light,
(iii) Car drove through a red light and passed over a pedestrian's foot,
(iv) Car collided with a pedestrian who was walking across the pelican crossing,
(v) Cyclist turned into the path of an overtaking vehicle.

3.6.5.3 Review of this data shows that there is no regular occurrence of a particular accident type that raises concern. Consequently, a scheme of mitigation is not required or justified.

3.6.6 Summary

3.6.6.1 A review of the accident data shows there are **no** accidents recorded along the Site frontage. Whilst all accidents are regrettable, there is **no** accident pattern that raises concern or that gives rise to the need for accident remediation measures.

4 Proposed Site Access Arrangements

4.1 Design Philosophy

4.1.1 It is accepted that the way a new residential scheme relates to its surrounding area is key to its success. Guidance on the design of residential developments is set out in documents such Manual for Streets (MfS). This advocates that residential design should:

- Be based on a hierarchical design process placing pedestrians at the top.
- Recognise that streets fulfil a community function with spaces for social interaction.
- Create an inclusive environment that recognises the needs of all ages and abilities.
- Focus on pedestrian desire lines.
- Create a permeable network of streets with strong connectivity to a range of routes.

4.1.2 The starting point of a new residential scheme is to first identify the existing places/amenities near to the site and their relative importance. Then, from this, form an understanding of how an area works to enable proposed points of connection and linkage to be identified, both within and outside the site, so that important desire lines are achieved. MfS recognises that:

- A permeable and well-connected movement network can positively affect how much people walk or cycle or use public transport which helps to achieve a sustainable environment and good quality of life for its community,

- A good range of local amenities within easy access of residents can help to create a walkable neighbourhood, and

- Walking and cycling are important modes of travel, offering a more sustainable alternative to the car, making a positive contribution to the overall character of the place, public health and to tackle climate change through carbon emissions reductions.

4.1.3 MfS advocates residential design that creates walkable neighbourhoods. MfS sets out in para 4.4.1 that:

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2km. MfS encourages a reduction in the need to travel by car through the creation of mixed-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance of most residents."

4.1.4 A holistic approach to the Site access arrangements is at the core of the development Site access strategy. Thus, there is a cohesive 'package' of development access arrangements for differing modes of travel, comprising, walk, cycle, bus and motor vehicles. Further information about walk and cycle modes is presented in Chapter 5, and about public transport in Chapter 6.

4.2 Site Access Strategy

4.2.1 The planning application seeks outline consent with all matters reserved, except access. This TA considers access for vehicles, cyclists and pedestrians from Swanstree Avenue.

4.3 Design Considerations

4.3.1 National Design Guidance

4.3.1.1 The design guidance considered includes Manual for Streets 1 (MfS1), MfS2 and the Design Manual for Roads and Bridges (DMRB).

4.3.1.2 MfS2 states that:

"…*most MfS advice can be applied to a highway regardless of speed limit.* ***It is therefore recommended that as a starting point for any scheme affecting non-trunk roads, designers should start with MfS.***" (para 1.3.2)

Swanstree Avenue is not a trunk road.

4.3.1.3 MfS continues in para 1.3.3:

"Where designers do refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban and non-trunk roads, it is recommended that they ***bear in mind the key principles of MfS****, and apply DMRB in a way that* ***respects local context****. It is further recommended that DMRB or other standards and guidance is* ***only used*** *when the guidance contained in MfS is not sufficient or where particular evidence leads a designer to conclude that MfS is not applicable."*

4.4 Site Access Arrangements

4.4.1 The proposed Site Access arrangements on Swanstree Avenue are shown on Drg No 1464/18/C.

4.4.2 The key features of the proposed Drg No 1464/18/C Site Access/Swanstree Avenue arrangements, and associated highway works, include:

(i) Introduce a new 5.5m wide Site access, forming a 'T' junction with Swanstree Avenue;
(ii) Junction to operate under priority control;
(iii) Introduce 1.8m footway on the easts side of the proposed Site access and a 2.5m shared footway/cycleway on the west side of the Site access;
(iv) Introduce dropped kerbs and tactile paving on Swanstree Avenue to the west of the proposed Site access , Highsted Road and at the 2no locations where public footpath (PROW ZU31) meets Swanstree Avenue;
(v) Retain existing speed cushions on Swanstree Avenue;
(vi) Introduce 1.8m wide footway behind existing hedgerow, providing a connection between the proposed Site access and PROW ZU31;
(vii) Introduce 2.5m wide shared footway/cycleway on the south side of Swanstree Avenue to form a connection with Highsted Road (S), The shared footway/cycleway is widened to 3.0m coincident with a retaining wall in the vicinity of Highsted Road,
(viii) Provide 2.4m x 94m visibility splay to the left, for vehicles emerging from the Site access;
(ix) Provide 2.4m x 95m visibility splay to the right, for vehicles emerging from the Site access.

4.4.3 Speed and Visibility Requirements

4.4.3.1 There is a 30mph speed limit on Swanstree Avenue.

4.4.3.2 To assist with the design of the Site access junctions, the applicant commissioned an Automatic Traffic Count (ATC) survey on Swanstree Avenue in the vicinity of the Site. This involved the installation of pneumatic tubes across Swanstree Avenue near the middle of the Site frontage.

4.4.3.3 The survey was undertaken between 14 and 20 March 2021(inclusive) and recorded data over the full 24-hour period of each survey day.

4.4.4 Vehicle Speeds: Average

4.4.4.1 The recorded 7-day average speeds are:

(i) Eastbound = 31.2mph,
(ii) Westbound = 30.9 mph.

4.4.4.2 The ATC survey confirms that average vehicle speeds along Swanstree Avenue, in the vicinity of the application Site, are slightly above the 30mph speed limit.

4.4.5 Vehicle Speeds: 85th Percentile

4.4.5.1 The recorded 7-day 85%le speeds are:

(i) Eastbound = 38.4mph,
(ii) Westbound = 38.5 mph.

4.4.5.2 The Design Speeds are **above** the 37.5mph (60kph) threshold in MfS. Therefore, the design guidance in DMRB is applicable for the Site access junction.

4.4.6 Stopping Sight Distance

4.4.6.1 The visibility standards in DMRB are based on the Stopping Sight Distance (SSD). This is derived from the 85%ile together with assumptions regarding driver perception/ reaction times and rate of deceleration.

4.4.6.2 The SSDs in DMRB assume:

(i) Driver perception/ reaction time: 2 seconds, and
(ii) Deceleration rate: 3.68 m)/s^2 (absolute minimum)
2.45 m)/s^2 (desirable minimum)

4.4.6.3 Based on the **eastbound** Design Speed of 38.4mph for the Site access (17.166m/s), the calculated SSD is:

ADVICE	PERCEPTION/ REACT TIME (s)	DECEL RATE (m/s²)	SSD(m)
DMRB	2	3.68 (absolute min)	74
DMRB	2	2.45 (desirable min)	94.

4.4.6.4 Based on the **westbound** Design Speed of 38.5mph for the Site access (17.211m/s), the calculated SSD is:

ADVICE	PERCEPTION/ REACT TIME (s)	DECEL RATE (m/s²)	SSD(m)
DMRB	2	3.68 (absolute min)	75
DMRB	2	2.45 (desirable min)	95.

4.4.6.5 Drg No 1464/18/C demonstrates that visibility splays, satisfying DMRB standards, are achievable for a vehicle leaving the Site.

4.4.7 Traffic Calming

4.4.7.1 There are existing speed cushions along Swanstree Avenue. The locations are identified on Drg No 1464/18/C. Drg No 1464/18/C demonstrates that the proposed access point is located between a pair of speed cushions. Therefore, it is not anticipated that any modification is required to the existing traffic calming scheme along Swanstree Avenue to facilitate access.

4.4.8 Swept Path Analysis

4.4.8.1 Swept path analysis of the proposed Site access junction has been undertaken to confirm that the proposed junction can accommodate the tracking movements of larger vehicles. For this exercise, vehicles are adopted that might be generated by the proposed development, albeit on an occasional basis. The results for the Site access are set out on the following drawings:

(ii)	9.57m Pan Technicon	1464/SP/10/A,
(ii)	11.22m Large Refuse Vehicle (3 axle)	1464/SP/11/B,
(iii)	8.68m Fire Appliance	1464/SP/12/A.

KCC highways officers confirm (30 March 2022 email) that an 11.22m refuse vehicle is a suitable test vehicle for refuse collections.

4.4.8.2 The swept path analysis shown on Drg Nos 1464/SP/10/A, 11/B and -12/A confirms that all of the 'test' vehicles can complete all turns at the junction.

4.4.9 Stage 1 Road Safety Audit

4.4.9.1 KCC have requested that Stage 1 Road Safety Audit (RSA) is completed of the proposed off-site highways works. Two Stage 1 RSAs have been commissioned as follows:

(i)	Highstead Road (N);	Proposed footway scheme, and
(ii)	Swanstree Avenue and Highsted Road (S):	Proposed Site access and shared footway/cycleway.

The RSAs are included in Appendix H.

4.4.9.2 The RSAs make a number of recommendations and these are all carefully considered in the Designer's Response reports. Where applicable, drawings have been revised to include RSA suggestions.

4.5 Pedestrian Improvements: Swanstree Avenue Connection to Footpath ZU31

4.5.1 The application Site has frontage on Swanstree Avenue extending to about 350m. Although there is a shared footway/cycleway on the north side of Swanstree Avenue there is no pedestrian infrastructure on the south (Site) side of Swanstree Avenue. Drg No 1464/18/C shows the introduction of a 1.8m wide footway within the Site and behind existing hedgerow which will provide a pedestrian connection between the proposed Site access point and the existing public footpath ZU31.

4.5.2 The proposed access arrangements shown on Drg No 1466/18/C also include:

(i) Dropped kerbs and tactile paving on Swanstree Avenue to the west of the Site access,
(ii) Dropped kerbs and tactile paving on Swanstree Avenue at Highsted Road,
(iii) Dropped kerbs and tactile paving on Swanstree Avenue at the connections between the public footpath (ZU31) and Swanstree Avenue.

4.5.3 The proposed package of pedestrian infrastructure works will help to encourage Site residents to undertake local trips to/from the east of the Site on foot. This is in accordance with policies at both local and national level.

4.6 Pedestrian Improvements: Connection to Highsted Road (S) & Snowdrop Walk

4.6.1 The KCC consultation response (refer Appendix F) states:

"Whilst the application has provided dropped kerb crossings this should be placed in the context of the development to the West which benefits from staged crossing via central islands and a Southern footway. There are currently no proposed facilities heading Westwards from the development without having to cross Swanstree Avenue and as such a ***direct connection to Snowdrop Walk with suitable crossing facilities of Highsted Road (South) should be provided****."* (AHA emphasis).

4.6.2 Drg No 1464/21/A shows the introduction of:

(i) Circa 115m of 2.5m wide shared footway/cycleway on the south side of Swanstree Avenue between the proposed Site access and Highted Road (S). The shared footway/cycleway is widened to 3.0m coincident with a retaining wall in the vicinity of Highsted Road,
(ii) Circa 35m of 2.5m wide shared footway/cycleway on the east side of Highsted Road (S),
(iii) Crossing location on Highsted Road (S) with dropped kerbs and tactile paving,
(iv) Circa 20m of 2.5m wide shared footway/cycleway on the west side of Highsted Road.

The scheme terminates on Highsted Road (S) at a point where there is an existing informal 'path' between Highsted Road (S) and Snowdrop Walk, The KCC highway adoption plan shows that this is not part of the adopted highway network. KCC officers have confirmed that:

"As the demand is clear even without this application an internal link within the site to connect to the muddy path below would be required. As its external we would be seeking a nominal contribution that we could match fund for that short path and assist a Highway Authority led project."

4.6.3 The applicant is concerned that the contribution requested by KCC may not be CIL compliant as there is no guarantee of implementing the 'short path'. The applicant feels that works shown on Drg No 1464/21/A (about 170m of shared footway/cycleway) represent a strong commitment to connect the proposed development with the existing Eden Village and will also deliver benefits for the wider community. This has been discussed with KCC and the applicant has agreed with KCC that their commitment is restricted to those the works shown on Drg No 1464/21/A.

4.6.4 Stage 1 Road Safety Audit

4.6.4.1 The applicant commissioned a Stage 1 RSA of the works proposed along Swanstree Avenue and Highsted Road (S). The Stage 1 RSA report is included in Appendix H. This identifies 6 concerns and offers recommendations to overcome the issues. The Designer's Response report (also in Appendix H) carefully considers each of the RSA recommendations. Where appropriate, the proposed works have been revised to take on board the RSA recommendation. The resultant works are shown on Drg Nos 1464/18/C and 1464/21/A.

4.5 Pedestrian Improvement Scheme: Highsted Road (N)

4.5.1 KCC Consultation Response

4.5.1.1 The KCC consultation response (refer Appendix F) states that:

"It is considered that the most direct route to local services and amenities would however be via Highsted Road, an approximate 15–17 minute walk. ***This route has an incomplete footway and it is recommended that local and national policy would indicate that the likely demand generated for walking from this development would necessitate mitigation that removes the need to walk on the vehicular carriageway.*** *The Highway Authority maybe able to provide some detail on potential design options for this."* (AHA emphasis).

4.5.2 Development Generated Walk Trips

4.5.2.1 The KCC consultation response to refers to 'the likely demand generated from walking from this development.' A multimodal TRICS interrogation has been undertaken to estimate the level of pedestrian movements that the proposed development could generate. The TRICS interrogation is included in Appendix G.

4.5.2.2 The pedestrian trip rates and consequent estimate of pedestrian generated trips are presented below:

PEAK	ARR	DEP	2-WAY
AM	0.036	0.117	0.153
PM	0.065	0.024	0.089

PEAK	ARR	DEP	2-WAY
AM	5	16	21
PM	9	3	12

4.5.2.3 The proposed development could generate circa 21 pedestrian movements in the AM peak hour. The desire line of pedestrians can vary dependent on journey purpose and there are a range of routes that pedestrians might use. An assumption that 25-50% of development residents would elect to use Highsted Road (N) would seem a reasonable approach to distributing pedestrian trips. Based on this approach, the proposed development may generate circa 5-10 two-way pedestrian journeys along Highsted Road (N) in the AM peak hour. This would represent 1 pedestrian trip every 6-12 minutes on average. This would not represent a significant intensification of this route and would not represent a material impact.

4.5.2.4 Notwithstanding the above, and in response to KCC comments, the applicant has investigated the potential of introducing footway along Highsted Road (N).

4.5.3 Existing Situation

4.5.3.1 To form a clear understanding of the current use of Highsted Road, between Swanstree Avenue and Farm Close, the applicant commissioned:

(i) Topographical survey,
(ii) Automatic Traffic Count (ATC) to collect vehicular flows, speeds and classifications, and
(iii) Video survey to record pedestrian movements for different age categories.

4.5.3.2 The surveys were undertaken as follows:

(i) ATC: Tuesday 15 – Monday 21 March 2022 (ie 7 days), and
(iii) Video Survey: Thursday 10 – Saturday 12 March 2022 (inclusive).

4.5.3.3 The ATC recorded the following traffic flows:

(i)	Midweek (Average):	0800-0900 (AM peak hour)	Southbound = 143 vehs, Northbound = 147 vehs,
		1500-1600 (PM peak hour)	Southbound = 145 vehs, Northbound = 113 vehs,
		0700-1900	Southbound = 1175 vehs, Northbound = 838 vehs.
(ii)	Saturday:	1000-1100 (Saturday peak hour)	Southbound = 87 vehs, Northbound = 87 vehs,
		0700-1900:	Southbound = 911 vehs, Northbound = 708 vehs.

4.5.3.4 A review of the ATC data confirms:

(i)	Average (7-day) recorded speeds:	Southbound 25.7mph, Northbound 25.4mph.
(ii)	85%le (7-day) recorded speeds:	Southbound 30.1mph, Northbound 28.3mph.

The survey confirms that about **90%** of the recorded speeds are below the 30mph speed limit.

4.5.3.5 The ATC survey confirms that **95%** of vehicle movements comprise cars and light goods vehicles.

4.5.3.6 The video survey confirms that existing pedestrian movements along Highsted Road are:

(i)	Thu/Fri pedestrian flow (Average):	0800-0900: (AM peak)	Southbound = 52 peds, Northbound = 25 peds,
		1500-1600: (PM peak)	Southbound = 20 peds, Northbound = 52 peds,
		0700-1900:	Southbound = 121 peds,

			Northbound = 126 peds.
(ii)	Saturday pedestrian flow:	1100-1200 (Saturday Peak)	Southbound = 20 peds, Northbound = 5 peds,
		0700-1900:	Southbound = 78 peds, Northbound = 66 peds.

4.5.3.7 The pedestrian survey includes the following age classifications:

(i) Under 16 years,
(ii) 16-65 years,
(iii) >65 years, and
(iv) Mobility Impaired.

4.5.3.8 The video survey shows that the pedestrian classifications between 0700-0900 hours are:

AGE GROUP	**THU 10**	**FRI 11**	**SAT 12**
Under 16 years	91 (31.7%)	89 (43.2%)	10 (6.9%)
16-65 years	195 (67.9%)	114 (55.3%)	134 (93.1%)
>65 years	0 (0%)	0 (0%)	0 (0%)
Mobility Impaired	1 (0.4%)	3 (1.5%)	0 (0%)
TOTAL	**287**	**206**	**144**

4.5.3.9 It is clear that during the week, just over a third of pedestrian movements along Highsted Road between 0700-1900 are school children. Over 85% of school children walking trips take place during 0800-0900 and 1500-1600, which coincide with school start and finish times.

4.5.3.10 The video survey confirms that the most walking trips (around two-thirds) are completed by pedestrians in the age group 16-65 years. There were very few recorded trips by those over 65 years or with mobility impairment.

4.5.3.11 Pedestrian movements on Saturday are lower than during the week, which is almost fully attributable to there being very few school children movements.

4.5.4 Improvement Scheme

4.5.4.1 The proposed footway scheme is shown on Drg No 1464/20. This shows:

(i) Circa 120m of 1.2m wide footway introduced on the west side of Highsted Road from Swanstree Avenue to the proposed crossing point,

(ii) Crossing location with dropped kerbs and tactile paving,
(iii) Circa 55m of 1.2m footway on the east side of Highsted Road between the proposed crossing point and Farm Crescent,
(iv) Kerbed build-outs to the north and south of the proposed crossing location. Maintain 3.75m carriageway width at the build-outs to accommodate emergency vehicles,
(v) Priority give-way working at the kerbed build-outs to help control vehicles speeds along Highsted Road (N).

4.5.5 Footway Width

4.5.5.1 There is practical difficulty in providing a physical footway along Highsted Road (N). The KCC highways adoption plan shows that the verge on the west of the road between the carriageway and the school fence is adopted highway. KCC highways officers have also confirmed this by email. This verge varies in width being 1.0-1.4m wide to the south of the school field access (gate). To the north of the gate, the verge is 0.75-0.95m wide.

4.5.5.2 The KCC highway adoption plan shows that there is a strip of land to the east of the carriageway. There are existing lighting columns located in the grass verge along the east side of Highsted Road (N). These are between 1.1 and 1.3m from the carriageway edge. On the basis that it would be unusual for KCC equipment to be placed in private land, KCC highways officers have confirmed that a reasonable interpretation of KCC extent of highway adoption would be to take an offset line connected by the lighting columns.

4.5.5.3 The existing Highsted Road carriageway is 4.8-5.4m wide but is typically about 5.1m wide.

4.5.5.4 It is not possible to significantly reduce the carriageway unless one-way working is to be introduced. This would require a Traffic Regulation Order (TRO) and KCC highways officers have confirmed that such a TRO is unlikely to be successful. Therefore, a footway scheme can only be implemented using the existing grass verges, with small scale local reduction in carriageway. Given the available extent of adopted highway, it is not possible to implement a footway scheme with a width greater than 1.2m.

4.5.5.5 Figure 6.8 in MfS shows the level of pedestrian movement that can be accommodated by different types of footway group. Figure 6.8 confirms that:

(i)	single person (with walking stick):	needs a minimum of 0.75m,
(ii)	Wheelchair user:	needs a minimum of 0.9m,
(iii)	Parent and child walking side-by-side:	need a minimum of 1.2m, and
(iv)	Two adults side-by-side (one pushing a pram):	need a minimum of 1.5m.

4.5.5.6 The physical footway proposed on Highsted Road (N) is able to accommodate three of the four user groups shown in MfS Figure 6.8. Given that there is no formal provision for pedestrians at present, the improvement scheme represents a significant local walking enhancement.

4.5.7 Vehicle Speeds and Visibility

4.5.7.1 The ATC confirms that existing average vehicle speeds are just over 25mph in both directions of travel and 90% of motorists adhere to the 30mph speed limit. The proposed scheme includes the introduction of kerbed build-outs at two locations on Highsted Road (N). The southernmost build-out will help control the speeds of northbound vehicles. The northernmost build-out will control southbound vehicle speeds. The build-outs will also naturally deflect vehicles away from the footway thereby creating a greater separation between pedestrians and vehicles.

4.5.7.2 Drg No1464/20 shows forward sightlines between approaching and stationary vehicles (at the kerbed build-outs) and pedestrians waiting at the crossing. Sightlines of 33m are shown which are applicable to a design speed of 25mph. This is a reasonable assumption given the recorded speeds and speed control features to be introduced as part of the scheme. Drg No 1464/20 shows that all forward sightlines are achievable.

4.5.8 Stage 1 Road Safety Audit

4.5.8.1 The applicant commissioned a Stage 1 RSA of the works proposed along Road (N). The Stage 1 RSA report is included in Appendix H. The RSA raises only a single concern relating to vegetation in the adjoining school. The Designer's Response report (also in Appendix H) considers the single concern and sets out the mitigation.

4.5.9 Delivery

4.5.9.1 KCC highways officers have confirmed that the proposed footway scheme on Highsted Road (N) is to be secured by financial contribution in the S106 agreement. The scheme has been costed by KCC and contribution of £182,434 is agreed with the applicant.

4.5.10 Summary

4.5.10.1 There is no footway at present along Highsted Road (N) between Swanstree Avenue and Farm Crescent. A video survey confirms that pedestrian do use the route with about a third of the trips completed by school children.

4.5.10.2 The proposed development is not predicted to significantly intensify walking movements along Highsted Road (N). Notwithstanding this, the applicant has explored the opportunity for

introducing footway along Highsted Road. There is practical difficulty due to limited adopted highway land being available.

4.5.10.3 A footway scheme is identified and this is shown on Drg No 1464/20. This will create a physical 1.2m footway along Highsted Road (N). The scheme includes measures to control vehicle speeds along Highsted Road. It is considered that the proposed scheme delivers a material improvement for pedestrians and will encourage residents of the proposed development and existing properties in the locale to undertake walk trips. This accords with policy and guidance and local and national level.

4.6 Internal Roads

4.6.1 The internal road layout for the outline application is to be the subject of reserved matters application(s).

4.7 Mobility Impaired

4.7.1 The needs of those with mobility impairment are an important component of the detailed design of the development. This is advocated in NPPF. The detailed design of the internal layout of the development, which must be the subject of reserved matters approval, will describe the facilities to be provided on Site to assist the mobility impaired, taking account of guidance and standards together with good practice and local/national policies.

4.8 Summary

4.8.1 The planning application seeks the determination of access.

4.8.2 The scheme is to be served by a single access point formed on Swanstree Avenue. The access location and geometry are presented on Drg No 1464/18/C.

4.8.3 It is demonstrated that the proposed access point:

(i) Satisfies geometric and visibility requirements;
(ii) Offers appropriate provision for all users, including those with mobility impairment;
(iii) Can accommodate the tracking movements of a range of vehicles.

4.8.4 The development will deliver a significant package of on Site and off-Site pedestrian and cycle infrastructure. Much of this will be available to existing residents and well as those of the proposed development. This represents a significant community benefit attributable to the proposed development.

4.8.5 It is considered that the proposed access strategy is in accordance with guidance at both local and national level.

5 Walk & Cycle

5.1 Walk

5.1.1 It is established and acknowledged that walking is the most important mode of travel at the local level, and offers the greatest potential to replace short car trips, particularly under 2km.

5.1.2 National Travel Survey (2019)

5.1.2.1 The National Travel Survey of 2019 (NTS 2019) confirms that 26% of all trips are undertaken on foot. For trips up to 1 mile (1.6km), over three-quarters of journeys are carried out on foot.

5.1.2.2 The NTS also sets out that, on average, people:

(i) undertake 250 walk trips per year,
(ii) walk a total of 205 miles per year,
(iii) spend 17 minutes walking per trip.

Based on the total walk distance of 205 miles and 250 trips per year, this means that the average walk trip is about 0.8 miles (circa 1.3km).

5.1.3 Manual for Streets

5.1.3.1 The 'walkable neighbourhood' concept is set out in MfS1 and endorsed in MfS2. MfS1 explains that:

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot. However, this is ***not an upper limit*** *and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km."* (MfS para 4.4.1, AHA emphasis)

5.1.4 Walk Isochrones and Local Amenities

5.1.4.1 The CIHT provides guidance about journeys on foot. It does not provide a definitive view of distances, but does suggest a preferred maximum distance of 2000m for walk commuting trips. A 400m distance corresponds to a walk time of 5 minutes, based upon a typical normal walking speed. Figure 5.1 presents the development 400m, 800m, 1200m, 1600m and 2000m walk

isochrones, (ie reflecting 5, 10, 15, 20 and 25-minute walk journeys), and taking account of the pedestrian infrastructure.

5.1.4.2 The walk isochrones presented in Figure 5.1 are created using Basemap TRACC software, a digital mapping and transport data program. The TRACC software enables installation of maps to create a road network. Amendments have been made to the road network to allow for the inclusion of public rights of way and pedestrian access points.

5.1.4.3 The TRACC software adopts the Department for Transport speeds and hence, a walk speed of 4.8km/h is automatically assumed across the road network. However, it is possible to alter the walk speed on all roads to reflect for example, changes in gradient or no accessibility by footway. The walk isochrones presented in Figure 5.1 take into account the absence of footway on certain roads and the walk speed on these routes has been adjusted to 0km/h.

5.1.4.4 Indicated on Figure 5.1 are examples of local facilities near to the Site. Figure 5.1 shows that the following amenities are located within or just beyond an 800m walk of the Site:

- Travel: Bus stops,
- Education: Secondary school,
- Shopping: Convenience store/farm shop.

5.1.4.5 Furthermore, Figure 5.1 shows that the following amenities are located within 1200m walk of the Site:

- Travel: Bus stops,
- Education: Primary school, secondary school, grammar school, nursery,
- Health: Health centre, pharmacy,
- Shopping: Supermarket, convenience store, cash machine,
- Leisure: Food outlets, salon, sports ground/ clubs, playgrounds.

5.1.4.6 Figure 5.1 demonstrates that all of the town centre facilities are within a 1600-2000m (ie 20-25 minute) walk of the Site. There is a large employment area on the north side of Sittingbourne, some of which is within a 25-minute walk of the Site, as shown on Figure 5.1.

5.1.4.7 It is demonstrated that there is a good range of amenities within walking distance of the proposed development.

5.1.5 Public Rights of Way

5.1.5.1 Figure 5.2 presents the existing Public Rights of Way (PROW) near to the Site. Figure 5.2 shows that Footpath no. ZU30, aligned in a north-east direction between Highsted Road and Swanstree Avenue, is located along the eastern boundary of the application Site. To the north of Swanstree Avenue, this footpath is generally of tarmac construction and forms connections with residential roads such as Dalewood, Wadham Place, Nutfields, Gaze Hill Avenue and Rectory Road.

5.1.5.2 Footpath No. ZU31 passes through the north east corner of the application Site. This is aligned in a general north-west direction from the south-east of the Site to Bell Road. This provides a connection to a number of residential roads to the north of Swanstree Avenue. This footpath, together with residential roads, provides a walk route to Highsted Grammar School, Sittingbourne Community Hospital and health centre.

5.1.6 Pedestrian Connectivity & Pedestrian Infrastructure Enhancements

5.1.6.1 The Swanstree Avenue Site frontage is circa 350m long. It is necessary for the development to form several points of pedestrian connection along Swanstree Avenue to avoid overly long walk routes. Drg No 1464/18/C shows that 4no points of connection between the proposed development and Swanstree Avenue will be available together with a 1.8m wide footway behind existing hedgerow on the south side of Swanstree Avenue which will provide a direct pedestrian connection between the Site access point and the existing public footpath ZU31.

5.1.6.2 The proposed access arrangements shown on Drg No 1464/18/C also include:

(i) Dropped kerbs and tactile paving on Swanstree Avenue to the west of the Site access,
(ii) Dropped kerbs and tactile paving on Swanstree Avenue at the junction with Highsted Road,
(iii) Dropped kerbs and tactile paving on Swanstree Avenue at the connections between ZU31 and Swanstree Avenue.

5.1.6.3 On the north side of Swanstree Avenue, there are existing public rights of way that form connections with:

- Peregrine Drive, and
- Dalewood and then onwards to Wadham Place.

These routes are identified on Drg No 1464/18/C and are important for residents of the Site to access amenities to the north.

5.1.6.4 It is demonstrated that the proposed development offers a package of pedestrian infrastructure enhancements. This helps to minimise walk distances between the Site and nearby amenities, thereby offering the best chance of fostering a sustainable community, in accordance with the aims of local policies and national policy in NPPF.

5.1.7 Swanstree Avenue and Highsted Road (S)

5.1.7.1 The KCC consultation response (refer Appendix F) states:

"Whilst the application has provided dropped kerb crossings this should be placed in the context of the development to the West which benefits from staged crossing via central islands and a Southern footway. There are currently no proposed facilities heading Westwards from the development without having to cross Swanstree Avenue and as such a ***direct connection to Snowdrop Walk with suitable crossing facilities of Highsted Road (South) should be provided****."* (AHA emphasis).

5.1.7.2 Drg No 1464/21/A shows the introduction of:

(i) Circa 115m of 2.5m wide shared footway/cycleway on the south side of Swanstree Avenue between the proposed Site access and Highted Road (S). The shared footway/cycleway is widened to 3.0m coincident with a retaining wall in the vicinity of Highsted Road,
(ii) Circa 35m of 2.5m wide shared footway/cycleway on the east side of Highsted Road (S),
(iii) Crossing location on Highsted Road (S) with dropped kerbs and tactile paving,
(iv) Circa 20m of 2.5m wide shared footway/cycleway on the west side of Highsted Road.

5.1.7 Highsted Road (N) Between Swanstree Avenue and Farm Crescent

5.1.7.1 The KCC consultation response (refer Appendix F) states that:

"It is considered that the most direct route to local services and amenities would however be via Highsted Road, an approximate 15–17 minute walk. ***This route has an incomplete footway and it is recommended that local and national policy would indicate that the likely demand generated for walking from this development would necessitate mitigation that removes the need to walk on the vehicular carriageway.*** *The Highway Authority maybe able to provide some detail on potential design options for this."* (AHA emphasis).

5.1.7.2 The applicant has commissioned an ATC and video survey of Highsted Road (S) to form a clear understanding of existing peak hour and daily vehicle and pedestrian movements.

5.1.7.3 There is practical difficulty in providing a physical footway along Highsted Road (N). The KCC highways adoption plan shows that the verge on the west of the road between the carriageway and the school fence is adopted highway. The KCC highway adoption plan also shows that there is a strip of land to the east of the carriageway. There are existing lighting columns located in the grass verge along the east side of Highsted Road (N). It is not possible to significantly reduce the carriageway unless one-way working is to be introduced. This would require a TRO and KCC highways officers have confirmed that such a TRO is unlikely to be successful. Therefore, a footway scheme can only be implemented using the existing grass verges, with small scale local reduction in carriageway. Given the available extent of adopted highway, it is not possible to implement a footway scheme with a width greater than 1.2m.

5.1.7.4 The proposed footway scheme is shown on Drg No 1464/20. This shows:

(i) Circa 120m of 1.2m wide footway introduced on the west side of Highsted Road from Swanstree Avenue to the proposed crossing point,
(ii) Crossing location with dropped kerbs and tactile paving,
(iii) Circa 55m of 1.2m footway on the east side of Highsted Road between the proposed crossing point and Farm Crescent,
(iv) Kerbed build-outs to the north and south of the proposed crossing location. Maintain 3.75m carriageway width at the build-outs to accommodate emergency vehicles,
(v) Priority give-way working at the kerbed build-outs to help control vehicles speeds along Highsted Road (N).

5.1.8 Walk Routes to Schools

5.1.8.1 There are a number of schools and colleges near to the Site. These are:

- Fulston Manor School: 700m,
- South Avenue Primary School: 920m,
- Canterbury Road Primary School: 1260m,
- Highsted Grammar School: 875m,
- Sittingbourne Community College: 1080m,
- Meadowfield School: 1220m.

5.1.8.2 There is a shared footway/cycleway along the north side of Swanstree Avenue between the application Site and Fulston Manor School. Similarly, there is continuous footway/cycleway along Swanstree Avenue for the majority of the route between the Site and Sittingbourne Community College and Meadowfield School. This provides positive encouragement for residents of the Site to walk to the schools.

5.1.8.3 Public Footpath no. ZU31 provides a link between Swanstree Avenue and Peregrine Drive to the north. This route ensures there is continuous footway between the Site and South Avenue Primary School.

5.1.8.4 There is a tarmac surface public footpath between Swanstree Avenue and Canterbury Road. This provides an off-road route for residents of the Site to walk to Canterbury Road Primary School.

5.1.8.5 In addition, the walk routes to the various schools include dropped kerbs and tactile paving as well as benefit from street lighting.

5.1.8.6 It is demonstrated that there are a high number of schools near to the Site offering education for a wide range of age groups. A good level of pedestrian infrastructure already exists near to the Site and this is conducive to promoting walking trips to schools.

5.1.9 Walk Routes to Sittingbourne Town Centre

5.1.9.1 Figure 5.1 identifies local amenities near to the Site. The town centre is located to the north west of the Site is within a 1.6-2km (20-25 minute) walk.

5.1.9.2 The most likely walk routes between the Site and the town centre are:

- Route 1: Swanstree Avenue – Highsted Road (N) – Bell Road - Avenue of Remembrance/ Bell Road-High Street,
- Route 2: Footpath ZU31 – Peregrine Drive – Stanhope Avenue – Avenue of Remembrance/ Bell Road-High Street,
- Route 3: Swanstree Avenue – Brenchley Road – Bell Road – Avenue of Remembrance/ High Street.

5.1.9.3 With respect to Route 1, the applicant proposes to introduce new footway on Highsted Road (N) between Swanstree Avenue and Farm Crescent.

5.1.9.4 With respect to Route 2, Drg No 1464/18/C shows that pedestrian crossing assistance is to be provided on Swanstree Avenue at 3no. locations. There are pedestrian crossing facilities at the Stanhope Avenue/Bell Road/Avenue of Remembrance traffic signal junction. There are sealed surface footways with lighting along the Avenue of Remembrance, Bell Road and the High

Street. The speed limit on the High Street is 20mph and therefore provides a good environment for walking. Consequently, it is considered that Route 1 offers a good quality and direct walk route between the Site and the town centre and this provides positive encouragement for residents to elect to walk to access facilities in the town centre.

5.1.9.5 With respect to Route 3, Swanstree Avenue and Brenchley Road include a continuous shared footway/cycleway to the Brenchley Road/Bell Road/Capel Road (SJ6) traffic signal junction (refer Drg No 1464/05). There are assisted pedestrian crossing facilities (ie push button) at the junction. There is continuous sealed surface footway with lighting along Bell Road, the Avenue of Remembrance and the High Street. Consequently, it is considered that Route 2 offers a good quality and direct walk route between the Site and the town centre and this provides positive encouragement for residents to walk.

5.2 Cycle

5.2.1 It is recognised that cycling also has potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport.

5.2.2 National Travel Survey (2019)

5.2.2.1 The NTS 2019 sets out that, on average, people:

(i) undertake 16 cycle trips per year,
(ii) cycle a total of 54 miles per year,
(iii) spend 23 minutes cycling per trip.

Based on the total cycle distance of 54 miles and 16 trips per year, this means that the average cycle trip is 3.4 miles, which is just over 5km.

5.2.3 CIHT Guidance

5.2.3.1 The CIHT guidance 'Cycle Friendly Infrastructure' (2004) states that:

"Most journeys are short. Three quarters of journeys by all modes are less than five miles (8km) and half under two miles (3.2km) (DOT 1993, table 2a). These are distances that can be cycled comfortably by a reasonably fit person."(para 2.3)

5.2.4 Cycle Isochrones and Local Amenities

5.2.4.1 The cycle isochrones presented in Figure 5.3 were created using Basemap TRACC software. The cycle isochrones presented in Figure 5.3 discounts footpaths which do not permit cyclists.

5.2.4.2 Figure 5.3 indicates the 2km and 5km cycle isochrones for the Site. Review of Figure 5.3 highlights that Sittingbourne is within a 2km cycle ride of the Site.

5.2.5 Existing Cycle Infrastructure

5.2.5.1 The existing cycle lane infrastructure in the vicinity of the Site is described in Chapter 3 and illustrated variously on the associated AHA Drg Nos 1464/03-05 and 09/10.

5.2.5.2 There is a 2.5m shared footway/cycleway on Swanstree Avenue and Brenchley Road. This provides an almost continuous cycle link between Canterbury Road (to the east) and Capel Road/Avenue of Remembrance (to the west). The Swanstree Avenue Site frontage is within a 30mph speed limit zone and there are speed cushions at regular intervals to control speeds. This provides a good environment for cycling.

5.2.5.3 Furthermore, Figure 5.4 shows national cycle network routes 1 and 174, located to the north of the application Site.

5.2.6 Proposed Cycle Infrastructure

5.2.6.1 Drg No 1464/21/A shows the introduction of:

(i) Circa 115m of 2.5m wide shared footway/cycleway on the south side of Swanstree Avenue between the proposed Site access and Highted Road (S), The shared footway/cycleway is widened to 3.0m coincident with a retaining wall in the vicinity of Highsted Road,
(ii) Circa 35m of 2.5m wide shared footway/cycleway on the east side of Highsted Road (S),
(iii) Crossing location on Highsted Road (S) with dropped kerbs and tactile paving,
(iv) Circa 20m of 2.5m wide shared footway/cycleway on the west side of Highsted Road.

5.2.7 Cycle Routes to Schools

5.2.7.1 There are a number of schools and colleges near to the Site and these are set out in para 5.1.7.1. There is a shared footway/cycleway along the north side of Swanstree Avenue between the application Site and Fulston Manor School. Similarly, there is almost continuous footway/cycleway along Swanstree Avenue between the Site and Sittingbourne Community

College and Meadowfield School. This provides positive encouragement for residents of the Site to cycle to the schools.

5.2.7.2 It is demonstrated that there are a number of schools near to the Site offering education for a wide range of age groups. A good level of cycle infrastructure already exists near to the Site and this is conducive to promoting cycling trips to schools.

5.2.8 Cycle Routes to Sittingbourne Town Centre

5.2.8.1 Figure 5.1 shows that the most of the town centre is within a 2km (10 minute) cycle ride of the Site. There is continuous shared footway/cycleway along Swanstree Avenue, Brenchley Road and Capel Road. There is an existing off-road cycle connection between Capel Road and the Avenue of Remembrance. Thus, there are existing well defined and direct cycle routes between the Site and Sittingbourne town centre. This, together with a typical journey time of about 10 minutes, means that there is excellent opportunity for residents of the Site to cycle to the town centre.

5.3 Summary

5.3.1 Transport sustainability is a principle underlying the proposed development. Encouraging walk and cycle journeys is recognised as important. The location of the Site provides a good context for journeys of residents to be undertaken on foot and by cycle. There is good walk and cycle infrastructure between the Site and nearby amenities, thereby offering opportunity to foster a sustainable community, in accordance with the aims of local policies and national policy in NPPF.

6 Public Transport

6.1 The proposed development affords opportunity for development generated public transport journeys to be made by bus and rail.

6.2 Bus

6.2.1 Existing Bus Stops

6.2.1.1 Figure 5.1 identifies the location of the existing nearest bus stop in the vicinity of the Site. These are:

- Brenchley Road (in the vicinity of Crocus Drive): 440m,
- Crocus Drive (in the vicinity of Marjoram Drive): 455m, and
- Swanstree Avenue (in the vicinity of Rectory Road): 750m.

6.2.1.2 There is currently no identifiable bus stop infrastructure at Brenchley Road and Crocus Drive. The bus stops on Swanstree Avenue comprise flag and pole with timetable information.

6.2.2 Bus Services & Frequencies

6.2.2.1 Table 6.1 summarises the scheduled bus services operating near to the Site, and the frequency of service.

6.4.2.2 Service No 9 is a town circular route which operates on an hourly basis. This service is routed through Eden Village residential area to the west of the Site.

6.2.2.3 The arrival/ departure times of the no. 9 service for bus stops in Sittingbourne are set out below for the main commuting periods:

Eden Village	**Sittingbourne Bus Hub**
0725	0731
0840	0846

Sittingbourne Bus Hub	**Eden Village**
1645	1651
1725	1733.

6.2.2.4 Sittingbourne Bus Hub offers travel to a range of destinations including London and Gillingham.

6.2.2.5 Review of the above shows there is opportunity for residents of the Site to travel to/ from Sittingbourne town centre by bus in the main commuting periods.

6.3 Rail

6.3.1 Sittingbourne Rail Station is about 2.0km from the Site and is therefore, comfortably within a distance for residents of the Site to walk or cycle. There are 98 cycle storage stands provided at Sittingbourne rail station.

6.3.2 Bus service no.9 stops at Sittingbourne Bus Hub which is a circa 1 minute walk from the train station. Alternatively, the journey to the rail station can be completed by car and Sittingbourne rail station offers 253 parking spaces with 5 accessible spaces.

6.3.3 Train Services & Frequencies

6.3.3.1 There are a number of destinations which are accessible by a train journey from Sittingbourne rail station. The typical frequency and journey times are:

DESTINATION	FREQUENCY (per hour)	APPROXIMATE JOURNEY TIME (mins)
Swale	1-2	9
Faversham	3	10
Gillingham	3	14
Sheerness-on-Sea	1-2	19
Rochester	3	21-22
Canterbury East	1	25
Margate	2	41
Stratford International	1-2	50
Dover Priory	1	51
Ramsgate	2	56
London St Pancras	1-2	58
London Victoria	2	67.

6.3.3.2 The train services to London provide opportunity to link to the inter-city rail network for onward long distance rail journeys throughout the country.

6.3.3.3 It is demonstrated that there is opportunity for residents of the Site to undertake journeys by rail to a good range of destinations.

6.3.3 Route to Sittingbourne Rail Station

6.3.3.1 There are a number of routes between the Site and Sittingbourne Rail Station. The more likely routes to be taken by Site residents include:

- Route 1: Swanstree Avenue – Highsted Road (N) – Bell Road - Crown Quay Lane - A2 St Michael's Road
- Route 2: Footpath ZU31 – Peregrine Drive – Stanhope Avenue – Bell Road – Crown Quay Lane – A2 St Michael's Road, or
- Route 3: Swanstree Avenue – Brenchley Road – Bell Road – Crown Quay Lane - A2 St Michael's Road

6.3.3.2 The main junctions that residents would cross are:

(i) Brenchley Road/Bell Road/Capel Road (Drg No1464/05),
(ii) Highsted Road/Bell Road,
(iii) Stanhope Avenue/Bell Road/Avenue of Remembrance,
(iv) East Street/Bell Road/High Street/Crown Quay Lane,
(v) Crown Quay Lane/A2 St Michael's Road.

Pedestrian crossing assistance in the form of refuges, with dropped kerbs and tactile paving, or push-button control is provided at all of these junctions.

6.4 Summary

6.4.1 There are existing public transport opportunities near to the application Site.

6.4.2 Existing bus services that offer travel to Sittingbourne are accessible within a short walk of the Site. The services offer opportunity to work, education and leisure trips by bus.

6.4.3 Sittingbourne Rail Station is located within 2km of the Site. Trains calling at this station offer travel to a range of destinations.

6.4.4 It is demonstrated that the Site has good public transport accessibility, with opportunities for frequent travel by bus or rail. This is in accordance with the aims and objectives of current national and local policies.

7 Traffic Flows

7.1 Study Network

7.1.1 The TA study network of junctions comprises:

REF	JUNCTION	CONTROL
SJ1	Site Access/Swanstree Avenue	Priority control,
SJ2	Rectory Road/Swanstree Avenue	Priority control,
SJ3	Rectory Road/A2 Canterbury Road/Murston Road	Traffic signals,
SJ4	Swanstree Avenue/A2 Canterbury Road/Vincent Road	Traffic signals,
SJ5	Highsted Road/Swanstree Avenue	Priority control,
SJ6	Brenchley Road/Bell Road/Capel Road	Traffic signals,
SJ7	Bell Road/Woodstock Road/Park Avenue/Gore Court Road	Mini-roundabout,
SJ8	Bell Road/Avenue of Remembrance/Stanhope Avenue	Traffic signals.

7.1.2 SJ7 and SJ8 have been added to the TA study network at the request of KCC highways officers in their consultation response (refer Appendix F). It is assumed that the TA study network SJ1-SJ8 is now **agreed** with KCC.

7.2 Peak Periods

7.2.1 The times when the combination is greatest, of traffic generated by the proposed residential development and the existing highway network traffic, are the weekday AM & PM peak hours. The TA includes quantitative analysis of the traffic impact of the proposed development for these periods.

7.3 Traffic Counts

7.3.1 With respect to traffic count surveys, KCC set out in their consultation response (refer Appendix F) that:

"Automated traffic counts were completed on Swanstree Avenue on March 14th to 20th March 2021 with additional turning counts taken on a single day of Tuesday 18th May 2021. The March counts were completed during higher level Covid restrictions and the Highway Authority were not accepting counts at the times of either completed surveys. The traffic analysis and junction assessments are therefore not accepted. As restrictions have been significantly eased, the Highway Authority are however now accepting traffic counts and recommends that these be completed as soon as possible, avoiding the school holiday periods."

7.3.2 In accordance with the KCC request, the applicant commissioned new traffic surveys as follows:

- SJ2-SJ8: Classified turning counts undertaken on 2 March 2022.

7.3.2 Analysis of the March 2022 traffic count data identifies the peak hours for traffic flows at the study junctions as:

- AM: 0800-0900, and
- PM: 1700-1800.

Quantitative analysis is undertaken for these peak hours.

7.3.3 Figure B1, Appendix B, presents the 2022 AM & PM peak hour traffic count flows at the study junctions. The traffic flows are presented in pcu.

7.4 Traffic Growth

7.4.1 For the purposes of quantitative testing of the local highway network, it is assumed that the development will be fully constructed and operational by year **2026.**

7.4.2 The National Transport Model (NTM) is used as a basis for deriving local growth factors. The NTM growth factors adopted to estimate year 2026 traffic flows, from the 2021 count data, are set out in Technical File Note 1, Appendix C.

7.4.3 The KCC consultation response (refer Appendix F) confirms that the growth rates set out in Technical Filenote 1 are **accepted**. It is relevant to note that the growth rates are to uplift year 2021 traffic flow to year 2026. As new traffic counts were undertaken in 2022, the use of the growth rates in Technical Note 1 will slightly overestimate year 2026 flows. However, they are used, without change, to derive year 2026 flows and this is a robust approach.

7.4.4 Factored Counts

7.4.4.1 Figure B2, Appendix B presents the 2026 AM & PM peak hour traffic flows at all of the study network junctions.

7.5 Committed Developments

7.5.1 AHA is aware of the following development proposals near to the Site:

- 14/501588/OUT Land at Stones Farm, Bapchild, 550-600 homes,

- 14/505440/FUL Mixed use scheme in Sittingbourne town centre,
- SW/11/0159 Morrisons foodstore and 150 dwellings,
- SW/14/0045 Land east of Love Lane, Faversham,
- SW/14/0257 Oare Gravel Works,
- 15/504264/OUT Land at Perry Court, London Road, Faversham,
- 16/507689/OUT Land between Frognal Lane and Orchard View, Teynham,
- 19/505036/OUT Land south of London Road, Teynham,
- 17/505711 Land at Wises Lane, Borden, Kent,
- 18/502190 Land North of Quinton Road, Sittingbourne,
- 18/500257/EIFUL Land adjacent to Quinton Farm House,
- 18/503697/FULL Land at Station Road, Teynham,
- 16/506946/FULL The Bell Centre, Sittingbourne,
- 17/500727/OUT Manor Farm, Key Street, Sittingbourne,
- 16/507877/FULL Land to West of Crown Quay Lane, Sittingbourne.

7.5.2 AHA has reviewed the transport documentation which accompanied all of the above planning applications to extract relevant traffic estimates for the study network adopted in the TA report. A summary of the review is set out in Technical Filenote 2, Appendix D. The KCC consultation response (refer Appendix F) confirms that the committed development analysis set out in Technical Filenote 2 is **accepted**.

7.5.3 At the time of preparing this TA report, the schemes that benefit from planning consent which impact the AHA study network adopted in this report are:

- 14/501588/OUT: Land at Stones Farm, Bapchild,
- 16/507689/OUT: Land between Frognal Lane and Orchard View, Teynham

7.5.4 Land at Stones Farm, Bapchild (ref: 14/501588/OUT)

7.5.4.1 The scheme at Stones Farm (ref: 14/501588/OUT) for 550-600 dwellings was permitted in December 2017. The TA accompanying the application, prepared by PFA Consulting, estimated traffic based on 600 dwellings. A direct extract from Appendix H of the PFA Consulting TA has been taken and the development traffic estimates are presented on Figure B3, Appendix B.

7.5.5 Land Between Frognal Land and Orchard View (ref: 16/507689/OUT)

7.5.5.1 Planning permission for land between Frognal Land and Orchard View (ref: 16/507689/OUT) was recommended in November 2020, subject to amendments to draft S106 and conditions. AHA has reviewed the estimated traffic generation from the residential and employment

development, as presented in the i-Transport TA. The subsequent total traffic estimation associated with this development is presented on Figure B4, Appendix B.

7.5.6 Total Committed Development Traffic

7.5.6.1 The total estimate of traffic generated by permitted schemes is shown on Figure B5, Appendix B.

7.6 Base

7.6.1 The 'Base' situation represents the traffic flows on the TA study network with the implementation of the consented developments. This provides the proper context in which to assess the traffic impact of the proposed development.

7.6.2 The estimated 2026 Base AM & PM peak hour traffic flows at the TA study network junctions are presented on Figure B6, Appendix B.

7.7 Distribution of Development Generated Traffic

7.7.1 It is necessary to estimate the % distribution of the proposed development generated traffic.

7.7.2 The distribution of development generated traffic is based on an interrogation of the 2011 Census Data. The % distribution has been revised to reflect comments made by KCC in their consultation response (refer Appendix F). The revised % distribution is now **agreed**.

7.7.3 The revised % distribution of traffic generated at the study junctions by the proposed residential development that is adopted for the purpose of the TA quantative analysis is presented on Figure B7, Appendix B.

7.8 Generated Traffic

7.8.1 Trip Rates in Original TA Report

7.8.1.1 The original TA report (ref 1464/1/A) included residential trip rates that were not disputed by KCC highways officers. The trip rates were:

HOUR	ARR	DEP	2-WAY
0800-0900	0.142	0.429	0.571
1700-1800	0.386	0.234	0.620.

7.8.2 New TRICS Interrogation

7.8.2.1 TRICS is interrogated for information about trip generation rates for Houses. Criteria adopted for this interrogation include:

- Houses privately owned;
- Sites between 100-200 units;
- All surveys 2012 or more recent;
- Sites in Ireland, Northern Ireland and Greater London excluded on the basis that they may have significantly different travel characteristics;
- If a site has multiple survey date entries, include only the most recent survey used within the identified TRICS sample, (to avoid statistical bias in the trip rates identified for use in the analysis).

7.8.2.2 On this basis, 7 sites are identified and the results of the TRICS interrogation are included in Appendix E. TRICS explicitly states that the 85%ile statistic is not reliable for a database with less than 20 entries. Thus, average trip rates are considered for the proposed residential development.

7.8.2.3 The AM and PM peak hour house trip rates based on the above TRICS interrogation are:

HOUR	ARR	DEP	2-WAY
0800-0900	0.146	0.379	0.525
1700-1800	0.316	0.163	0.479

7.8.2.4 KCC highways officers have confirmed (30 March 2022 email) that the new trip rates are **agreed.**

7.8.2.5 The consequent estimate of traffic (in vehicles) generated by the proposed development of up to 135 dwellings in the AM and PM peak hours is:

HOUR	ARR	DEP	2-WAY
0800-0900	20	51	71
1700-1800	43	22	65.

7.8.2.6 The development generated traffic assigned to the study network is presented on Figure B8, Appendix B.

7.9 Traffic Impact

7.9.1 At the time of preparing this TA report, there is no document that provides clear guidance on traffic impact and the need for detailed junction modelling.

7.9.2 In the absence of alternative guidance, the test adopted to determine if a more detailed junction assessment is required is if the proposed development is predicted to generate an increase in traffic at a study junction of **30** vehicles or more. Junction modelling is undertaken of the TA Study Junctions where the traffic impact of the development exceeds **30** vehicles.

7.9.3 The traffic impact of the proposed development at the TA study network of junctions in the AM and PM peak hours is summarised below:

STUDY JUNCTION	**AM**	**PM**
SJ1	**+71**	**+65**
SJ2	+21	+18
SJ3	+11	+9
SJ4	+10	+9
SJ5	**+50**	**+46**
SJ6	**+42**	**+32**
SJ7	+5	+5
SJ8	**+41**	**+38.**

7.9.4 A review of the above summary shows that the proposed development is estimated to have a traffic impact in excess of 30 vehicles at SJ1, SJ5, SJ6 and SJ8. The estimated development generated traffic impact at SJ3 and SJ4 (A2 corridor) is minimal, being no more that a 1% increase in junction flows. This would lie well within natural daily variation for the junctions.

7.9.5 Consequently, junction modelling of SJ1, SJ5, SJ6 and SJ8 is undertaken and the results are presented and discussed in Chapter 8.

7.10 With Development

7.10.1 The estimated 2026 AM and PM peak hour With Development traffic flows at the TA study junctions are presented on Figure B9, Appendix B.

8 Operational Performance of the Highway Network

8.1 The computer program PICADY (within Junctions 9) is used to model the performance of a priority (give-way) control junction. PICADY predicts the ratio of flow to capacity (RFC) and associated queue for the minor (give-way) entry to the junction and for the major road. PICADY is used to model the operational performance of:

REF	JUNCTION
SJ1	Site Access/Swanstree Avenue
SJ5	Highsted Road/Swanstree Avenue.

8.2 The computer program LINSIG is used to model the performance of a priority (give-way) control junction. LINSIG predicts the Degree of Saturation (DS) and associated queue for each approach lane. LINSIG is used to model the operational performance of:

REF	JUNCTION
SJ6	Brenchley Road/Bell Road/Capel Road
SJ8	Bell Road/Avenue of Remembrance/Stanhope Avenue.

8.3 Queue Surveys and Model Validation

8.3.1 Queue Survey

8.3.1.1 Queues were recorded on all external approach arms at the study junctions. Data was collected at the same time as the AM & PM peak period traffic count surveys.

8.3.1.2 The survey recorded queues in 5-minute intervals. The survey recorded the queue on each arm at the 5-minute mark (eg at 0800, 0805, 0810 etc). The survey also recorded the maximum queue during the 5-minute interval.

8.3.2 Model Validation

8.3.2.1 The process of model validation involves:

(i) Construct PICADY/LINSIG model for the junction;
(ii) Use 2022 recorded traffic count data;
(iii) Compare model output queues to recorded queues;

(iv) If necessary, make small adjustments to model geometry to provide 'best match' between model and recorded queues.

8.4 SJ1: Site Access/ Swanstree Avenue (AHA Drg No 1464/18/C)

8.4.1 Table 8.1 presents the results of the PICADY modelling of the proposed Site Access/Swanstree Avenue junction. Review of Table 8.1 shows that the proposed priority-controlled junction is predicted to operate with a high degree of spare capacity and negligible queues/delays in the year 2026 AM & PM peak hour With Development situations.

8.5 SJ5: Highsted Road/Swanstree Avenue (AHA Drg No 1464/03)

8.5.1 Table 8.2 presents the average recorded spot queues during the AM & PM peak hours at SJ5. The queue survey confirms that negligible queues were recorded on the 5-minute interval marks. The survey results provide clear evidence that SJ5 is presently operating in an acceptable manner.

8.5.2 A PICADY model is constructed for the 2022 AM & PM peak hour Count situation. The results are also presented in Table 8.2. A review of Table 8.2 shows that the year 2022 PICADY model output queues provide a close match to the recorded queues. It is concluded that the PICADY model is suitable to test the traffic impact of the proposed development in year 2026.

8.5.3 Table 8.3 presents the results of the PICADY modelling of the Highsted Road/Swanstree Avenue junction. A review of Table 8.5 shows that the junction currently operates with a high degree of spare capacity and negligible queues/delays. Table 8.3 also shows that the priority-controlled junction is predicted to continue to operate with a high degree of spare capacity and negligible queues/delays in the year 2026 AM & PM peak hour Base and With Development situations.

8.6 SJ6: Brenchley Road/Bell Road/Capel Road (AHA Drg No 1464/04)

8.6.1 Table 8.4 presents the average recorded spot queues during the AM & PM peak hours at SJ6. The queue survey confirms that small/modest queues were recorded on the 5-minute interval marks. The survey results demonstrate that SJ6 is presently operating in an acceptable manner.

8.6.2 A LINSIG model is constructed for the 2022 AM & PM peak hour Count situation using signal data purchased from KCC. The results are also presented in Table 8.4. A review of Table 8.4 shows that the LINSIG model output queues of SJ6 provide a reasonable match to the recorded queues. The model results in the AM peak hour are a little optimistic and slightly pessimistic in the PM peak

hour. Nonetheless, it is concluded that the LINSIG model is suitable to test the traffic impact of the proposed development at SJ6 in year 2026.

8.6.3 Table 8.5 presents the results of the LINSIG modelling of the Brenchley Road/Bell Road/Capel Road junction. Review of Table 8.5 shows that the junction currently operates well within acceptable limits. Table 8.5 also shows the traffic signal-controlled junction is predicted to continue to operate in an acceptable manner in the year 2026 AM & PM peak hour Base situation. The LINSIG modelling confirms that the addition of traffic generated by the proposed development results in very little change in performance.

8.7 SJ8: Bell Road/Avenue of Remembrance/Stanhope Avenue

8.7.1 Table 8.6 presents the average recorded spot queues during the AM & PM peak hours at SJ8. The queue survey confirms that small/modest queues were recorded on the 5-minute interval marks. The survey results demonstrate that SJ8 is presently operating in an acceptable manner.

8.7.2 A LINSIG model is constructed for the 2022 AM & PM peak hour Count situation using signal data purchased from KCC. The results are also presented in Table 8.6. A review of Table 8.4 shows that the LINSIG model output queues of SJ8 provide a reasonable match to the recorded queues. The model queue results are generally a little pessimistic in the AM and PM peak hours. Nonetheless, it is concluded that the LINSIG model is suitable to test the traffic impact of the proposed development at SJ8 in year 2026.

8.7.3 Table 8.7 presents the results of the LINSIG modelling of the Bell Road/Avenue of Remembrance/Stanhope Avenue junction. Review of Table 8.7 shows that the junction currently operates within acceptable limits. Table 8.7 also shows the traffic signal-controlled junction is predicted to continue to operate in an acceptable manner in the year 2026 AM & PM peak hour Base situation. The LINSIG modelling confirms that the addition of traffic generated by the proposed development results in very little change in performance.

8.8 Summary

8.8.1 Comprehensive junction analysis and modelling is undertaken for the year 2021 for the AM & PM peak hour Count situation and the year 2026 Base and With Development situations. It is concluded that the proposed residential development **does not** have a detrimental impact on the operational performance of the TA highway network.

9 Summary & Conclusions

9.1 Ashley Helme Associates Limited are appointed by Gladman Developments Ltd to prepare a Transport Assessment report to support the planning application for residential development on land off Swanstree Avenue, Sittingbourne. The Site is presently agricultural land. The proposed development comprises a residential development of up to 135 dwellings.

9.2 Access Strategy

9.2.1 The planning application seeks outline consent with all matters reserved, except access. This TA considers access for vehicles, cyclists and pedestrians via Swanstree Avenue.

9.2.2 The proposed access arrangements are shown on Drg No 1464/18/C. It is demonstrated that the proposed access point:

(i) Satisfies geometric and visibility requirements,
(ii) Has sufficient capacity to operate efficiently and safely,
(iii) Offers appropriate provision for all users, and
(iv) Can accommodate the tracking movements of a range of vehicles.

9.3 Walk and Cycle

9.3.1 The principle of transport sustainability underlies the masterplan development. The location of the Site provides a good context for journeys to be undertaken on foot and by cycle, and the masterplan access strategy reflects this with the provision of good permeability and connectivity for pedestrians and cyclists.

9.3.2 The proposed development offers a package of pedestrian infrastructure enhancements. This helps to minimise walk distances between the Site and nearby amenities, thereby offering the best chance of fostering a sustainable community. The measures include:

(i) New footway within the development to connect the proposed Site access with Footpath ZU31,
(ii) New footway on Highsted Road (N) between Swanstree Avenue and Farm Crescent, and
(iii) New shared footway/cycleway along the south side of Swanstree Avenue between the proposed Site access and Highsted Road (S), and
(iv) New shared footway/cycleway along Highsted Road (S) to eventually form a connection with Snowdrop Walk with the Eden Village residential area.

All told the proposed development will deliver about 300m of new footway and about 170m of shared footway/cycleway. This is a significant contribution to sustainable travel in the community and fulfills part (a) of para 110 in NPPF, which states:

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

9.4 Public Transport

9.4.1 There are existing public transport opportunities near to the application Site.

9.4.2 Existing bus services that offer travel to Sittingbourne are accessible within a short walk of the Site. The services offer opportunity to undertake work, education and leisure trips by bus.

9.4.3 The proposed development includes new pedestrian infrastructure on Swanstree Avenue and Highsted Road (S) that will encourage residents of the development to access local bus services that operate within the nearby Eden Village residential area.

9.4.4 Sittingbourne Rail Station is located within 2km of the Site. Trains calling at this station offer travel to a range of destinations.

9.4.5 It is demonstrated that the Site has good public transport accessibility, with opportunities for frequent travel by bus or rail. This is in accordance with the aims and objectives of current national and local policies.

9.5 Traffic Impact

9.5.1 A TA study network of junctions is agreed with KCC highways. This comprises:

REF	JUNCTION	CONTROL
SJ1	Site Access/Swanstree Avenue	Priority control,
SJ2	Rectory Road/Swanstree Avenue	Priority control,
SJ3	Rectory Road/A2 Canterbury Road/Murston Road	Traffic signals,
SJ4	Swanstree Avenue/A2 Canterbury Road/Vincent Road	Traffic signals,
SJ5	Highsted Road/Swanstree Avenue	Priority control,
SJ6	Brenchley Road/Bell Road/Capel Road	Traffic signals,
SJ7	Bell Road/Woodstock Road/Park Avenue/Gore Court Road	Mini-roundabout,
SJ8	Bell Road/Avenue of Remembrance/Stanhope Avenue	Traffic signals.

9.5.2 AHA has completed a review of 15no development schemes in the wider Sittingbourne area that benefit from planning consent. AHA has concluded that only two of these committed residential schemes will add traffic to the study network adopted in this TA report. This is agreed with KCC highways.

9.5.3 KCC highways officers have agreed to:

(i) Trip rates to estimate AM & PM peak hour development generated traffic, and
(ii) % distribution of development trips on the local highway network.

9.5.4 Comprehensive junction analysis and modelling is undertaken for the year 2022 for the AM & PM peak hour Count situation and the year 2026 Base and With Development situations. It is concluded that the proposed residential development has **no material detrimental impact** on the operational performance of the TA highway network.

9.6 Summary

9.6.1 It is concluded that the proposed development is in accordance with national and local transport policies, and that there are no transport/highways reasons for refusal of planning permission.

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Figures

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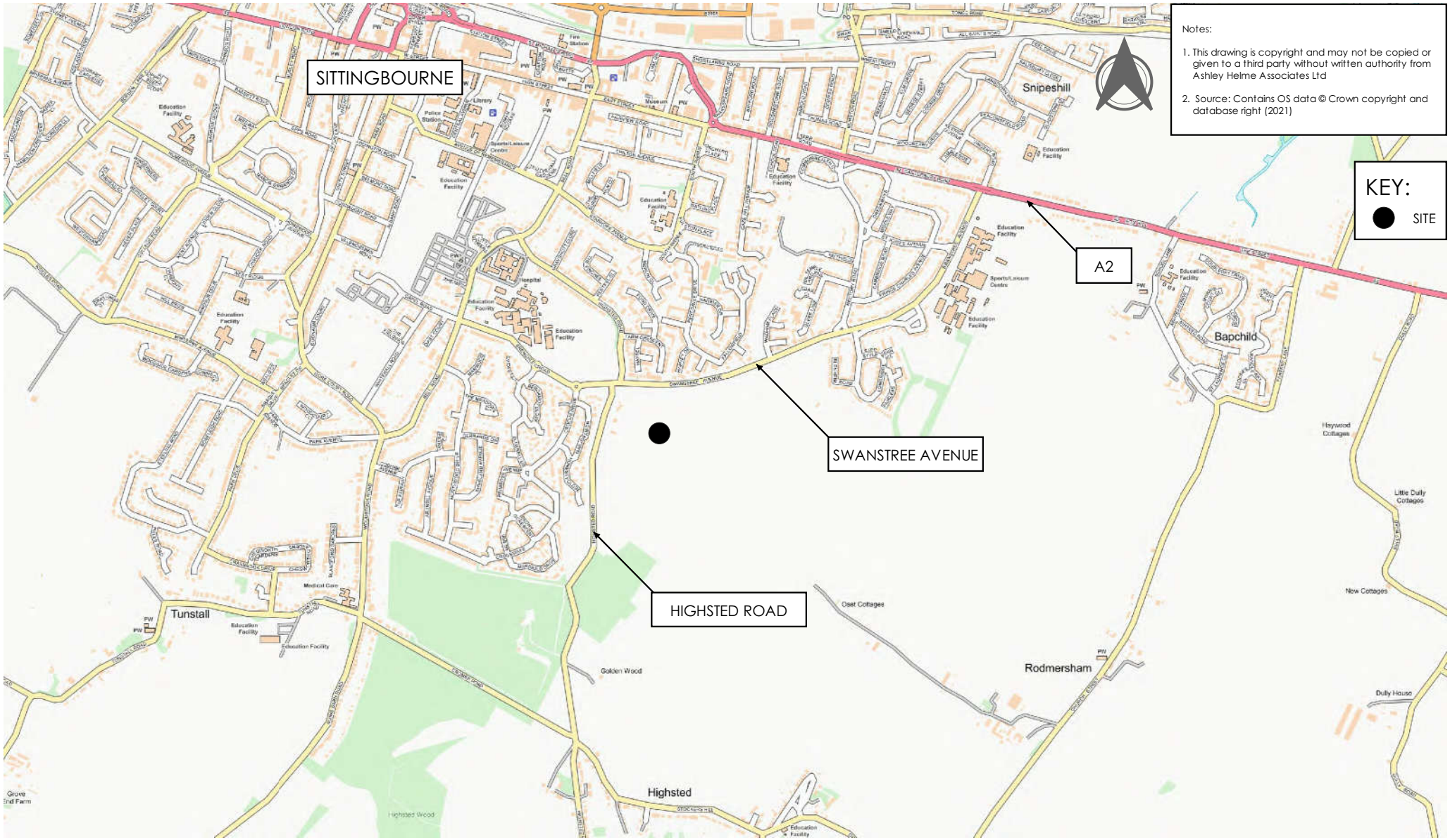

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: LOCATION PLAN	FIGURE 1.1	
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2021	Scale: NTS

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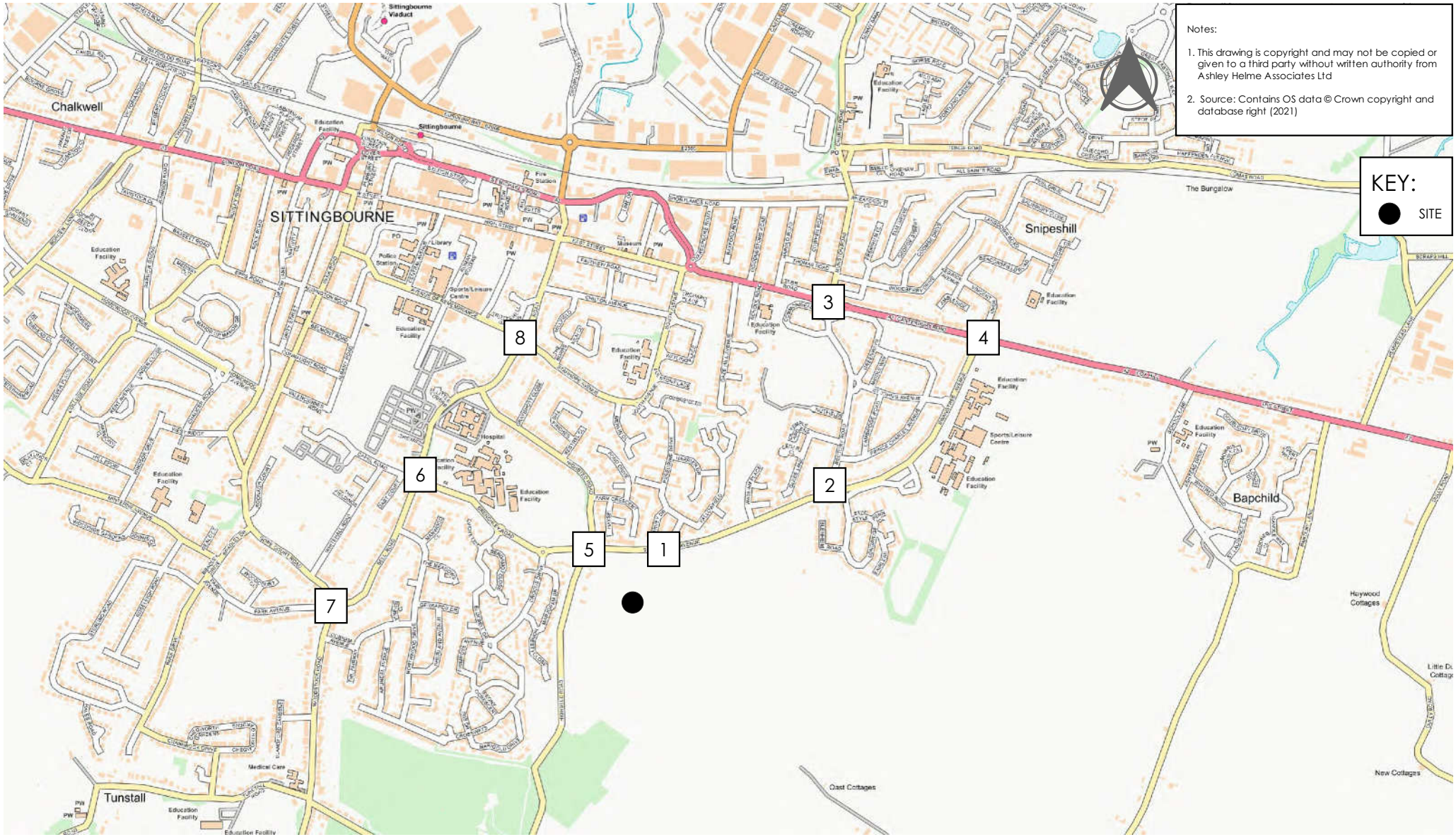

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: STUDY JUNCTIONS	FIGURE 3.1	ASHLEY HELME ASSOCIATES
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2022 / Scale: NTS	

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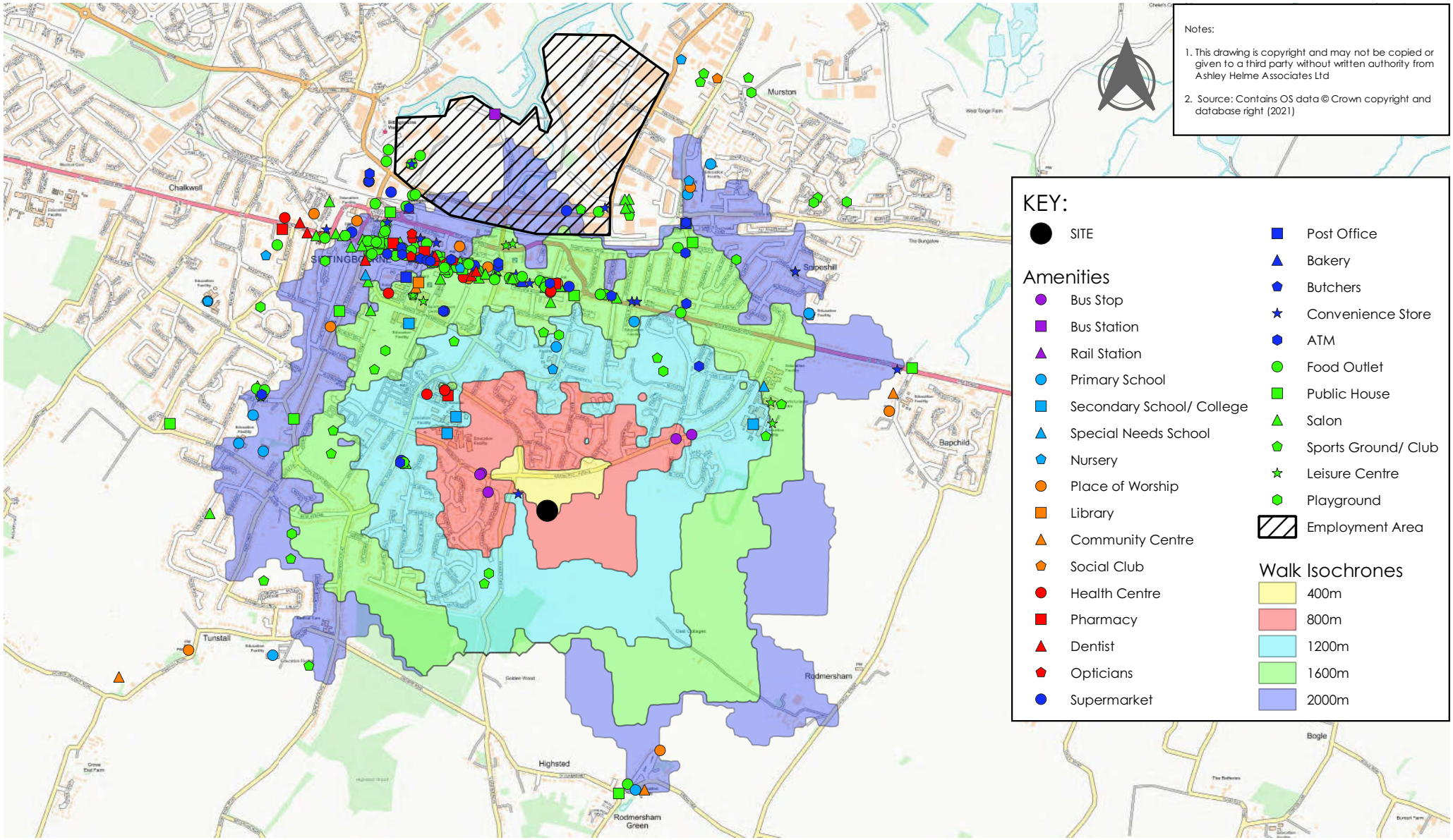

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: WALK ISOCHRONES AND AMENITIES	FIGURE 5.1	
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2021	Scale: NTS

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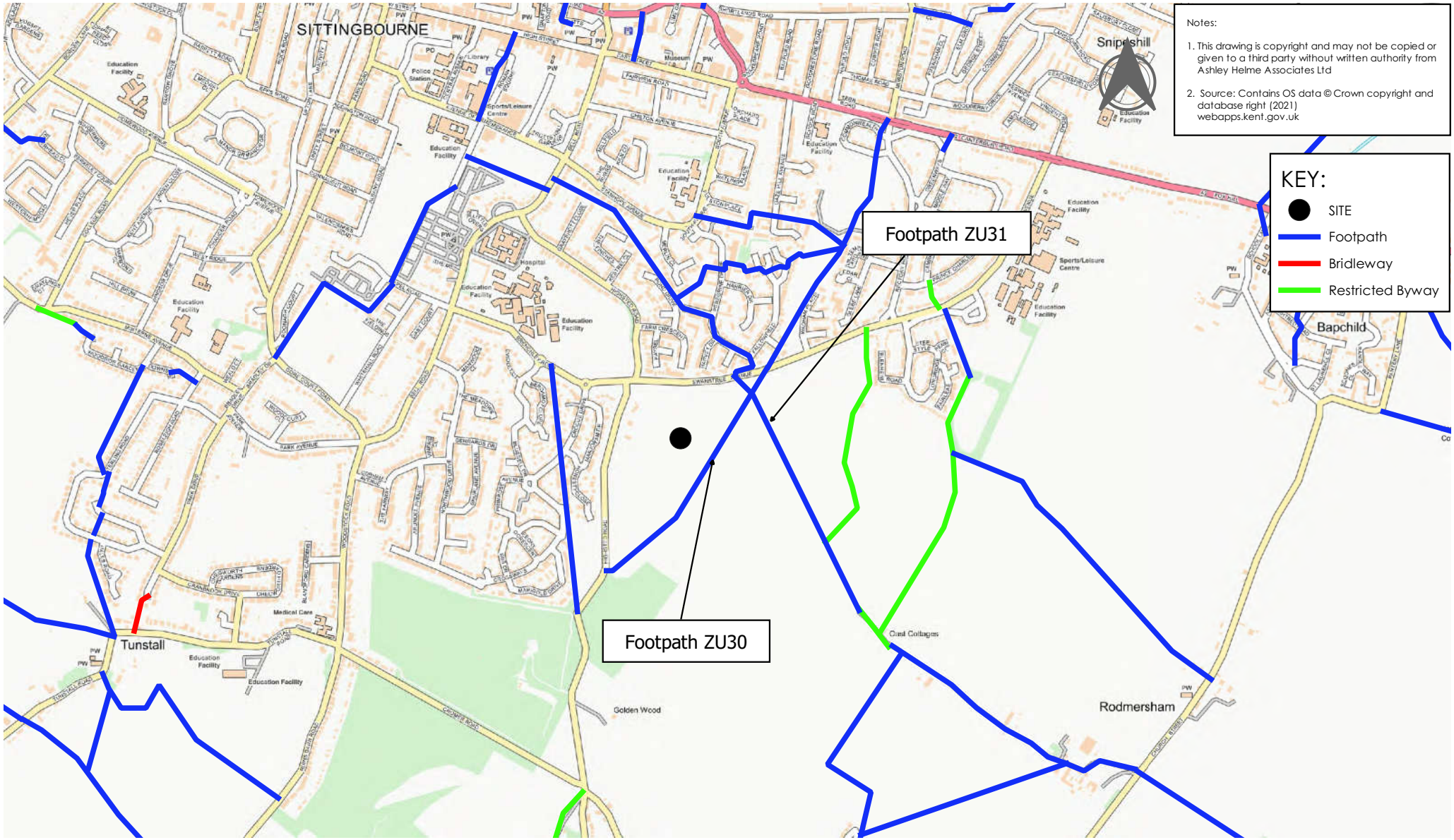

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: PUBLIC RIGHTS OF WAY (PROW)	FIGURE 5.2	ASHLEY HELME ASSOCIATES
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2021 / Scale: NTS	

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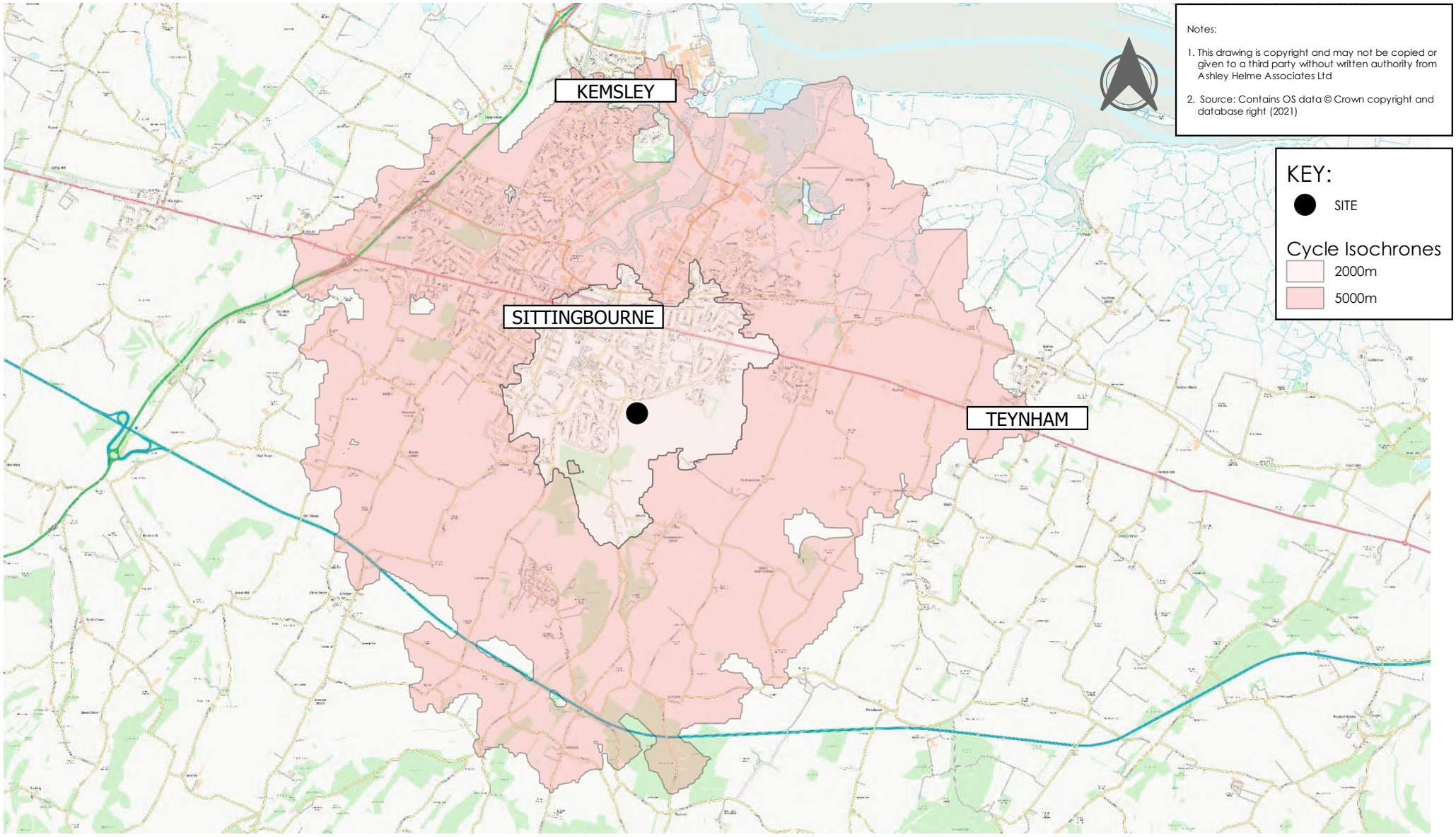

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: CYCLE ISOCHRONES	FIGURE 5.3	
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2021	Scale: NTS

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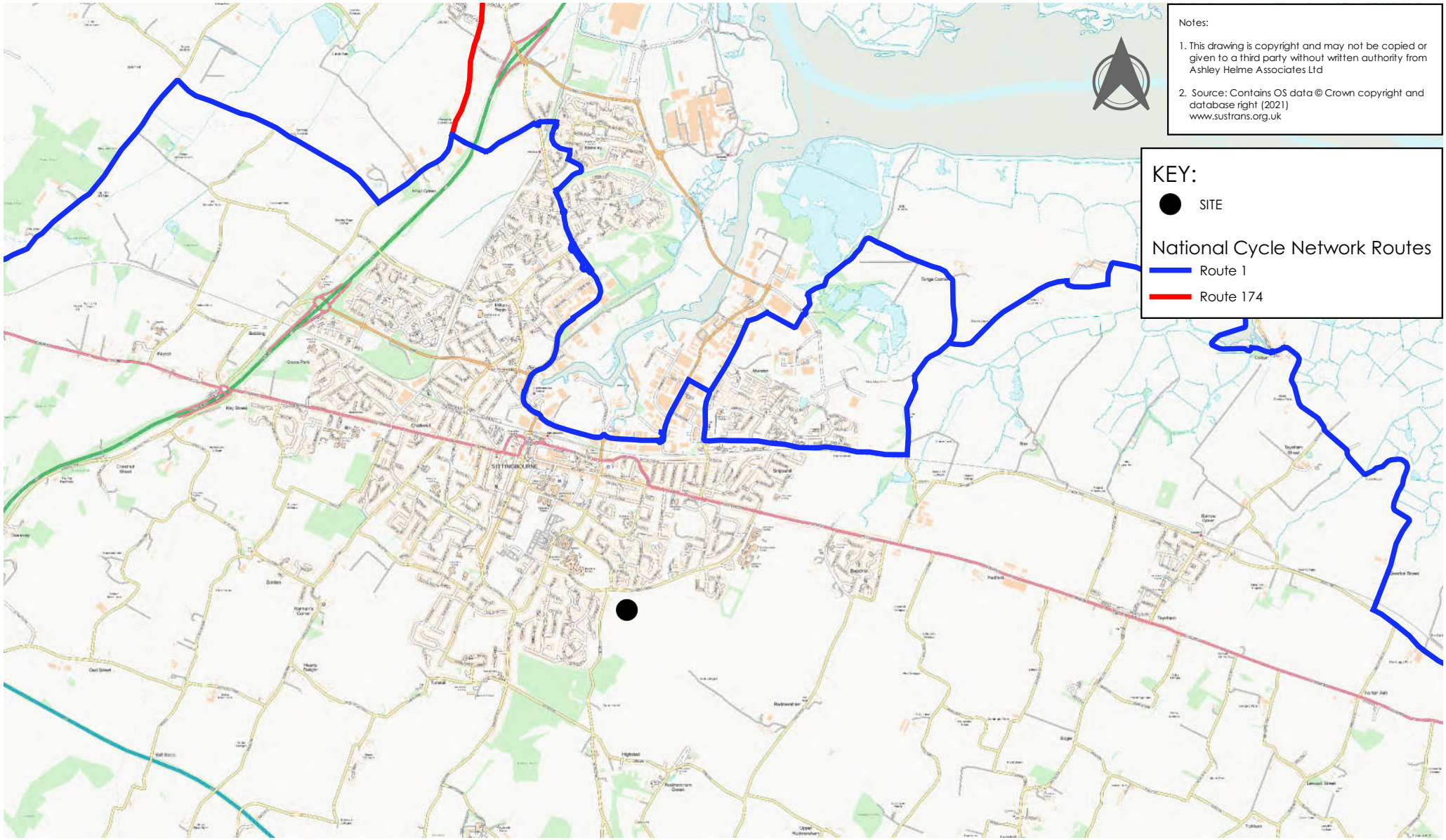

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: CYCLE ROUTES	FIGURE 5.4	
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2021	Scale: NTS

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Tables

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BUS NUMBER	ROUTE	FREQUENCY			OPERATOR
		MONDAY-SATURDAY		SUN	
		DAY	EVE		
Services calling on Brenchley Road within 440m of Site					
321A	Iwade – Sittingbourne Schools	1 trip[1]	-	-	CGCH
321B	Iwade – Sittingbourne Schools	1 trip[1]	-	-	CGCH
321C	Iwade – Sittingbourne Schools	1 trip[2]	-	-	CGCH
328	Sittingbourne – Upchurch - Rainham	1 trip[3]	-	-	CGCH
370S	West Minster – Sheerness – Minster – Sittingbourne Schools	1 trip[4]	-	-	T
371R	West Minster – Sheerness – Minster – Sittingbourne Schools	2 trips[5]	-	-	T
371S	West Minster – Sheerness – Minster – Sittingbourne Schools	2 trips[5]	-	-	T
372	Upchurch – Lower Halstow – Sittingbourne Schools	2 trips[5]	-	-	T
IB1	Sittingbourne Schools – Iwade – Minster – Sheerness - Halfway	1 trip[1]	-	-	CGCH
IB2	Sittingbourne Schools – Iwade – Minster – Sheerness - Halfway	1 trip[1]	-	-	CGCH
Services calling on Crocus Drive within 455m of Site					
9	Sittingbourne – Eden Village - Sittingbourne	60 mins[6]	-	-	CGCH
Services calling on Swanstree Avenue/ Rectory Road within 750m of Site					
333	Faversham - Sittingbourne	2 trips[7]	-	-	SSE
344	Conyer – Teynham – Sittingbourne - Bredgar	4 trips[8]	-	-	CGCH
345	Newnham – Doddington – Teynham - Sittingbourne	12 trips[9]	-	-	CGCH
373	Sittingbourne – Iwade – Queenborough – Sheerness – Oasis Academy	2 trips[5]	-	-	T

Notes:
1. 1 trip in the AM towards Sittingbourne. Service operates on schooldays only and is for students only.
2. 1 trip in the PM towards Iwade. Service operates on schooldays only and is for students only.
3. 1 trip in the PM towards Rainham. Service operates on schooldays only and is for students only.
4. 1 trip in the PM towards West Minster. Service operates on schooldays only.
5. 2 trips, one in each direction. Service operates on schooldays only.
6. Service is a circular bus route, commencing and terminating at Sittingbourne Bus Station. Frequency of service can vary. Service operates at Eden Village Monday-Friday.
7. 2 trips, one in each direction. Service operates Monday-Friday only.
8. 4 trips on Monday- Friday, 1 in direction to Conyer in the PM and 3 in direction to Sittingbourne. Some services operate on schooldays only. On Saturdays, there are 4 trips towards Sittingbourne and 5 trips towards Conyer.
9. 12 trips on Monday- Friday, 5 in direction to Newnham and 7 in direction to Sittingbourne. There are 9 trips on Saturdays, 4 in direction to Newnham and 5 in direction to Sittingbourne. Some Monday-Friday services operate on schooldays only.

Key:

CGCH	Chalkwell Garage and Coach Hire
T	Travelmasters
SSE	Stagecoach South East

Source:

www.traveline.info, www.bustimes.org, www.chalkwell.co.uk, www.stagecoachbus.com, www.travel-masters.co.uk

Table 6.1 Bus Services & Frequencies

MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	RFC	QUEUE (pcu)	DELAY (mins/pcu)	RFC	QUEUE (pcu)	DELAY (mins/pcu)
2026 With Development, Proposed Junction Geometry						
Site Access	0.13	0.1	0.16	0.05	0.1	0.14
Swanstree Avenue	0.04	0.1	0.08	0.07	0.1	0.08

Notes:
1. Refer Drg No 1464/18/B for proposed Site access drawing.
2. Refer Figure B9, Appendix B for 2026 With Development traffic flows.

Table 8.1 PICADY RESULTS SJ1 Proposed Site Access/Swanstree Avenue

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	OBSERVED	MODELLED	OBSERVED	MODELLED
Highsted Road (N)	0.2	0.6	0.1	0.3
Swanstree Avenue (E)	0.0	0.0	0.0	0.0
Highsted Road (S)	0.4	0.5	0.1	0.4
Swanstree Avenue (W)	0.3	0.4	0.0	0.0

Notes:
1. AHA queue survey 02.03.22
2. Average spot queue observed over peak hour period
3. Refer Figure B1, Appendix B for 2022 traffic count flows.

Table 8.2 PICADY VALIDATION SJ5 Highsted Road/ Swanstree Avenue

MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	RFC	QUEUE (pcu)	DELAY (mins/pcu)	RFC	QUEUE (pcu)	DELAY (mins/pcu)
2022 Count, Existing Junction Geometry						
Highsted Road (N)	0.39	0.6	0.24	0.21	0.3	0.17
Swanstree Avenue (E)	0.00	0.0	0.00	0.00	0.0	0.00
Highsted Road (S)	0.32	0.5	0.19	0.28	0.4	0.16
Swanstree Avenue (W)	0.18	0.4	0.09	0.01	0.0	0.09
2026 Base, Existing Junction Geometry						
Highsted Road (N)	0.43	0.7	0.26	0.27	0.4	0.20
Swanstree Avenue (E)	0.00	0.0	0.00	0.01	0.0	0.08
Highsted Road (S)	0.35	0.5	0.20	0.31	0.5	0.17
Swanstree Avenue (W)	0.19	0.4	0.09	0.02	0.0	0.08
2026 With Development, Existing Junction Geometry						
Highsted Road (N)	0.44	0.8	0.28	0.23	0.3	0.18
Swanstree Avenue (E)	0.01	0.0	0.08	0.00	0.0	0.00
Highsted Road (S)	0.37	0.6	0.21	0.32	0.5	0.17
Swanstree Avenue (W)	0.20	0.4	0.09	0.01	0.0	0.08

Notes:
1. Refer Drg No 1464/04 for existing junction geometry.
2. Refer Figure B1, Appendix B for 2022 Count traffic flows.
3. Refer Figure B6, Appendix B for 2026 Base traffic flows.
4. Refer Figure B9, Appendix B for 2026 With Development traffic flows,

Table 8.3 PICADY RESULTS SJ5 Highsted Road/ Swanstree Avenue

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	OBSERVED	MODELLED	OBSERVED	MODELLED
Brenchley Road	10.3	8.9	3.9	5.1
Bell Road (S)	10.6	14.9	3.8	8.4
Capel Road	3.7	5.3	1.8	2.7
Bell Road (N)	14.3	8.1	4.5	7.3

Notes:
1. AHA queue survey 02.03.22
2. Average queue observed over peak hour period
3. Refer Figure B1, Appendix B for 2022 traffic count flows.

Table 8.4 LINSIG VALIDATION SJ6 Brenchley Road/ Bell Road/ Capel Road

MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DS	QUEUE (pcu)	DELAY (secs/pcu)	DS	QUEUE (pcu)	DELAY (secs/pcu)
2022 Count, Existing Junction Geometry						
Brenchley Road	72.0	8.9	50.1	54.6	5.1	43.9
Bell Road (S)	71.2	14.9	41.3	53.3	8.4	33.8
Capel Road	69.2	5.3	82.2	53.3	2.7	84.7
Bell Road (N)	54.3	8.1	40.7	46.1	7.3	37.0
2026 Base, Existing Junction Geometry						
Brenchley Road	74.5	10.3	51.5	55.0	5.2	43.1
Bell Road (S)	75.2	16.4	43.3	54.9	7.4	35.5
Capel Road	71.8	5.6	84.8	54.9	2.8	85.8
Bell Road (N)	56.2	8.6	41.2	49.0	7.8	38.4
2026 With Development, Existing Junction Geometry						
Brenchley Road	78.2	11.2	51.7	59.0	5.3	44.3
Bell Road (S)	78.5	17.2	46.7	59.1	9.3	36.4
Capel Road	78.3	6.0	97.6	54.9	2.8	85.8
Bell Road (N)	60.1	9.1	43.9	50.5	7.9	38.6

Notes:
1. Refer Drg No 1464/05 for existing junction geometry.
2. Refer Figure B1, Appendix B for 2022 Count traffic flows.
3. Refer Figure B6, Appendix B for 2026 Base traffic flows.
4. Refer Figure B9, Appendix B for 2026 With Development traffic flows,

Table 8.5 LINSIG RESULTS SJ6 Brenchley Road/ Bell Road/ Capel Road

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	OBSERVED	MODELLED	OBSERVED	MODELLED
Bell Road (N)	8.0	12.7	10.8	15.8
Stanhope Avenue	6.3	7.6	3.1	5.6
Bell Road (S)	13.7	19.7	11.3	17.1
Avenue of Remembrance	13.0	10.5	9.9	11.2

Notes:
1. AHA queue survey 02.03.22
2. Average queue observed over peak hour period
3. Refer Figure B1, Appendix B for 2022 traffic count flows.

Table 8.6 LINSIG VALIDATION SJ8 Avenue of Remembrance/Bell Road/Stanhope Avenue

MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	DS	QUEUE (pcu)	DELAY (secs/pcu)	DS	QUEUE (pcu)	DELAY (secs/pcu)
2022 Count, Existing Junction Geometry						
Bell Road (N)	84.3	12.7	74.1	83.2	15.8	60.5
Stanhope Avenue	80.6	7.6	90.2	77.7	5.6	101.1
Bell Road (S)	83.6	19.7	50.6	85.3	17.1	61.9
Avenue of Remembrance	83.2	10.5	61.2	84.2	11.2	49.8
2026 Base, Existing Junction Geometry						
Bell Road (N)	87.2	13.7	79.4	86.1	16.9	64.4
Stanhope Avenue	83.3	8.2	95.3	80.9	6.0	107.5
Bell Road (S)	86.5	21.2	54.1	88.2	18.4	66.8
Avenue of Remembrance	86.2	11.3	65.3	87.2	12.4	53.6
2026 With Development, Existing Junction Geometry						
Bell Road (N)	89.0	14.4	83.5	88.8	18.3	69.3
Stanhope Avenue	89.7	9.3	117.6	89.9	7.3	143.1
Bell Road (S)	88.6	22.9	56.4	88.0	18.8	65.2
Avenue of Remembrance	87.4	11.7	67.6	89.9	14.2	59.0

Notes:
3. Refer Drg No 1464/07 for existing junction geometry.
4. Refer Figure B1, Appendix B for 2022 Count traffic flows.
3. Refer Figure B6, Appendix B for 2026 Base traffic flows.
4. Refer Figure B9, Appendix B for 2026 With Development traffic flows,

Table 8.7 LINSIG RESULTS SJ8 Avenue of Remembrance/Bell Road/Stanhope Avenue

A KCC Accident Data

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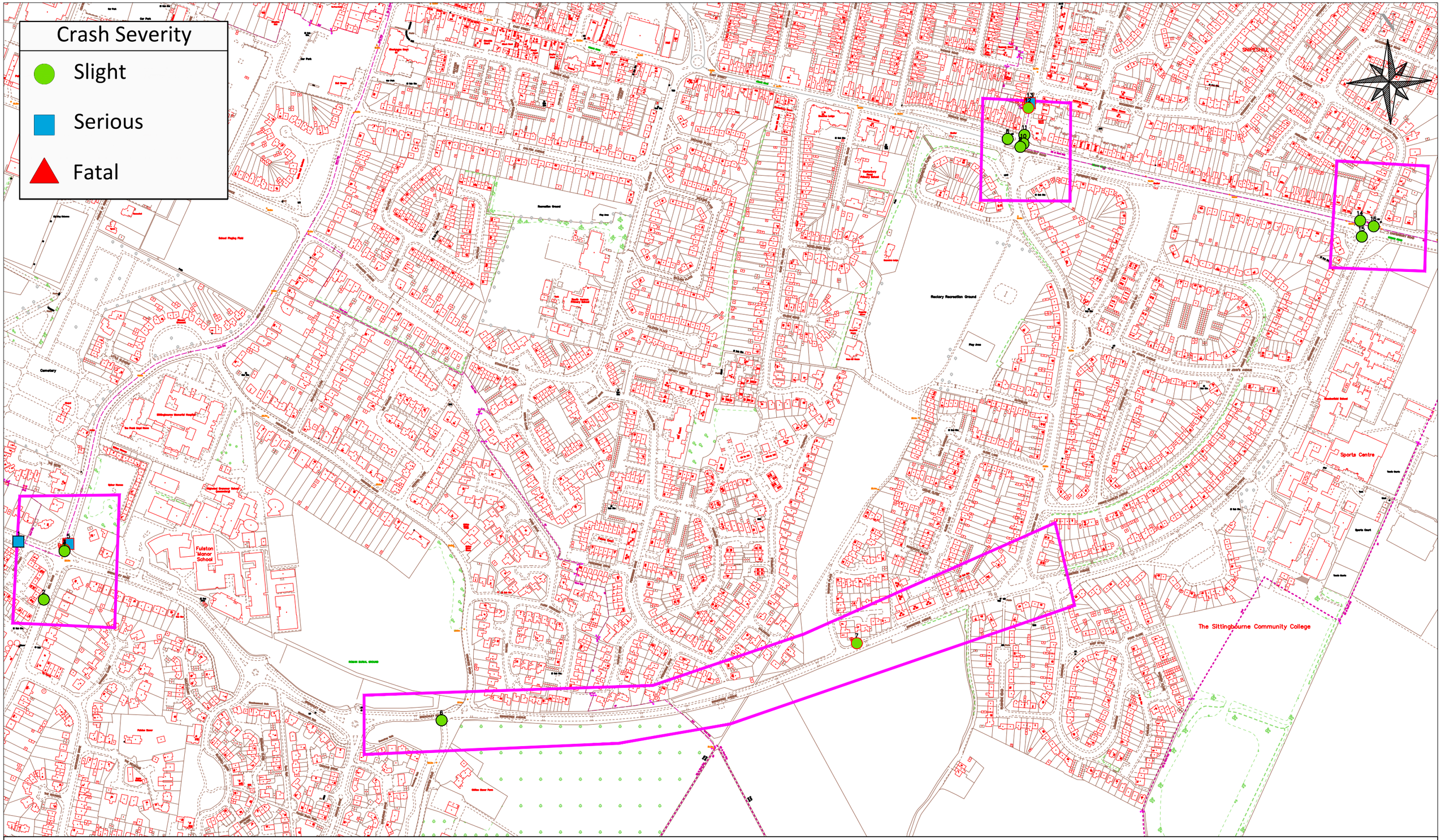

Location: Sittingbourne

5 years personal injury crash data up to 30/09/2020

KCC Ref number: EXT/062/21

Kent County Council
kent.gov.uk

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Location: Bell Road junctions, Sittingbourne

5 years personal injury crash data up to 30/09/2021

KCC Ref number: EXT/047/22

Crash Severity
- Slight
- Serious
- Fatal

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B Traffic Flows

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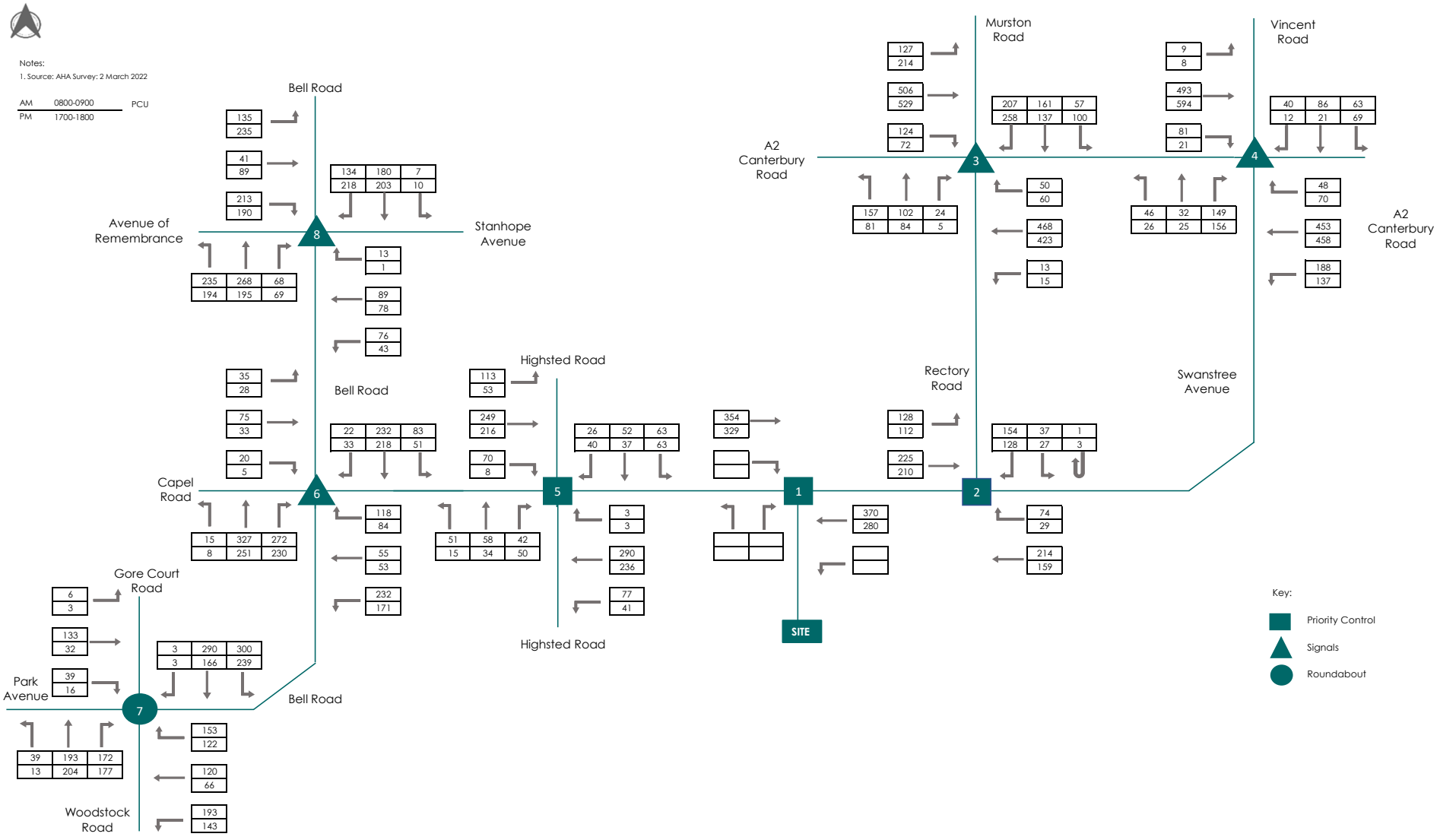

FIGURE B1 **TRAFFIC COUNT: 2022 AM & PM PEAK HOURS**

ASHLEY HELME ASSOCIATES

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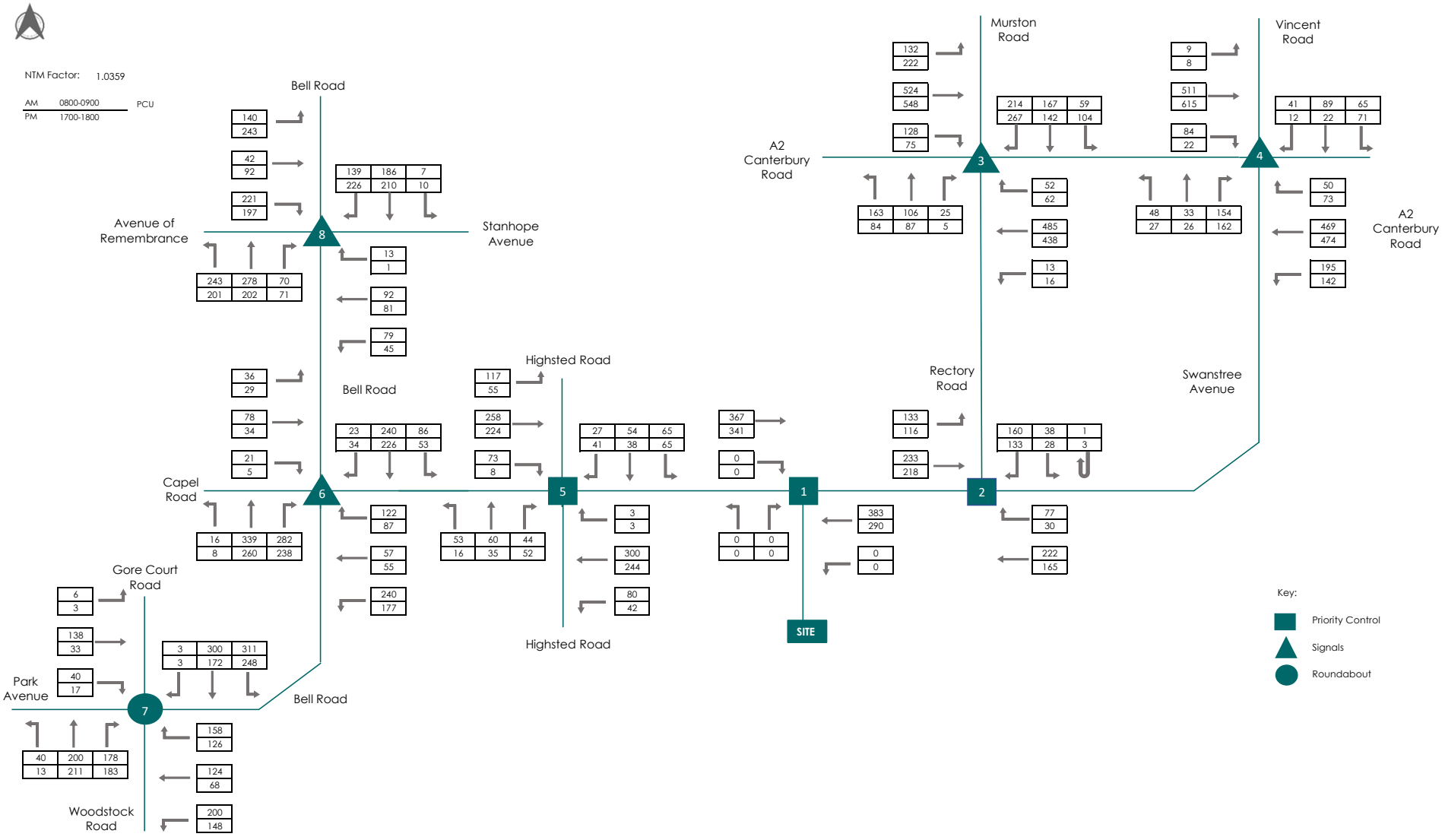

FIGURE B2 **YEAR OF OPENING: 2026**
AM & PM PEAK HOURS

ASHLEY HELME ASSOCIATES

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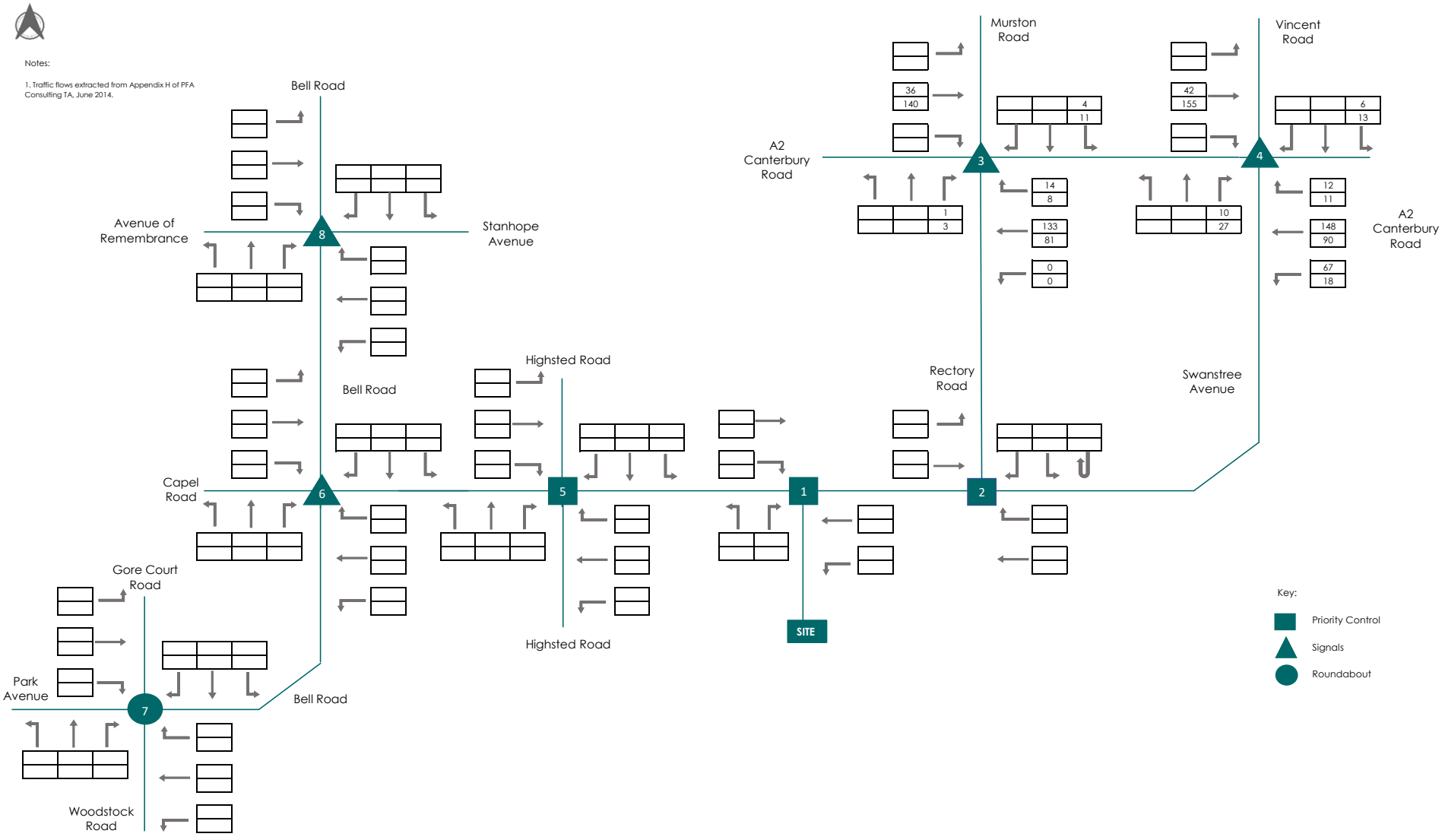

FIGURE B3 **LAND AT STONES FARM, BAPCHILD (14/501588/OUT)**
AM & PM PEAK HOURS

ASHLEY HELME ASSOCIATES

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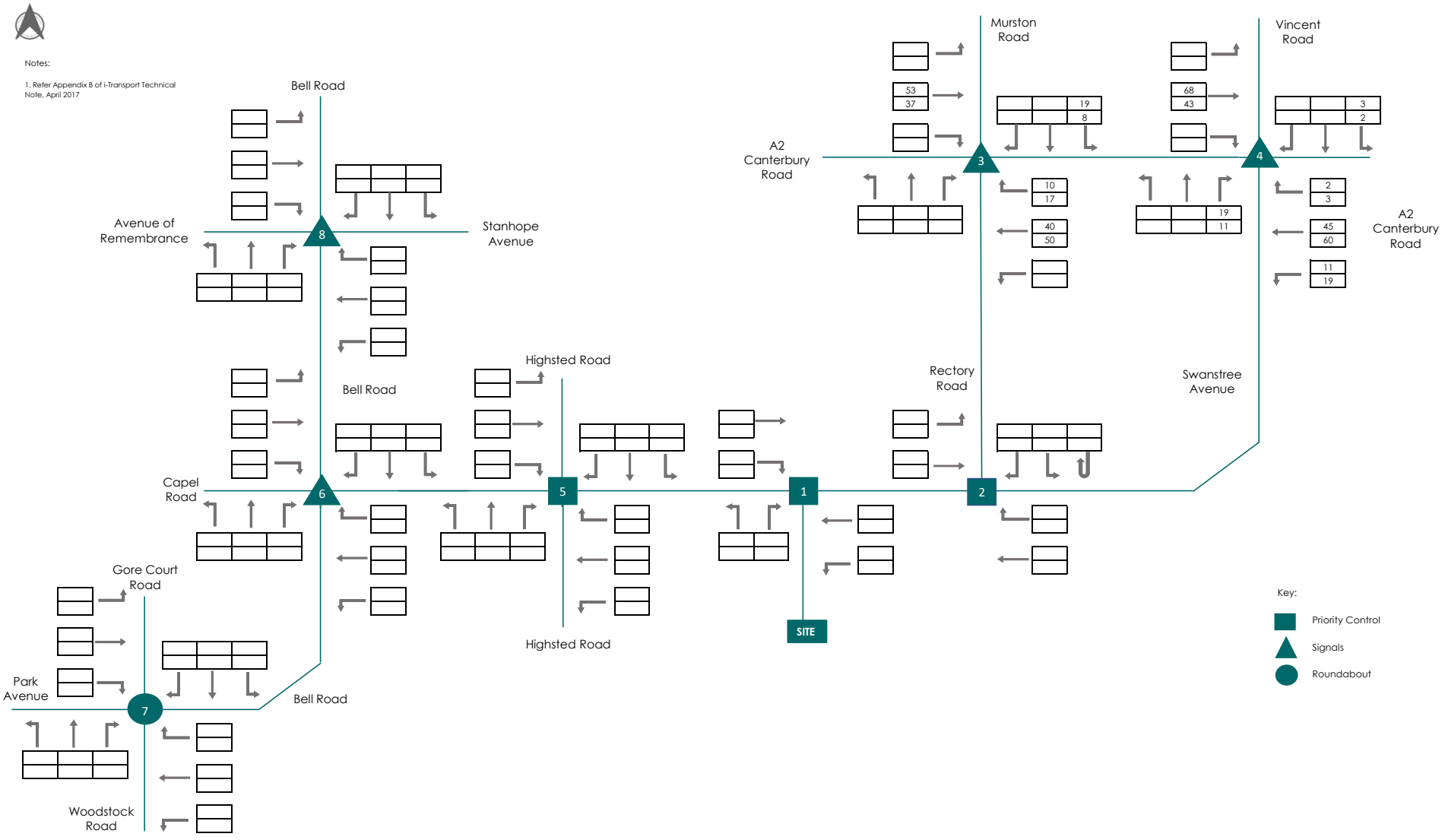

FIGURE B4 **LAND BETWEEN FROGNAL LANE AND ORCHARD VIEW, TEYNHAM (16/507689/OUT)**
AM & PM PEAK HOURS

ASHLEY HELME ASSOCIATES

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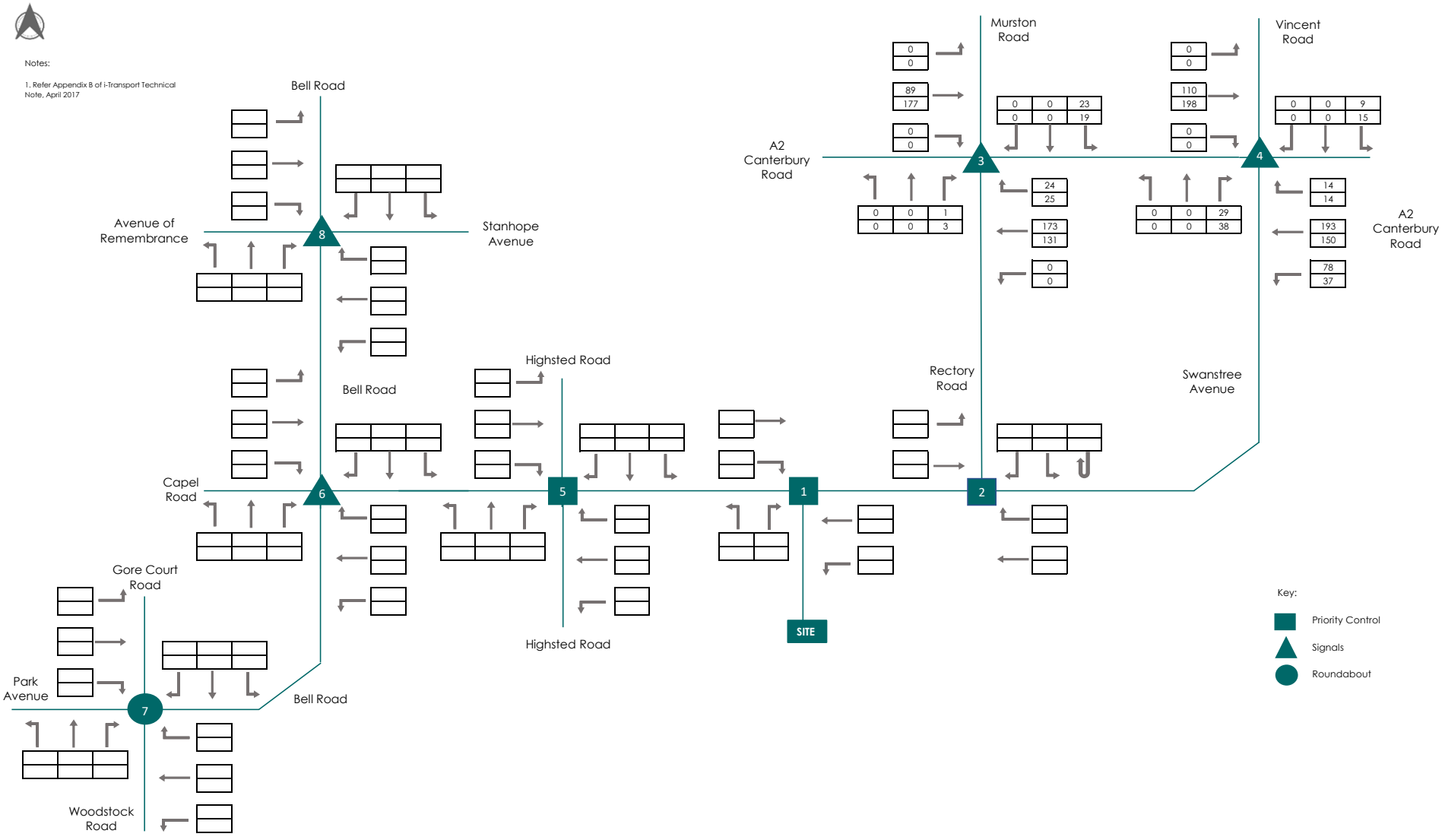

FIGURE B5 **COMMITTED DEVELOPMENT: TOTAL AM & PM PEAK HOURS**

ASHLEY HELME ASSOCIATES

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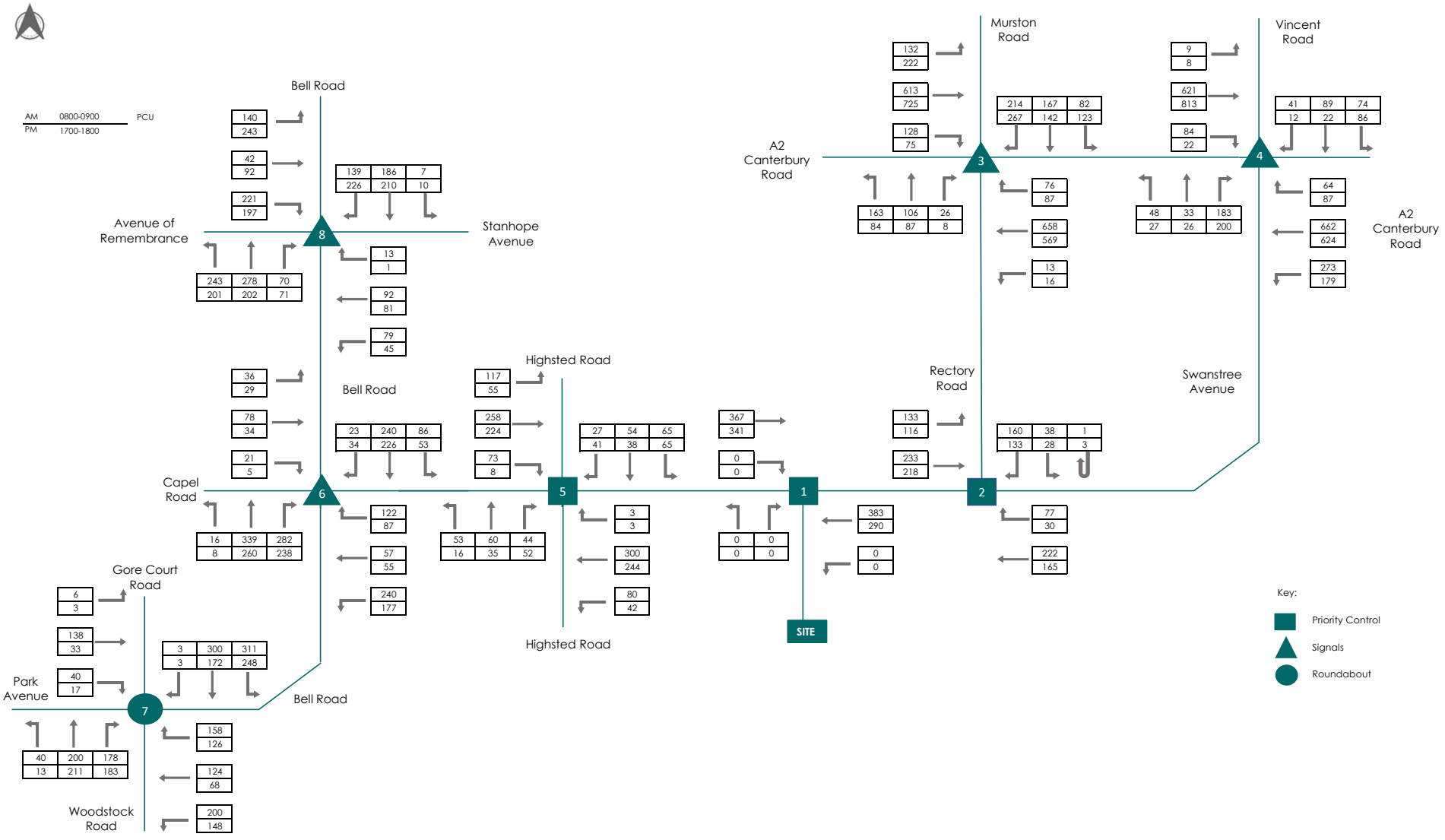

FIGURE B6 **BASE: 2026**
AM & PM PEAK HOURS

ASHLEY HELME ASSOCIATES

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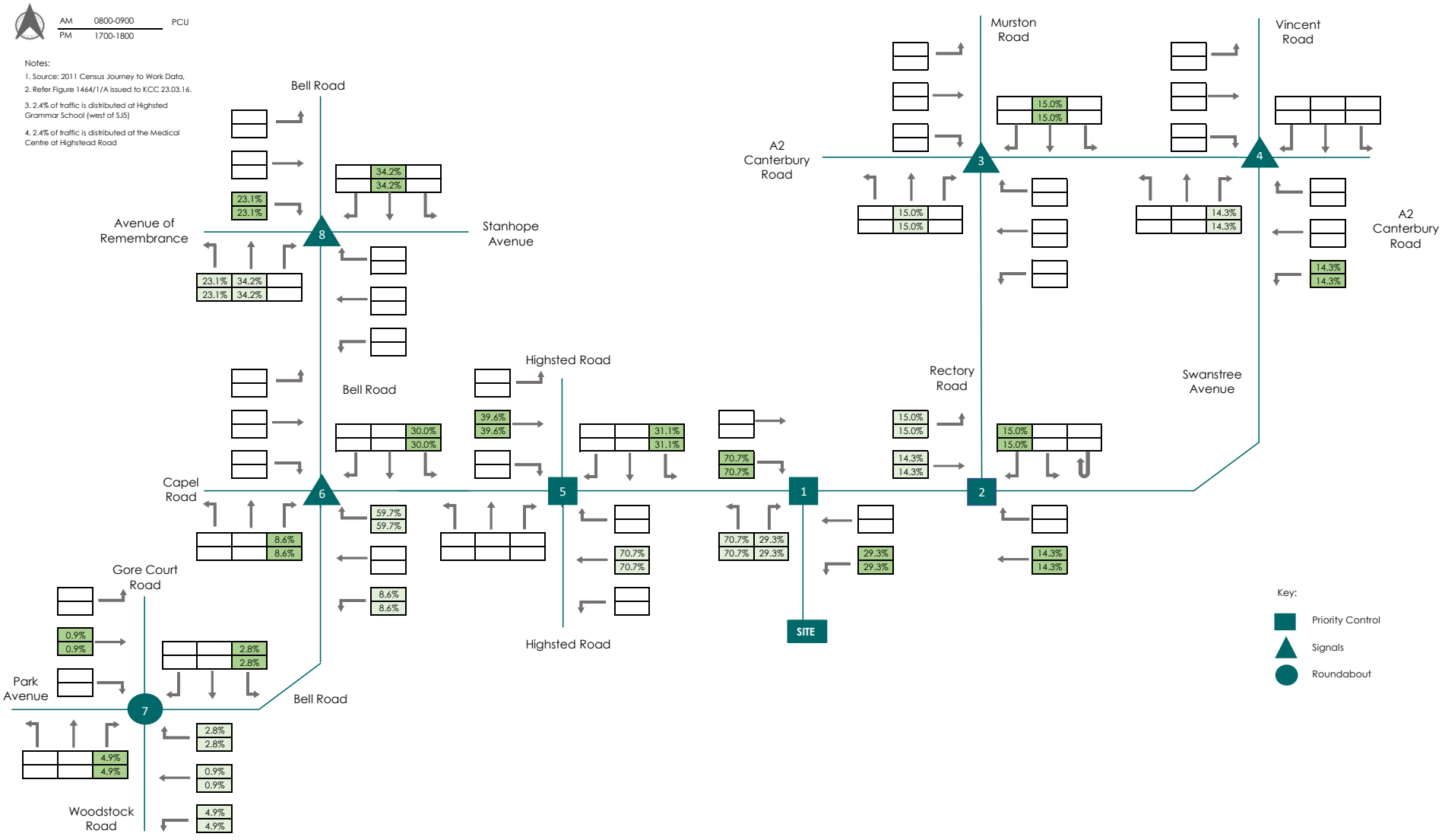

FIGURE B7 **% DISTRIBUTION AM & PM PEAK HOURS**

ASHLEY HELME ASSOCIATES

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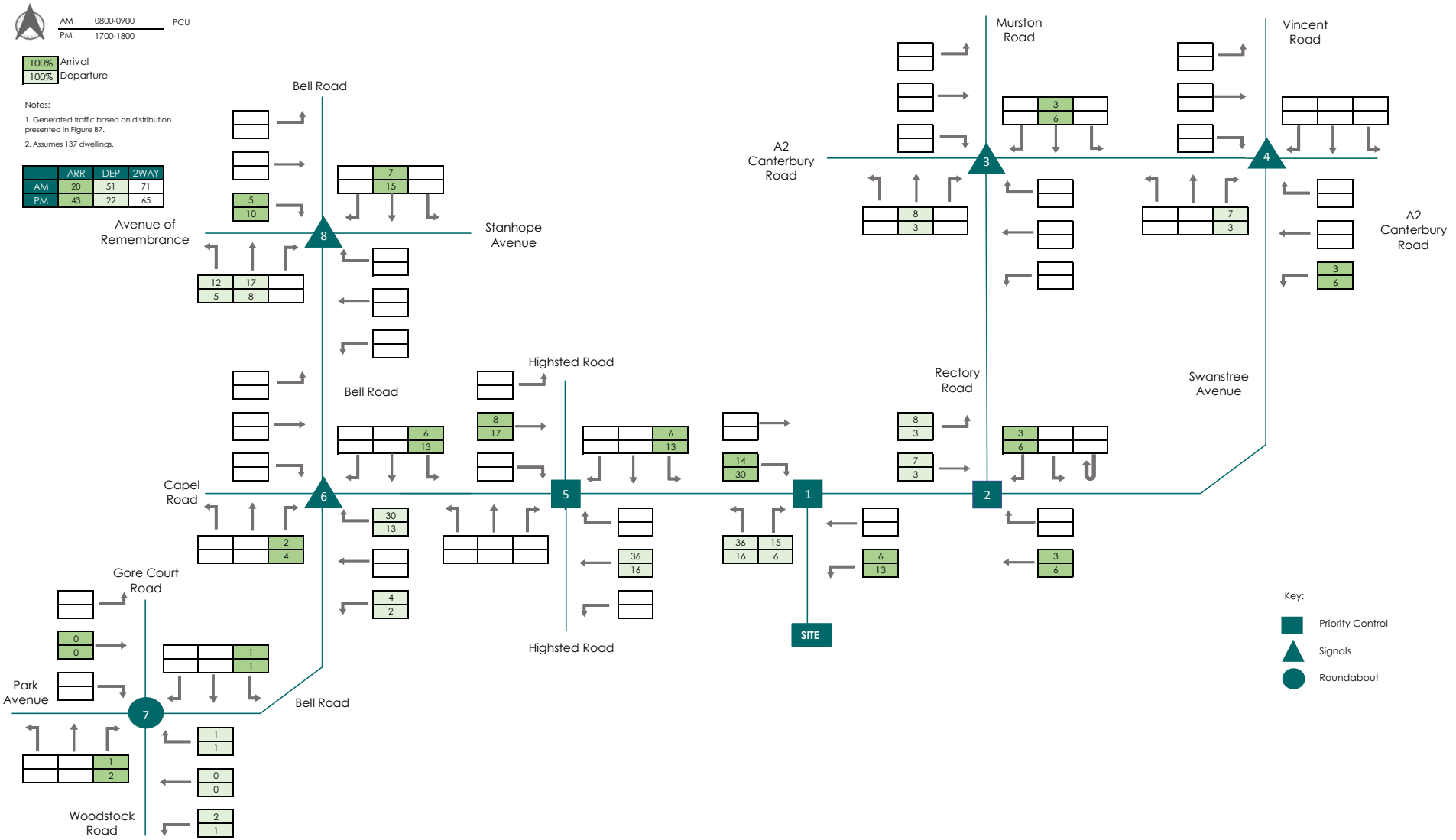

FIGURE B8 **GENERATED TRAFFIC: PROPOSED DEVELOPMENT AM & PM PEAK HOURS**

ASHLEY HELME ASSOCIATES

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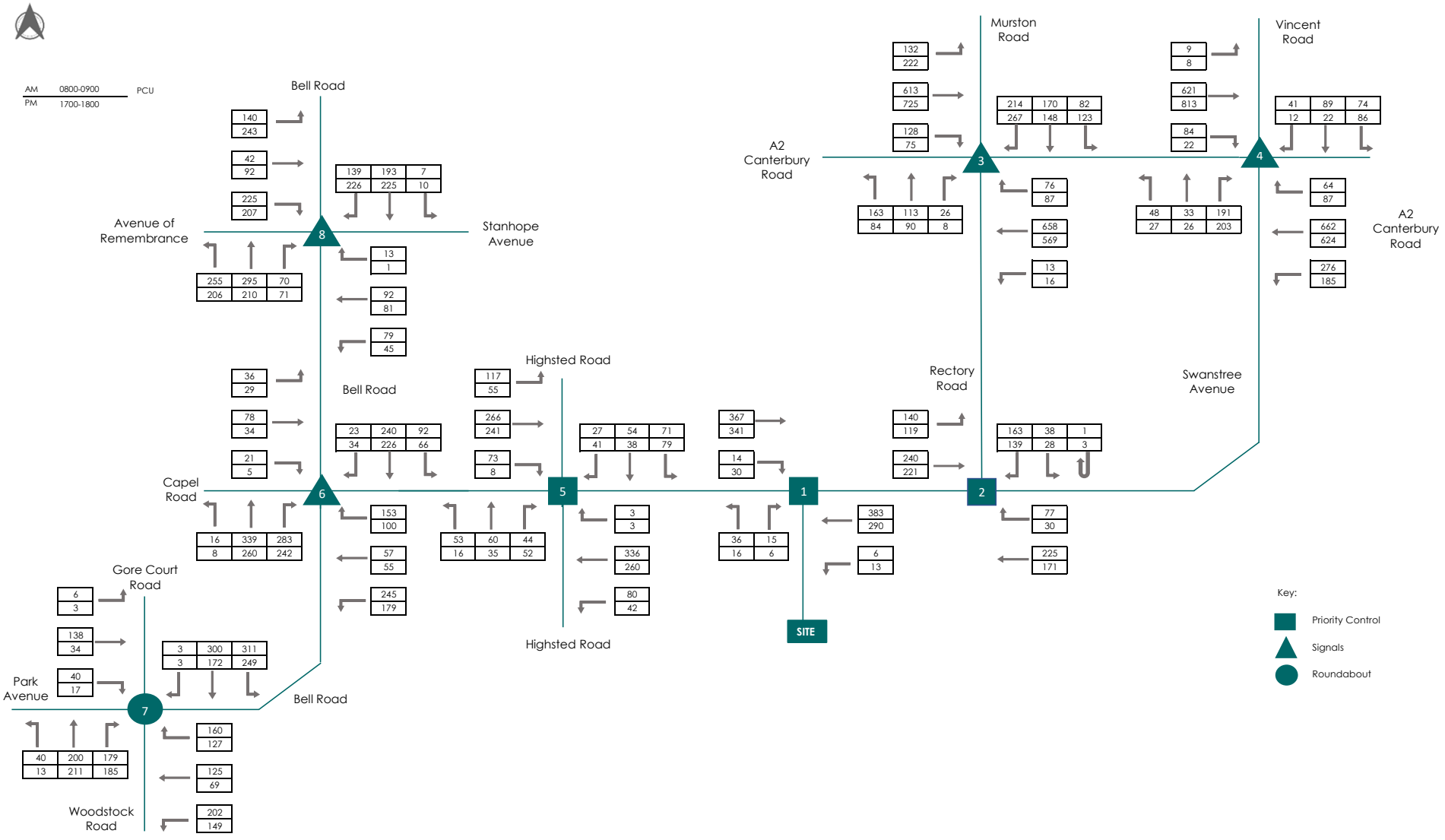

FIGURE B9 **WITH DEVELOPMENT: 2026**
AM & PM PEAK HOURS

ASHLEY HELME ASSOCIATES

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C Technical Filenote 1: Traffic Growth

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TECHNICAL FILE NOTE 1					
Project	Land off Swanstree Avenue, Sittingbourne			Project No	1464
Contact		Originator	KI	Date	23/02/21

Traffic Growth: National Transport Model (NTM)

Methodology

Methodology for growthing background traffic from count year (2021) to Development Year of Opening (2026) is to use the National Transport Model (NTM) methodology, using the following criteria:

- Swale 011 and Swale 013 geographical areas,
- All purpose car driver trips,
- Area type: All
- Road type: All

2021 to 2026 <Year of Opening

	Swale 011	Swale 013
AM peak period:	1.0360	1.0347
PM peak period:	1.0362	1.0365
Average of AM and PM peak periods:	**1.0359**	

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D Technical Note 2: Committed Developments

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TECHNICAL FILE NOTE 2					
Project	Land off Swanstree Avenue, Sittingbourne			Project No	1464
Contact		Originator	KI	Date	27/4/21

1.0 Committed Developments

1.1.1 AHA are aware of the following major development proposals which will need to be considered when assessing the cumulative impact of the proposed development on the highway network.

- 14/501588/OUT Land at Stones Farm, Bapchild, 550-600 homes,
- 14/505440/FUL Mixed use scheme in Sittingbourne town centre,
- SW/11/0159 Morrisons foodstore and 150 dwellings,
- SW/14/0045 Land east of Love Lane, Faversham,
- SW/14/0257 Oare Gravel Works,
- 15/504264/OUT Land at Perry Court, London Road, Faversham,
- 16/507689/OUT Land between Frognal Lane and Orchard View, Teynham,
- 19/505036/OUT Land south of London Road, Teynham,
- 17/505711 Land at Wises Lane, Borden, Kent,
- 18/502190 Land North of Quinton Road, Sittingbourne,
- 18/500257/EIFUL Land adjacent to Quinton Farm House,
- 18/503697/FULL Land at Station Road, Teynham,
- 16/506946/FULL The Bell Centre, Sittingbourne,
- 17/500727/OUT Manor Farm, Key Street, Sittingbourne,
- 16/507877/FULL Land to West of Crown Quay Lane, Sittingbourne.

1.2 Land at Stones Farm, Bapchild (ref 14/501588/OUT)

1.2.1 Planning permission has been granted for between 550-600 homes on land off the A2 in east Sittingbourne. The scheme also proposes a neighbourhood shopping centre, which is to include community facilities. AHA understands that the Site is not yet under construction.

1.2.2 The TA by PFA Consulting which accompanies the planning application considers 2 study junctions which are included in the AHA study network (SJ3 and SJ4). AHA considers the development generated traffic for this proposal in committed development estimates as part of this TA report for the proposed development. Refer Figure B3, Appendix B of this report.

1.3 Mixed Use Scheme in Sittingbourne Town Centre (ref 14/505440/FUL)

1.3.1 Planning permission has been granted for a mixed-use scheme on six parcels of land in the centre of Sittingbourne. The scheme comprises:

- 215 apartments,
- 3158sm GFA retail space,
- 308 space multi-storey car park,
- 1713sm GFA cinema,
- 2320sm GFA restaurant.

1.3.2 The TA which accompanies the planning application does not consider any junctions in the AHA study network. Therefore, this development is not considered further in committed development estimates as part of the TA for the proposed development.

1.4 Morrisons Foodstore and 150 dwellings (ref SW/11/0159)

1.4.1 Planning permission for a foodstore and 150 dwellings has been granted at a site referred to as Sittingbourne Mill. The foodstore is constructed and is operated by Morrisons. The residential element of the scheme is constructed and AHA believe this scheme to be complete.

1.4.2 Traffic generated by this development on the AHA study network will be accounted for in the traffic surveys. No further consideration of this scheme is required in this TA for the proposed development.

1.5 Land East of Love Lane, Faversham (ref SW/14/0045)

1.5.1 The scheme, which received planning consent in February 2016, comprises:

- 5,385sm commercial floorspace,
- 2,000sm office,
- 70 bed hotel,
- pub,
- 300sm health centre,
- 196 dwellings.

1.5.2 The Site is 11.5km from the proposed development on Swanstree Avenue. The TA which accompanies the planning application does not consider any junctions in the AHA study network. Therefore, this development is not considered further in committed development estimates as part of this TA for the proposed development.

1.6 Oare Gravel Works (ref SW/14/0257)

1.6.1 The scheme, which received planning consent in September 2015, comprises:

- 300 dwellings,
- Pub.

1.6.2 The Site is 9.8km from the proposed development on Swanstree Avenue. The TA which accompanies the planning application does not consider any junctions in the AHA study network. All TA study junctions are in Faversham. Therefore, this development is not considered further in committed development estimates as part of this TA for the proposed development.

1.7 Perry Court, London Road, Faversham (ref 15/504264/OUT)

1.7.1 The scheme, which received planning consent in March 2017 comprises:

- 310 dwellings,
- 11,875sm of B1a,
- 3,800sm of B1b,
- 2,850sm of B1c,
- 100 bed hotel (including restaurant),
- 60 unit care home,
- 200sm convenience store.

1.7.2 The TA which accompanies the planning application does not consider any junctions in the AHA study network. All TA study junctions are in Faversham. Therefore, this development is not considered further in committed development estimates as part of this TA for the proposed development.

1.8 Land between Frognal Lane and Orchard View, Teynham (ref 16/507689/OUT)

1.8.1 The scheme comprises the following:

- 300 dwellings,
- Employment area (up to 26,840sqm),
- Sports Ground,
- Open Space.

1.8.2 The scheme was recommended for planning permission at committee in November 2020, subject to amendments to draft S106 and conditions.

1.8.3 The TA which accompanies the planning application undertakes junction assessments of 2 study junctions which are included in the AHA study network (SJ3 and SJ4). AHA considers the development

generated traffic for this proposal in committed development estimates as part of this TA report for the proposed development. Refer Figure B4, Appendix B of this report.

1.9 Land south of London Road, Teynham (ref 19/505036/OUT)

1.9.1 The scheme comprises 86 dwellings. AHA understands that the scheme was recommended refusal on highways by KCC highways in June 2020 but overall, the application is pending a decision.

1.9.2 The TA which accompanies the planning application does not consider any junctions in the AHA study network. Given the applications pending status and that the TA does not consider any AHA study junctions, this development is not considered further in committed development estimates as part of this TA for the proposed development.

1.10 Land at Wises Lane, Borden, Kent (ref 17/505711)

1.10.1 The scheme comprises the following;

- 595 dwellings,
- 2 form entry primary school,
- Local facilities.

1.10.2 AHA understands that the application was appealed for non-determination refusal. The appeal was recovered by the Secretary of State in August 2019 and a public inquiry took place in December 2019. The appeal was allowed and decision posted on Swale BC website on 29 April 2021.

1.10.3 The TA which accompanies the planning application does not consider any junctions in the AHA study network and therefore, is not considered further in committed development estimates as part of this TA for the proposed development.

1.11 Land north of Quinton Road, Sittingbourne (ref 18/502190)

1.11.1 The scheme comprises the following;

- 852 dwellings,
- Secondary and primary school,
- Mixed-use local centre.

1.11.2 AHA understands that the application is pending a decision.

1.11.3 The TA which accompanies the planning application does not consider any junctions in the AHA study network. Given the applications pending status and that the TA does not consider any AHA study junctions, this development is not considered further in committed development estimates as part of this TA for the proposed development.

1.12 Land adjacent to Quinton Farm House (ref 18/500257/EIFUL)

1.12.1 The scheme comprises 155 dwellings and was granted permission in December 2020.

1.12.2 The TA which accompanies the planning application does not consider any junctions in the AHA study network and therefore, is not considered further in committed development estimates as part of this TA for the proposed development.

1.13 Land at Station Road, Teynham (ref 18/503697/FULL)

1.13.1 The scheme comprises 130 dwellings and was granted permission in December 2018.

1.13.2 The TA which accompanies the planning application does not consider any junctions in the AHA study network and therefore, is not considered further in committed development estimates as part of this TA for the proposed development.

1.14 The Bell Centre, Sittingbourne (ref 16/506946/FULL)

1.14.1 The scheme comprises 165 apartments, medical centre and pharmacy and was granted permission in March 2021. The Site previously housed the Bell Shopping Centre, offices, a former nightclub and associated parking.

1.14.2 The TS which accompanies the planning application does not consider any junctions in the AHA study network, nor does it include any detailed junction assessment. Table 6.4 of the TS shows the net change in traffic between the existing uses and proposed uses and shows an overall net reduction total 2-way. The TS concludes that *'the proposed development will have no material impact on the existing operation of the local highway network'*. This scheme is not considered further in the committed development estimates as part of this TA for the proposed development.

1.15 Manor Farm, Key Street, Sittingbourne (ref 17/500727/OUT)

1.15.1 The scheme comprises 50 dwellings and was granted permission in December 2019.

1.15.2 The TS which accompanies the planning application does not consider any junctions in the AHA study network, nor does it undertake any detailed junction assessment. For this reason, the scheme is not considered further in committed development estimates as part of this TA for the proposed development.

1.16 Land to West of Crown Quay Lane, Sittingbourne (ref 16/507877/FULL)

1.16.1 The scheme comprises 383 dwellings and was granted permission in May 2018. AHA understands that the Site is currently under construction.

1.16.2 The TA which accompanies the planning application does not consider any junctions in the AHA study network. For this reason, this development is not considered further in committed development estimates as part of this TA for the proposed development.

1.17 Summary

1.17.1 In summary of the above, it is concluded that the following schemes are considered in this TA when assessing the cumulative impact of the proposed development on the highway network;

- 14/501588/OUT Land at Stones Farm, Bapchild, 550-600 homes,
- 16/507689/OUT Land between Frognal Lane and Orchard View, Teynham.

E TRICS Results

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Calculation Reference: AUDIT-733101-210223-0220

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST		
	HF	HERTFORDSHIRE	1 days
	KC	KENT	1 days
	WS	WEST SUSSEX	3 days
04	EAST ANGLIA		
	NF	NORFOLK	2 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
Actual Range: 110 to 198 (units:)
Range Selected by User: 100 to 200 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/12 to 08/10/20

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

Selected survey days:

Monday	1 days
Tuesday	2 days
Thursday	3 days
Friday	1 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	2 days

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

Selected Locations:

Edge of Town	7

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

Selected Location Sub Categories:

Residential Zone	7

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

Secondary Filtering selection:

Use Class:

C3	7 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	3 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	4 days
1.6 to 2.0	1 days

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

Travel Plan:

Yes	6 days
No	1 days

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

PTAL Rating:

No PTAL Present	7 days

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

LIST OF SITES relevant to selection parameters

1 HF-03-A-03 MIXED HOUSES HERTFORDSHIRE
HARE STREET ROAD
BUNTINGFORD

Edge of Town
Residential Zone
Total No of Dwellings: 160
Survey date: MONDAY *08/07/19* *Survey Type: MANUAL*

2 KC-03-A-04 SEMI-DETACHED & TERRACED KENT
KILN BARN ROAD
AYLESFORD
DITTON
Edge of Town
Residential Zone
Total No of Dwellings: 110
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

3 NF-03-A-13 MIXED HOUSES NORFOLK
BEAUFORT WAY
GREAT YARMOUTH
BRADWELL
Edge of Town
Residential Zone
Total No of Dwellings: 198
Survey date: TUESDAY *11/09/18* *Survey Type: DIRECTIONAL ATC COUNT*

4 NF-03-A-16 MIXED HOUSES & FLATS NORFOLK
NORWICH COMMON
WYMONDHAM

Edge of Town
Residential Zone
Total No of Dwellings: 138
Survey date: TUESDAY *20/10/15* *Survey Type: DIRECTIONAL ATC COUNT*

5 WS-03-A-04 MIXED HOUSES WEST SUSSEX
HILLS FARM LANE
HORSHAM
BROADBRIDGE HEATH
Edge of Town
Residential Zone
Total No of Dwellings: 151
Survey date: THURSDAY *11/12/14* *Survey Type: MANUAL*

6 WS-03-A-08 MIXED HOUSES WEST SUSSEX
ROUNDSTONE LANE
ANGMERING

Edge of Town
Residential Zone
Total No of Dwellings: 180
Survey date: THURSDAY *19/04/18* *Survey Type: MANUAL*

7 WS-03-A-09 MIXED HOUSES & FLATS WEST SUSSEX
LITTLEHAMPTON ROAD
WORTHING
WEST DURRINGTON
Edge of Town
Residential Zone
Total No of Dwellings: 197
Survey date: THURSDAY *05/07/18* *Survey Type: MANUAL*

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DV-03-A-02	Bungalows
ES-03-A-04	flats
FA-03-A-02	flats

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	7	162	0.106	7	162	0.319	7	162	0.425
08:00 - 09:00	7	162	0.146	7	162	0.379	7	162	0.525
09:00 - 10:00	7	162	0.177	7	162	0.208	7	162	0.385
10:00 - 11:00	7	162	0.152	7	162	0.198	7	162	0.350
11:00 - 12:00	7	162	0.137	7	162	0.149	7	162	0.286
12:00 - 13:00	7	162	0.163	7	162	0.155	7	162	0.318
13:00 - 14:00	7	162	0.181	7	162	0.160	7	162	0.341
14:00 - 15:00	7	162	0.176	7	162	0.241	7	162	0.417
15:00 - 16:00	7	162	0.285	7	162	0.211	7	162	0.496
16:00 - 17:00	7	162	0.270	7	162	0.172	7	162	0.442
17:00 - 18:00	7	162	0.316	7	162	0.163	7	162	0.479
18:00 - 19:00	7	162	0.332	7	162	0.190	7	162	0.522
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.441			2.545			4.986

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

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

Parameter summary

Trip rate parameter range selected:	110 - 198 (units:)
Survey date date range:	01/01/12 - 08/10/20
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	3

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

F KCC Consultation Response (3 February 2022)

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Highways and Transportation
Ashford Highway Depot
4 Javelin Way
Ashford
TN24 8AD
Tel: 03000 418181
Date: 3 February 2022
Our Ref:

Swale Borough Council
Swale House
East Street
Sittingbourne
Kent
ME10 3HT

Application - SW/21/505498/OUT
Location - Land Off Swanstree Avenue Sittingbourne Kent ME10 4LU
Proposal - Outline planning application for up to 135no. dwellings with public open space, landscaping and sustainable drainage system (SuDS) and vehicular access point (All matters reserved except for means of access).

Thank you for consulting the Highway Authority on the above application for which we have the following observations and comments.

Development proposals

An outline application is made for 135 new residential dwellings with all matters reserved except for access.

The development proposes one vehicular point of access onto Swanstree Avenue and four additional pedestrian points of access utilising the existing PROW network. The main access is proposed as a simple priority junction leading to what appears to be a 5.5m main street however this is not specified in the documentation.

1. Confirmation of the main access street width is requested.

A 1.8m footway would be provided on both sides of the main access. The Western footway would lead to uncontrolled crossings of Swanstree Avenue. A behind the hedge footway is proposed on the Eastern side which would connect to the existing public rights of way network and uncontrolled crossing points at their junctions with Swanstree Avenue. Tactile paving is proposed to be added at those crossing points. 94m and 95m visibility splays are proposed at the main junction access following the completion of speed surveys which demonstrated an 85th percentile speed of 38MPH although the average speed was generally compliant with the 30MPH limit of the road. The splays indicated are agreed as appropriate. Existing traffic calming cushions are in existence although the speed survey would indicate that higher speeds are occurring.

2. The speed and traffic survey data could not be found in the application and it is requested that this be submitted for review.

Swept path analysis has been completed for a 9.5m pan technicon, 10.4m refuse and 8.68m fire appliance.

3. A Stage 1 Road Safety Audit and Swept Analysis for an 11.4m refuse vehicle is required for the access to be suitably assessed.

Trip Generation and Development Impact

The Transport Assessment has considered the impact on the surrounding network and includes the following junctions;

1. Site Access/Swanstree Avenue
2. Rectory Road/Swanstree Avenue
3. Rectory Road/A2/Murston Avenue
4. Swanstree Avenue/A2/Vincent Road
5. Highsted Road/Swanstree Avenue
6. Brenchley Road/Bell Road/Capel Road

4. It is considered that this area is not sufficiently wide and should as a minimum include the Bell Road/Gore Court Road/Park Avenue roundabout and the Bell Road/Avenue of Remembrance/Stanhope Avenue traffic lights. These junctions have previously indicated capacity concerns and the impact of the development on them must therefore be included in the application assessment.

5. Automated traffic counts were completed on Swanstree Avenue on March 14th to 20th March 2021 with additional turning counts taken on a single day of Tuesday 18th May 2021. The March counts were completed during higher level Covid restrictions and the Highway Authority were not accepting counts at the times of either completed surveys. The traffic analysis and junction assessments are therefore not accepted. As restrictions have been significantly eased, the Highway Authority are however now accepting traffic counts and recommends that these be completed as soon as possible, avoiding the school holiday periods.

6. TRICs assessment has been completed using relatively historic data and as a consequence much higher rates than would be anticipated have been used. This would be considered robust but could present an unrealistic impression of the vehicular impact.

7. The traffic distribution percentages demonstrated on Figure B7 and consequently all other flow diagrams are not accepted. There appears to be a shortage of outgoing westbound flows and the outbound flow using Highsted Road would be unrealistic in our opinion due to the necessary illegal movement or U-turn at the Crocus Drive roundabout.

The analysis in the submitted technical notes 1 and 2 on growth and committed development are accepted, although it should be noted that the Stones Farm application has now commenced.

Site Accessibility

Pedestrian access –

There are in total five points of pedestrian access, the main access road and five further which make use of the existing PROW network. A 1.8m footway is proposed to link the main access road to PROW ZU31 at the east of the proposed application site. The proposed access drawing 1464/18 demonstrates the introduction of three crossings points with dropped kerb and tactile paving.

Two suitable walking routes to the town centre have been identified in the TA using either Peregrine Drive or Brenchley/Bell Road.

8. It is considered that the most direct route to local services and amenities would however be via Highsted Road, an approximate 15–17 minute walk. This route has an incomplete footway and it is recommended that local and national policy would indicate that the likely demand generated for walking from this development would necessitate mitigation that removes the need to walk on the vehicular carriageway. The Highway Authority maybe able to provide some detail on potential design options for this.

9. Whilst the application has provided dropped kerb crossings this should be placed in the context of the development to the West which benefits from staged crossing via central islands and a Southern footway. There are currently no proposed facilities heading Westwards from the development without having to cross Swanstree Avenue and as such a direct connection to Snowdrop Walk with suitable crossing facilities of Highsted Road (South) should be provided.

Two primary schools and four secondary schools are within suitable walking distances from the site.

Cycle Access –

The site directly connects to the shared use facility on Swanstree Avenue and wider network and is well located to amenities and employment that would be within the recommended 5KM cycle distance.

10. An opportunity exists within the proposed development to connect to the Snowdrop Walk cycleway from this development, extending the shared facility to the South of Swanstree Avenue should be provided to improve cycle access and safety from the site.

Public Transport Access –

The site is capable of being served by existing stops at Crocus Avenue and Brenchley Road. Most of the site would be within the expected 400m to the existing infrastructure. Access however is impeded by the current necessity to cross Swanstree Avenue twice in the case of accessing the more frequent Eden Village service. This movement would raise potential safety concerns as people may often be in a hurry to arrive in time for their bus and provides additional justification for the need to provide a direct pedestrian/cycle access between the application site and Eden Village estate South of Swanstree Avenue.

Summary

The Highway Authority requires further and more accurate information to be submitted in order for the application to be fully assessed. Whilst the site is located within suitable reach of local amenities and the services there are significant impediments to suitable safe and convenient pedestrian and cycle access which the application has not addressed.

The Highway Authority are unable to support approval of the application at this time due to the omission of necessary data and improvements to the local walking and cycling network.

Informative: It is important to note that planning permission does not convey any approval to carry out works on or affecting the public highway.

Any changes to or affecting the public highway in Kent require the formal agreement of the Highway Authority, Kent County Council (KCC), and it should not be assumed that this will be a given because planning permission has been granted. For this reason, anyone considering works which may affect the public highway, including any highway-owned street furniture, is advised to engage with KCC Highways and Transportation at an early stage in the design process.

Across the county there are pieces of land next to private homes and gardens that do not look like roads or pavements but are actually part of the public highway. Some of this highway land is owned by Kent County Council whilst some is owned by third party owners. Irrespective of the ownership, this land may have highway rights over the topsoil.

Works on private land may also affect the public highway. These include works to cellars, to retaining walls which support the highway or land above the highway, and to balconies, signs or other structures which project over the highway. Such works also require the approval of the Highway Authority.

Kent County Council has now introduced a formal technical approval process for new or altered highway assets, with the aim of improving future maintainability. This process applies to all development works affecting the public highway other than applications for vehicle crossings, which are covered by a separate approval process.

Should the development be approved by the Planning Authority, it is the responsibility of the applicant to ensure, before the development is commenced, that all necessary highway approvals and consents have been obtained and that the limits of the highway boundary have been clearly established, since failure to do so may result in enforcement action being taken by the Highway Authority. The applicant must also ensure that the details shown on the approved plans agree in every aspect with those approved under the relevant legislation and common law. It is therefore important for the applicant to contact KCC Highways and Transportation to progress this aspect of the works prior to commencement on site.

Guidance for applicants, including information about how to clarify the highway boundary and links to application forms for vehicular crossings and other highway matters, may be found on Kent County Council's website: https://www.kent.gov.uk/roads-and-travel/highway-permits-and-licences/highways-permissions-and-technical-guidance. Alternatively, KCC Highways and Transportation may be contacted by telephone: 03000 418181

Yours Faithfully

Director of Highways & Transportation

*This is a statutory technical response on behalf of KCC as Highway Authority. If you wish to make representations in relation to highways matters associated with the planning application under consideration, please make these directly to the Planning Authority.

G TRICS Multi-Modal Trip Rates

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Calculation Reference: AUDIT-733101-210715-0723

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
05	EAST MIDLANDS		
	LE	LEICESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
Actual Range: 70 to 99 (units:)
Range Selected by User: 70 to 100 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 18/09/19

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

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	3 days
Thursday	3 days

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

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Edge of Town	5
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Residential Zone	6
Village	1
No Sub Category	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village,

Secondary Filtering selection:

Use Class:

C3	8 days

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

Population within 500m Range:

All Surveys Included

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	1 days
25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days

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

Car ownership within 5 miles:

1.1 to 1.5	8 days

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

Travel Plan:

Yes	3 days
No	5 days

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

PTAL Rating:

No PTAL Present	8 days

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

LIST OF SITES relevant to selection parameters

1 DV-03-A-03 TERRACED & SEMI DETACHED DEVON
LOWER BRAND LANE
HONITON

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 70
Survey date: MONDAY *28/09/15* *Survey Type: MANUAL*

2 ES-03-A-05 MIXED HOUSES & FLATS EAST SUSSEX
RATTLE ROAD
NEAR EASTBOURNE
STONE CROSS
Edge of Town
Residential Zone
Total No of Dwellings: 99
Survey date: WEDNESDAY *05/06/19* *Survey Type: MANUAL*

3 LE-03-A-02 DETACHED & OTHERS LEICESTERSHIRE
MELBOURNE ROAD
IBSTOCK

Neighbourhood Centre (PPS6 Local Centre)
Village
Total No of Dwellings: 85
Survey date: THURSDAY *28/06/18* *Survey Type: MANUAL*

4 NF-03-A-04 MIXED HOUSES NORFOLK
NORTH WALSHAM ROAD
NORTH WALSHAM

Edge of Town
Residential Zone
Total No of Dwellings: 70
Survey date: WEDNESDAY *18/09/19* *Survey Type: MANUAL*

5 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD
RIPON

Edge of Town
No Sub Category
Total No of Dwellings: 71
Survey date: TUESDAY *17/09/13* *Survey Type: MANUAL*

6 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD
BYFLEET

Edge of Town
Residential Zone
Total No of Dwellings: 71
Survey date: THURSDAY *23/01/14* *Survey Type: MANUAL*

7 SF-03-A-07 MIXED HOUSES SUFFOLK
FOXHALL ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 73
Survey date: THURSDAY *09/05/19* *Survey Type: MANUAL*

8 WS-03-A-10 MIXED HOUSES WEST SUSSEX
TODDINGTON LANE
LITTLEHAMPTON
WICK
Edge of Town
Residential Zone
Total No of Dwellings: 79
Survey date: WEDNESDAY *07/11/18* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PEDESTRIANS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	77	0.010	8	77	0.053	8	77	0.063
08:00 - 09:00	8	77	0.036	8	77	0.117	8	77	0.153
09:00 - 10:00	8	77	0.040	8	77	0.040	8	77	0.080
10:00 - 11:00	8	77	0.019	8	77	0.029	8	77	0.048
11:00 - 12:00	8	77	0.023	8	77	0.015	8	77	0.038
12:00 - 13:00	8	77	0.032	8	77	0.026	8	77	0.058
13:00 - 14:00	8	77	0.028	8	77	0.021	8	77	0.049
14:00 - 15:00	8	77	0.021	8	77	0.011	8	77	0.032
15:00 - 16:00	8	77	0.091	8	77	0.034	8	77	0.125
16:00 - 17:00	8	77	0.039	8	77	0.028	8	77	0.067
17:00 - 18:00	8	77	0.065	8	77	0.024	8	77	0.089
18:00 - 19:00	8	77	0.021	8	77	0.032	8	77	0.053
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.425			0.430			0.855

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

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

H Stage 1 Road Safety Audits & Designer's Responses

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Land at Swanstree Avenue, Sittingbourne

Designers Response Report

Footway Scheme on Highsted Road (N)

Report prepared for
Gladman Developments Ltd

May 2022

Report Reference 1464/7

ASHLEY HELME
ASSOCIATES

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Designer's Response Report

Land at Swanstree Avenue, Sittingbourne

Client:	Gladman Developments Ltd
Report Ref:	1464/7
Status:	Draft
Date:	May 2022

Ashley Helme Associates Ltd
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SALE, Manchester
M33 7RE

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www.ashleyhelme.co.uk

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Designer's Response

Land at Swanstree Avenue, Sittingbourne

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1 Introduction

1.1 Ashley Helme Associates Ltd (AHA) are appointed by Gladman Developments Ltd to prepare a Designer's Response Report to the Stage 1 Road Safety Audit (RSA) that has been undertaken for the proposed footway improvement scheme on Highsted Road (N) in Sittingbourne.

1.2 Scheme Details

1.2.1 This Designer's Response Report has been prepared following an independent Stage 1 RSA of the works proposed on the following plan:

- Drg No 1464/20: Proposed Improvement Scheme

1.2.2 The scheme consists of a new footway on Highsted Road (N), between Swanstree Avenue and Farm Crescent, with associated speed control measures and pedestrian crossing point.

1.2.3 Additional documents and plans were provided to the Audit Team and these were examined as part of the audit process. These comprise:

- Drg No 1464/20: Proposed Improvement Scheme
- Non-Motorised User Survey of Highstead Road (N): 10-12 March 2022 (inclusive).

1.3 Key Personnel

1.3.1 The key personnel associated with this RSA are set out below.

- Overseeing Organisation: Colin Finch, Kent County Council,
- RSA Team: Jon Birkett, Meraki Alliance,
- Design Organisation: Simon Helme, Ashley Helme Associates

1.4 Stage 1 Road Safety Audit

1.4.1 The audit visit was carried out on 9 May 2022 by the following members of the Audit Team:

Jonathan Birkett - IEng, MICE, FIHE, MSoRSA,
Holder of Highways England Certificate of Competency
Road Safety Audit Team Leader

Gillian Kidd - MIHE
Road Safety Audit Team Member

1.4.2 The audit was undertaken in accordance with the DfT publication GG 119.

1.4.3 A copy of the Stage 1 Road Safety Audit Report is included in Appendix A of this report. AHA has carefully considered the problems and recommendations of the Stage 1 RSA. Chapter 2 of this report includes all of the problems and recommendations raised by the Audit Team, as well as the AHA's response to these issues.

1.4.4 The summary and conclusions of the report are presented in Chapter 3. The RSA Decision Log and the Design Organisation and Overseeing Organisation statements is included in Appendix C of the report.

2 Identified Issues and Designers Response

2.1 PROBLEM 1-1

2.1.1 Location: West side of Highsted Road (N).

2.1.2 Summary: Vegetation blocking footways will increase the risk of NMU/vehicle collisions.

2.1.3 It is proposed to construct a new 1.2m wide footway along Highsted Road. The vegetation along this section of carriageway is extensive. To construct the scheme the developer would need to cut back the vegetation. The Audit Team were concerned that if this cutting back was not sufficiently extensive then the existing growth behind the Palisade Fencing would very quickly grow through the fencing forcing pedestrians to walk in the carriageway increasing the risk of NMU/vehicle collisions.

2.1.4 Recommendation

2.1.4.1 Remove all the vegetation behind the Palisade fencing that could in the future grow back and affect the new footway.

2.1.5 Designer's Response

2.1.5.1 The vegetation referred to is located within located school land which is outside of the control of the either the applicant (Gladman Developments Ltd) or Kent County Council. Consequently, it is unlikely that the vegetation can be removed. However, the highway authority has the power, and a duty, to cut back vegetation that overhangs the public highway. Therefore, the issue identified in the Stage 1 RSA should not materialise with regular maintenance.

3 Summary & Conclusions

3.1 This Designer's Response Report has been prepared following an independent Stage 1 Road Safety Audit (RSA) of the works proposed on the following plans:

- Drg No 1464/20: Proposed Improvement Scheme

3.2 The RSA identified a single problem and provided a recommendation to address the issue.

3.3 AHA has carefully considered the problem and recommendation of the Stage 1 Safety Audit Report. It is considered that the problem identified in the RSA is easily overcome with a regular maintenance programme.

3.4 The RSA decision log has been completed and signed by Simon Helme of the Design Organisation (AHA) and by Colin Finch of the Overseeing Organisation (Kent County Council). The RSA decision log is included in Appendix C.

3.5 It is considered that the issue and recommendation identified by the Audit Team has been addressed.

A RSA Report

meraki alliance
Highways, Transportation & Safety Consulting

Proposed Improvement Works: Highsted Road, Sittingbourne

Road Safety Audit: Stage 1

Kent County Council
County Hall
Maidstone
ME14 1XQ

Jonathan Birkett
Meraki Alliance Ltd
Unit 1 Waterside
Old Boston Road
Wetherby
LS22 5NB
Tel:+44 (0) 7966296302

meraki alliance
Highways, Transportation & Safety Consulting

Proposed Improvement Works: Highsted Road, Sittingbourne

Road Safety Audit: Stage 1

Report Produced for:	Kent County Council
Report Produced by:	Jonathan Birkett
Report Dated:	11 May 2022
Report Reference:	MAL/HRSRSA1Rev0
Road Safety Audit Team Leader:	Jonathan Birkett

Proposed Improvement Works: Highsted Road, Sittingbourne

Road Safety Audit: Stage 1

Contents Amendment Record

This report has been issued & amended as follows:

Issue	Revision	Description	Date	Signed
1	0	Draft Report	10 May 2022	JB
1	0	FINAL REPORT	11 May 2022	JB/GK

Report Circulation Record

This report has been circulated, as follows:

Person	Organisation	No. of Copies	Date
	Kent County Council	Electronic	
Paul Loftus	Ashley Helme	Electronic	12 May 2022
Gillian Kidd	Meraki Alliance Ltd	Electronic	12 May 2022

Contents

1 Introduction

1.1 General

This report has been prepared in response to a request to undertake a Stage 1 Road Safety Audit (i.e., carried out prior to detailed design), by Ashley Helme Associates on behalf of Kent County Council. The scheme submitted for Audit is the proposed new residential development, Swanstree Avenue, Sittingbourne, Kent. The site is located on land to the south of Swanstree Avenue. This Road Safety Audit covers only the proposed improvements on Highsted Road (to the north of Swanstree Avenue junction).

The speed limits of the roads being audited are.

- Highsted Road 30mph and street lit.
- Swanstree Avenue 30mph street lit and traffic calmed.

The scope of the proposed highway works includes:

- Footway,
- Build outs,
- Uncontrolled pedestrian crossings, and
- Road markings.

The audit comprised an examination of documents forming the Audit Brief and an examination of the site. This Audit is restricted to the S278 works.

1.2 Documents Forming the Brief

The documents were made available to the Road Safety Audit Team by Paul Loftus (Ashley Helme), on behalf of Kent County Council.

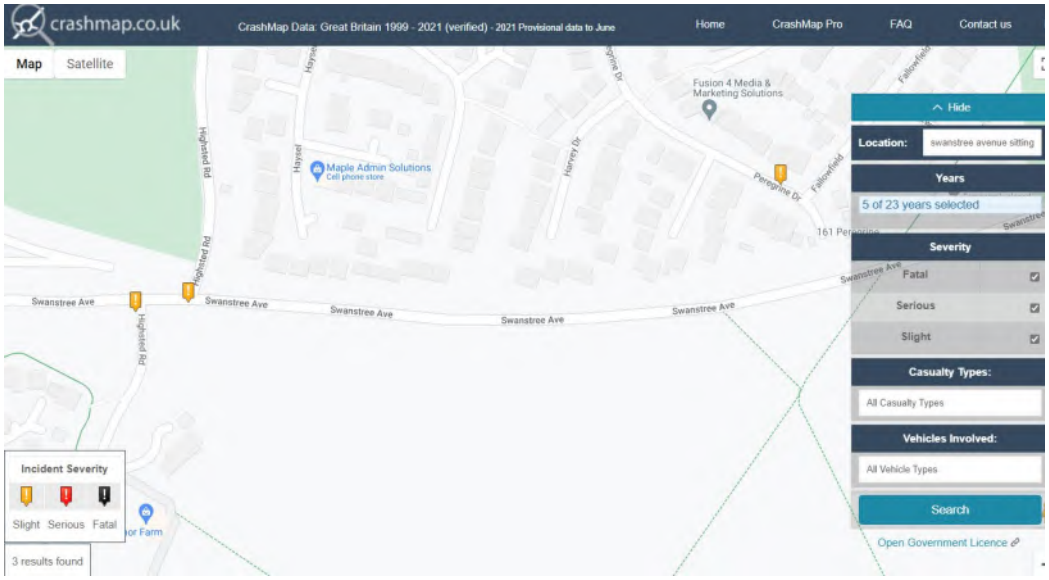
The total documents forming the Audit Brief are listed in Appendix 1:

Generally, the Brief comprised:

- Verbal Brief.
- Drawing.

1.3 Collision, Traffic and Speed Data

Collision data was not available as part of the as part of the brief and therefore the Audit Team examined the most recent 5 years of data held (2017-2021) on the 'Crashmap' website. The data shows that there have been two slights in severity collisions on Swanstree Avenue close to the proposed improvement works.



Traffic data was not available.

Speed data was not available.

1.4 Details of Site Visit

A site inspection was undertaken on Monday 09 May between 18:15 – 19:30. The RSA team spent 75 minutes on site understanding the proposed works and their interaction with the local road network.

During the visit, the weather was fine and sunny, no incidents were noted during the site visit.

During the site visit it was observed that a number of pedestrians were crossing Swanstree Avenue at the junction with Highsted Road. Currently there are no crossing facilities at this junction.

1.5 RSA Team and Format

It was considered that the information provided was sufficient for the purpose of carrying out the Road Safety Audit Stage 1 requested.

The Road Safety Audit Team membership approved on behalf of the Highway Authority was:

JONATHAN BIRKETT IENG MICE FIHE

Holder of Highways England Certificate of Competency

Road Safety Audit Team Leader

G KIDD MIHE

Road Safety Audit Team Member

The Road Safety Audit comprised an examination of the documents and drawings supplied to the Road Safety Audit Team (referenced in Appendix 1 of this report). No

member of the Road Safety Audit Team has had any previous input to the design of the scheme.

The Terms of Reference are as described in the Highways England Design Manual for Roads and Bridges document GG119 'Road Safety Audit'. The scheme has been examined and this report compiled only with regard to safety implications to road users of the scheme as presented. It has not been verified for compliance with any other Standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. However, any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.

Furthermore, any recommendations included within this report should not be regarded as being prescriptive design solution to the problem raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, as stipulated in GG119, and in no way imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which should be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

It is the Project Sponsor's responsibility to ensure that all problems raised by the Road Safety Audit Team are given due consideration.

In the event of a collision and any resulting legal action, Meraki Alliance Ltd would have to defend its actions on the basis that it took such care, as in all circumstances was reasonably required, to ensure that the highway was not dangerous to road users. It is important therefore that recommendations contained in the report are acted upon wherever possible.

1.6 Departures or Relaxations from Standards

No Departures or Relaxations from Standard were submitted to the Road Safety Audit Team.

1.7 Items Raised in Previous Road Safety Audits

No previous Road Safety Audits have been undertaken.

1.8 Information Not Included at Stage 1

Drainage

Signing

Street Lighting

Construction Details

Resurfacing.

1.9 Items Considered but not Included in RSA

The Road Safety Audit Team has carefully considered the implications of providing a 1.2m wide footway along Highsted Road. Background information from Ashley Helme Associates has provided details of discussions between Kent County Council and the developer with regards the width of the footway. Currently there is no footway, and a demand has been proven through the collection of NMU counts on Highsted Road. During the site visit a number of pedestrians with dogs were observed walking along Highsted Road.

The land is constrained by private ownership to the east and a school to the west. Therefore, available land is heavily constrained and as such providing a wider footway is prohibited due to these restrictions, whilst still maintaining sufficient carriageway width for vehicles to pass safely. The Audit Team consider that on balance providing a 1.2m wide footway albeit sub standard in width is better than the current situation where no footway is available for pedestrians.

2 Items Raised at Stage 1 Road Safety Audit

This section details the findings of this Stage 1 Road Safety Audit. All locations of identified problems are illustrated on the plan included at **Appendix 2**.

2.1 RSA Problems

PROBLEM		**1-1**
Location:	Highsted Road	
Summary:	Vegetation blocking footways will increase the risk of NMU/vehicle collisions.	
It is proposed to construct a new 1.2m wide footway along Highsted Road. The vegetation along this section of carriageway is extensive. To construct the scheme the developer would need to cut back the vegetation. The Audit Team were concerned that if this cutting back was not sufficiently extensive then the existing growth behind the Palisade Fencing would very quickly grow through the fencing forcing pedestrians to walk in the carriageway increasing the risk of NMU/vehicle collisions.		
RECOMMENDATION		
Remove all the vegetation behind the Palisade fencing that could in the future grow back and affect the new footway.		

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

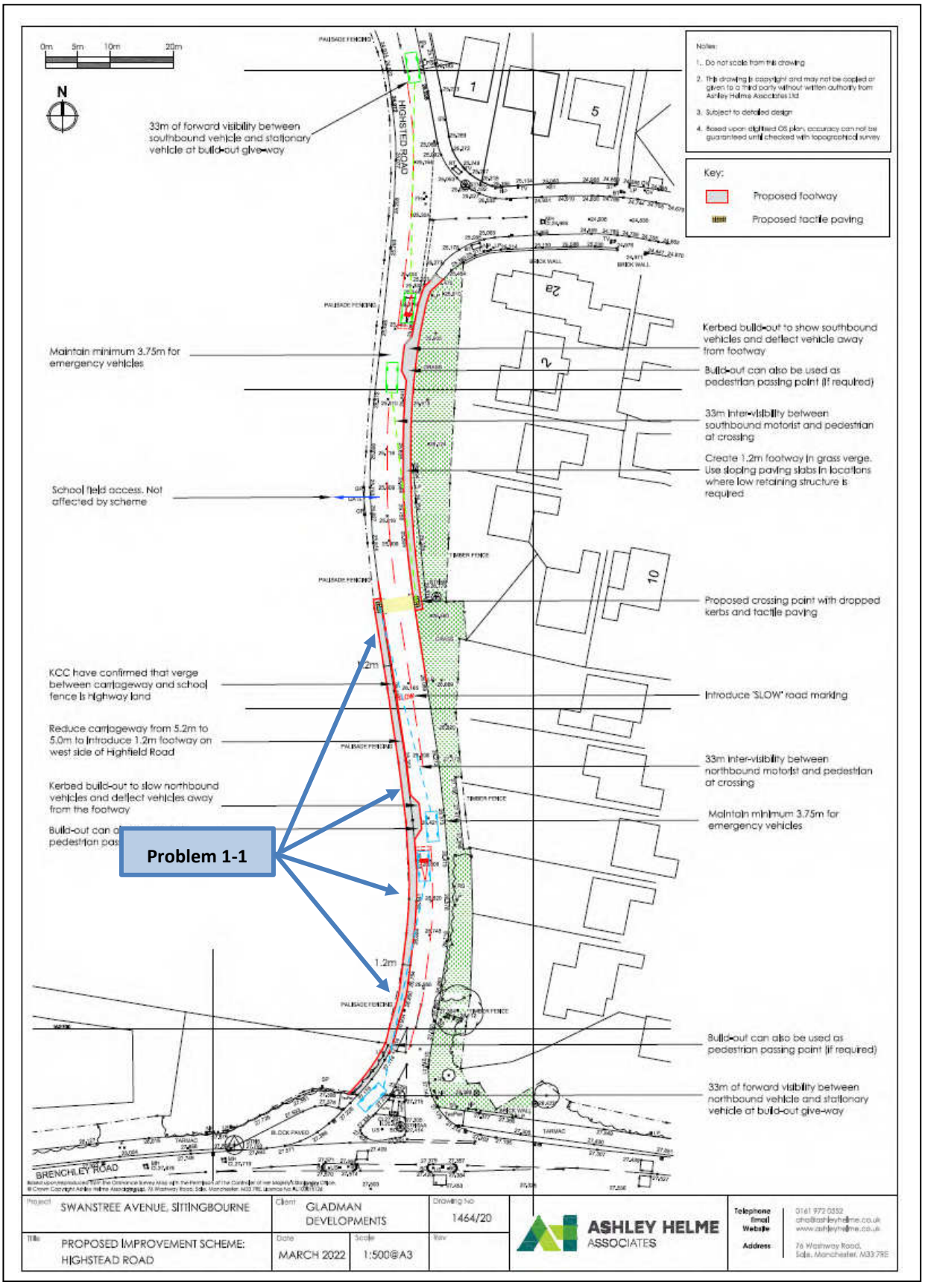
3 Audit Team Statement

We certify that this Road Safety Audit has been carried out in accordance with GG119	
ROAD SAFETY AUDIT TEAM LEADER	
NAME:	JONATHAN BIRKETT
SIGNED:	
POSITION:	DIRECTOR
ORGANISATION	MERAKI ALLIANCE LTD
DATE:	11 MAY 2022
ROAD SAFETY AUDIT TEAM LEADER	
NAME:	GILLIAN KIDD
SIGNED:	
POSITION:	AUDIT TEAM MEMBER
ORGANISATION	MERAKI ALLIANCE LTD
DATE:	11 MAY 2022

Appendix 1 – Audited Drawings and Documents

Drawing Number 1464/20 Proposed Improvement Scheme Highsted Road

Appendix 2 – Problem Location Plan



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0m 5m 10m 20m

N

33m of forward visibility between southbound vehicle and stationary vehicle at build-out give-way

Maintain minimum 3.75m for emergency vehicles

School field access. Not affected by scheme

KCC have confirmed that verge between carriageway and school fence is highway land

Reduce carriageway from 5.2m to 5.0m to introduce 1.2m footway on west side of Highfield Road

Kerbed build-out to slow northbound vehicles and deflect vehicles away from the footway

Build-out can also be used as pedestrian passing point (if required)

Kerbed build-out to show southbound vehicles and deflect vehicle away from footway

Build-out can also be used as pedestrian passing point (if required)

33m inter-visibility between southbound motorist and pedestrian at crossing

Create 1.2m footway in grass verge. Use sloping paving slabs in locations where low retaining structure is required

Proposed crossing point with dropped kerbs and tactile paving

Introduce 'SLOW' road marking

33m inter-visibility between northbound motorist and pedestrian at crossing

Maintain minimum 3.75m for emergency vehicles

Build-out can also be used as pedestrian passing point (if required)

33m of forward visibility between northbound vehicle and stationary vehicle at build-out give-way

Notes:

1. Do not scale from this drawing
2. This drawing is copyright and may not be copied or given to a third party without written authority from Ashley Helme Associates Ltd
3. Subject to detailed design
4. Based upon digitised OS plan, accuracy can not be guaranteed until checked with topographical survey

Key:

Proposed footway

Proposed tactile paving

HIGHSTED ROAD

BRENCHLEY ROAD

PALISADE FENCING

TIMBER FENCE

BRICK WALL

GRASS

BLOCK PAVED

TARMAC

1.2m

SLOW

Project: SWANSTREE AVENUE, SITTINGBOURNE	Client: GLADMAN DEVELOPMENTS	Drawing No: 1464/20	
Title: PROPOSED IMPROVEMENT SCHEME: HIGHSTEAD ROAD	Date: MARCH 2022	Scale: 1:500@A3	Rev:

ASHLEY HELME ASSOCIATES

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Address 76 Washway Road, Sale, Manchester, M33 7RE

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C RSA Decision Log and Statements

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
1-1 Vegetation blocking footways will increase the risk of NMU/vehicle collisions. It is proposed to construct a new 1.2m wide footway along Highsted Road. The vegetation along this section of carriageway is extensive. To construct the scheme the developer would need to cut back the vegetation. The Audit Team were concerned that if this cutting back was not sufficiently extensive then the existing growth behind the Palisade Fencing would very quickly grow through the fencing forcing pedestrians to walk in the carriageway increasing the risk of NMU/vehicle collisions.	Remove all the vegetation behind the Palisade fencing that could in the future grow back and affect the new footway.	The vegetation referred to is located within school land, which is outside of the control of either the applicant (Gladman Developments Ltd) or Kent County Council. Consequently, it is unlikely that the vegetation can be removed. However, the highway authority has the power, and a duty, to cut back vegetation that overhangs the public highway. Therefore, the issue identified in the Stage 1 RSA should not materialise with regular maintenance.		

On behalf of the Design Organisation I certify that:

1. the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.

Name:	Simon Helme
Signed:	
Position:	Director
Organisation:	Ashley Helme Associates Ltd
Date:	

On behalf of the Overseeing Organisation I certify that:

1. the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation; and

2. the agreed RSA actions will be progressed.

Name:	Colin Finch
Signed:	
Position:	Principal Transport & Development Planner (Canterbury & Swale)
Organisation:	Kent County Council
Date:	

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Land at Swanstree Avenue, Sittingbourne

Designers Response Report

Works on Swanstree Avenue
and Highsted Road (S)

Report prepared for
Gladman Developments Ltd

May 2022

Report Reference 1464/8

ASHLEY HELME
ASSOCIATES

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Designer's Response Report

Land at Swanstree Avenue, Sittingbourne

Client:	Gladman Developments Ltd
Report Ref:	1464/8
Status:	Draft
Date:	May 2022

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Designer's Response Report

Land at Swanstree Avenue, Sittingbourne

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1 Introduction

1.1 Ashley Helme Associates Ltd (AHA) are appointed by Gladman Developments Ltd to prepare a Designer's Response Report to the Stage 1 Road Safety Audit (RSA) that has been undertaken for the proposed Site access junction and an shared footway/cycleway on Swanstree Avenue and Highsted Road (S) in Sittingbourne.

1.2 Scheme Details

1.2.1 This Designer's Response Report has been prepared following an independent Stage 1 RSA of the works proposed on the following plans:

- Drg No 1464/18/B: Proposed Access Arrangements,
- Drg No 1464/21: Proposed Shared Footway/Cycleway.

1.2.2 The scheme consists of a priority-controlled Site access junction and an shared footway/cycleway on Swanstree Avenue and Highsted Road (S).

1.2.3 Additional documents and plans were provided to the Audit Team and these were examined as part of the audit process. These comprise:

- Drg No 1464/18/B: Proposed Access Arrangements,
- Drg No 1464/21: Proposed Shared Footway/Cycleway
- Swept path analysis of the proposed Site access,
- Non-Motorised User Survey of Highstead Road (N): 10-12 March 2022 (inclusive).

1.3 Key Personnel

1.3.1 The key personnel associated with this RSA are set out below.

- Overseeing Organisation: Colin Finch, Kent County Council,
- RSA Team: Jon Birkett, Meraki Alliance,
- Design Organisation: Simon Helme, Ashley Helme Associates

1.4 Stage 1 Road Safety Audit

1.4.1 The audit visit was carried out on 9 May 2022 by the following members of the Audit Team:

Jonathan Birkett - IEng, MICE, FIHE, MSoRSA,
Holder of Highways England Certificate of Competency

Road Safety Audit Team Leader

Gillian Kidd - MIHE
Road Safety Audit Team Member

1.4.2 The audit was undertaken in accordance with the DfT publication GG 119.

1.4.3 A copy of the Stage 1 Road Safety Audit Report is included in Appendix A of this report. AHA has carefully considered the problems and recommendations of the Stage 1 RSA. Chapter 2 of this report includes all of the problems and recommendations raised by the Audit Team, as well as the AHA's response to these issues.

1.4.4 The summary and conclusions of the report are presented in Chapter 3. The RSA Decision Log and the Design Organisation and Overseeing Organisation statements is included in Appendix C of the report.

2 Identified Issues and Designers Response

2.1 PROBLEM 1-1

2.1.1 Location: South side of Swanstree Avenue and to the east of the proposed Site access.

2.1.2 Summary: Inappropriate intervisibility between pedestrians at uncontrolled crossings and approaching vehicles can lead to an increased risk of pedestrian/vehicle collisions.

2.1.3 Two uncontrolled pedestrian crossings are proposed to the east of the site access on Swanstree Avenue. These crossings tie into the existing location of Public Rights of Way (PRoW). There is considerable vegetation located all along the southern boundary of Swanstree Avenue. Details of site clearance are not shown on the drawings and therefore the Audit Team were concerned that intervisibility between pedestrians and approaching vehicles on Swanstree Avenue could lead to an increased risk of pedestrian/vehicle collisions.

2.1.4 **Recommendation**

2.1.4.1 Provide the correct intervisibility between pedestrians and vehicles based on the speed limit and ensure that the hedge line is cut back sufficiently to stop the issue of regrowth becoming an ongoing problem on Swanstree Avenue.

2.1.5 **Designer's Response**

2.1.5.1 Pedestrian-vehicle intervisibility sightlines are shown on Drg No 1464/18/C. The sightlines are based on the Stopping Sight Distances (SSDs) of vehicles travelling in eastbound and westbound directions along Swanstree Avenue. The sightline measured to the east is 95m. The sightline measured to the west is 94m.

2.1.5.2 For ease of reference, the proposed pedestrian crossing closest to the Site access is annotated as Pedestrian Crossing **A** on Drg No 1464/18/C. The easternmost crossing is annotated as Pedestrian Crossing **B**.

2.1.5.3 Drg No 1464/18/C demonstrates that the pedestrian-vehicle intervisibility sightlines at Pedestrian Crossing A are largely contained to within the carriageway. Therefore, the existing hedgerow is unlikely to affect the intervisibility. However, to ensure visibility is maintained in the future, the applicant proposes to remove 10m of hedgerow (ie 20m in total) either side of Pedestrian Crossing A on the south (Site) side of Swanstree Avenue.

2.1.5.4 Drg No 1464/18/C demonstrates that the pedestrian-vehicle intervisibility sightline at Pedestrian Crossing B is largely contained to within the carriageway in the direction towards the west. In the direction to the east, the sightline is generally coincident with the southern kerbline of Swanstree Avenue. Therefore, the existing hedgerow is unlikely to affect this intervisibility. However, to ensure visibility is maintained in the future, the applicant proposes to remove the existing hedgerow 10m on the west side of Pedestrian Crossing B on the south (Site) side of Swanstree Avenue. The hedgerow on the east side of Pedestrian Crossing B falls outside the red line boundary. However, the highway authority has the power, and a duty, the trim back vegetation that overhangs the public highway.

2.2 PROBLEM 1-2

2.2.1 Location: South side of Swanstree Avenue near to the junction with Highsted Road (S).

2.2.2 Summary: Insufficient footway/cycleway width can increase the risk of both cycle/cycle and pedestrian/cycle collisions.

2.2.3 It is proposed to construct a new footway/cycleway from the site access to Highsted Road along the southern side of Swanstree Avenue. As part of these works the existing brick retaining wall (roughly 23m in length), will be set back to the rear of the new footway/cycleway. The Audit Team were concerned that where vertical features are located adjacent to a cycleway additional width is required to allow cyclists to move into the centre of the footway/cycleway to avoid striking the feature. Insufficient footway/cycleway width can increase the risk of both cycle/cycle and pedestrian/cycle collisions.

2.2.4 Recommendation

2.2.4.1 DMRB CD 195 shows that for any feature over 600mm high an additional width of at least 0.5m should be provided.

2.2.5 Designer's Response

2.2.5.1 The proposed shared footway/cycleway on the Swanstree Avenue and Highsted Road (S) is 2.5m wide. In accordance with the recommendation of the Stage 1 RSA, the width of the shared footway/cycleway is increased to 3.0m coincident with the retaining wall. This is shown on Drg Nos 1464/18/C and 1464/21/A.

2.3 PROBLEM 1-3

2.3.1 Location: Swanstree Avenue and Highsted Road (S).

2.3.2 Summary: Inappropriate footway/cycleway layouts will increase the risk of collisions

2.3.3 It is proposed to construct a new footway/cycleway from the site access to Highsted Road along the southern side of Swanstree Avenue. It is unclear how cyclists are meant to leave this new facility and either enter Swanstree Avenue prior to Highsted Road or continue their journeys on Highsted Road. The route appears to lead cyclists towards the informal connection to Snowdrop Walk and as such this is totally unsuitable without remedial works as a cycle route (problem 1-4 below should be read in conjunction with this problem). Inappropriate footway/cycleway layouts will increase the risk of collisions.

2.3.4 **Recommendation**

2.3.4.1 At detailed design carefully consider the needs of cyclists and how they will leave the new cycleway and continue their journeys along Swanstree Avenue and Highsted Road.

2.3.5 **Designer's Response**

2.3.5.1 The locations of cycle lane to carriageway and carriage to cycle lane transitions are annotated on Drg No 1464/21/A. The precise details (ie location, geometry, signage, etc) can be determined at Detailed Design Stage.

2.4 PROBLEM 1-4

2.4.1 Location: Informal Connection to Snowdrop Walk.

2.4.2 Summary: A lack of suitable footway/cycleway will increase the risk of slips and falls

2.4.3 It is proposed to construct a new footway/cycleway to the informal connection to Snowdrop Walk (Photo). This link is heavily overgrown and is uneven and in wet weather becomes muddy. Promoting this route to pedestrians and cyclists will increase the risk of slips and falls.

2.4.4 **Recommendation**

2.4.4.1 Continue the footway/cycleway through to Snowdrop Walk removing all vegetation.

2.4.5 **Designer's Response**

2.4.5.1 The connection between Highsted Road (S) and Snowdrop Walk does not form part of the proposed scheme to be delivered by the applicant. The land required to form the link is controlled by a third party. Therefore, Kent County Council have agreed that they will negotiate with the third party and deliver the link.

2.5 PROBLEM 1-5

2.5.1 Location: Highsted Road (S)

2.5.2 Summary: Vegetation blocking visibility splays will increase the risk of Non-Motorised User/vehicle collisions.

2.5.3 It is proposed to construct a new uncontrolled crossing of Highsted Road. The verges are severely overgrown with trees and other vegetation. NMUs crossing at this location will have their visibility obstructed by this vegetation increasing the risk of NMU/vehicle collisions

2.5.4 **Recommendation**

2.5.4.1 At detailed design provide visibility splays and site clearance.

2.5.5 **Designer's Response**

2.5.5.1 Vehicle speeds in the vicinity of the proposed crossing on Highsted Road (S) are unlikely to be high as vehicles are either slowing as they approach the Swanstree Avenue junction or have just turned from Swanstree Avenue into Highsted Road (S). Drg No 1464/21/A shows pedestrian-vehicle intervisibility sightlines of 33m, which would be appropriate for a 25mph design speed.

2.5.5.2 Drg No 1464/21/A shows that unobstructed intervisibility is available between a pedestrian standing on the east side of the crossing and an approaching vehicle on Highsted Road (S) travelling in a northbound direction. The full extent of sightline is contained to within the carriageway. Towards Swanstree Avenue, there may be a requirement to cut back some of the vegetation on the east side of Highsted Road (S) to provide intervisibility between a pedestrian and a vehicle completing left and right turn movements into Highsted Road (S). This can be determined on Site at Detailed Design Stage. The vegetation is within land controlled by KCC.

2.5.5.3 On the west side of the proposed crossing, Drg No 1464/21/A shows that the intervisibility sightline between a pedestrian and vehicle travelling in a northbound direction is contained to within the new footway and the carriageway. Therefore, there is unlikely to be a requirement to remove any footway on the west side of Highsted Road (S) over and above that which will be removed

to form the new footway. If, at Detailed Design Stage, it is considered that some vegetation cut back would be beneficial then this is contained to within land controlled by KCC.

2.6 PROBLEM 1-6

2.6.1 Location: Swanstree Avenue/Highsted Road junction.

2.6.2 Summary: A lack of uncontrolled crossings will increase the risk of NMU/vehicle collisions as well as pedestrian trips and falls.

2.6.3 Whilst undertaking the site visit the Audit Team observed a number of pedestrians walking down the informal route from Snowdrop Walk, crossing Highsted Road and walking down the verge to the junction with Highsted Road/Swanstree Avenue. At this point they crossed just to the side of the block paved bay and headed north onto the footway cycleway and either headed east along Swantree Avenue or north onto Highsted Road (walking in the carriageway). The Audit Team were concerned that the development would increase the number of pedestrians and cyclists using both formal and informal routes leading to an increased risk of NMU/vehicle collisions as well as trips and falls.

2.6.4 **Recommendation**

2.6.4.1 The Audit Team accept that a crossing will be provide just to the west of the site access. However, it was considered that NMUs would be likely to cross at the existing junction. Consider at detailed design NMU routes and introduce an uncontrolled crossing point close to this junction on existing desire lines.

2.6.5 **Designer's Response**

2.6.5.1 In response to the RSA comment, Drg Nos 1464/18/C and 1464/21/C show the formation of a new crossing on Swanstree Avenue at the junction with Highsted Road. An indicative crossing location is shown between the splitter island at the southern end of Highsted Road (N) and the southern kerbline of Swanstaree Avenue, to the east of Highsted Road (S). This would locate the crossing as close as possible to the desire line between Highsted Road (N) and (S). As advised by the RSA, this can be considered further at Detailed Design Stage. An alternative location would be circa 25m east of the location shown. However, this may not be as popular with users as it would involve a circa 50m detour for movements between Highsted Road (N) and (S).

3 Summary & Conclusions

3.1 This Designer's Response Report has been prepared following an independent Stage 1 Road Safety Audit (RSA) of the works proposed on the following plans:

- Drg No 1464/18/B: Proposed Access Arrangements,
- Drg No 1464/21: Proposed Shared Footway/Cycleway

3.2 The RSA identified problems and provided recommendations to address the issues.

3.3 AHA has carefully considered the problems and recommendations of the Stage 1 Safety Audit Report. It is considered that the problems identified in the RSA are capable of being overcome either with a change to the current design or can be considered further at Detailed Design Stage.

3.1 In response, the RSA, the scheme has been revised. The revised plans are:

- Drg No 1464/18/C: Proposed Access Arrangements,
- Drg No 1464/21/A: Proposed Shared Footway/Cycleway

3.4 The RSA decision log has been completed and signed by Simon Helme of the Design Organisation (AHA) and by Colin Finch of the Overseeing Organisation (Kent County Council). The RSA decision log is included in Appendix C.

3.5 It is considered that the issues and recommendations identified by the Audit Team has been addressed.

A RSA Report

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meraki alliance
Highways, Transportation & Safety Consulting

Proposed Improvement Works: Swanstree Avenue, Sittingbourne

Road Safety Audit: Stage 1

Kent County Council
County Hall
Maidstone
ME14 1XQ

Jonathan Birkett
Meraki Alliance Ltd
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Wetherby
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meraki alliance
Highways, Transportation & Safety Consulting

Proposed Improvement Works: Swanstree Avenue, Sittingbourne

Road Safety Audit: Stage 1

Report Produced for:	Kent County Council
Report Produced by:	Jonathan Birkett
Report Dated:	11 May 2022
Report Reference:	MAL/SASRSA1Rev0
Road Safety Audit Team Leader:	Jonathan Birkett

meraki alliance
Highways, Transportation & Safety Consulting

Proposed Improvement Works: Swanstree Avenue, Sittingbourne

Road Safety Audit: Stage 1

Contents Amendment Record

This report has been issued & amended as follows:

Issue	Revision	Description	Date	Signed
1	0	Draft Report	10 May 2022	JB
1	0	FINAL REPORT	11 May 2022	JB/GK

Report Circulation Record

This report has been circulated, as follows:

Person	Organisation	No. of Copies	Date
	Kent County Council	Electronic	
Paul Loftus	Ashley Helme	Electronic	12 May 2022
Gillian Kidd	Meraki Alliance Ltd	Electronic	12 May 2022

Contents

1 Introduction

1.1 General

This report has been prepared in response to a request to undertake a Stage 1 Road Safety Audit (i.e., carried out prior to detailed design), by Ashley Helme Associates on behalf of Kent County Council. The scheme submitted for Audit is the proposed new residential development, Swanstree Avenue, Sittingbourne, Kent. The site is located on land to the south of Swanstree Avenue. This Road Safety Audit covers only the proposed improvements on Swanstree Avenue and Highsted Road (to the south of Swanstree Avenue).

The speed limits of the roads being audited are.

- Swanstree Avenue 30mph street lit and traffic calmed.
- Highsted Road 30mph/60mph (street lit up to national speed limit change).

The scope of the proposed highway works includes:

- Construction of a new site access (simple priority junction).
- Footway (Swanstree Avenue and Highsted Road)
- Uncontrolled pedestrian crossings, and
- Road markings.

The audit comprised an examination of documents forming the Audit Brief and an examination of the site. This Audit is restricted to the S278 works.

1.2 Documents Forming the Brief

The documents were made available to the Road Safety Audit Team by Paul Loftus (Ashley Helme), on behalf of Kent County Council.

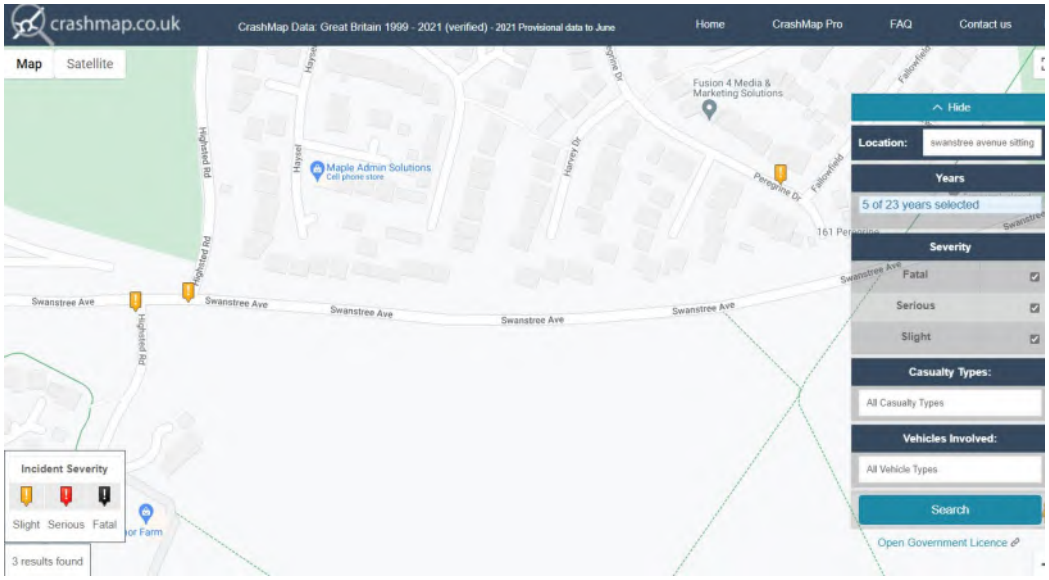
The total documents forming the Audit Brief are listed in Appendix 1:

Generally, the Brief comprised:

- Verbal Brief.
- Drawings.

1.3 Collision, Traffic and Speed Data

Collision data was not available as part of the as part of the brief and therefore the Audit Team examined the most recent 5 years of data (2017-2021) held on ‘Crashmap’. The data shows that there have been two slights in severity collisions on Swanstree Avenue close to the proposed improvement works.



Traffic data was not available.

Speed data was not available.

1.4 Details of Site Visit

A site inspection was undertaken on Monday 09 May between 18:15 – 19:30. The RSA team spent 75 minutes on site understanding the proposed works and their interaction with the local road network.

During the visit, the weather was fine and sunny, no incidents were noted during the site visit.

During the site visit it was observed that a number of pedestrians were crossing Swanstree Avenue at the junction with Highsted Road. Currently there are no crossing facilities at this junction.

1.5 RSA Team and Format

It was considered that the information provided was sufficient for the purpose of carrying out the Road Safety Audit Stage 1 requested.

The Road Safety Audit Team membership approved on behalf of the Highway Authority was:

JONATHAN BIRKETT IENG MICE FIHE

Holder of Highways England Certificate of Competency

Road Safety Audit Team Leader

G KIDD MIHE

Road Safety Audit Team Member

The Road Safety Audit comprised an examination of the documents and drawings supplied to the Road Safety Audit Team (referenced in Appendix 1 of this report). No

member of the Road Safety Audit Team has had any previous input to the design of the scheme.

The Terms of Reference are as described in the Highways England Design Manual for Roads and Bridges document GG119 'Road Safety Audit'. The scheme has been examined and this report compiled only with regard to safety implications to road users of the scheme as presented. It has not been verified for compliance with any other Standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. However, any audit comments should not be construed as implying that a technical audit has been undertaken in any respect.

Furthermore, any recommendations included within this report should not be regarded as being prescriptive design solution to the problem raised. They are intended only to indicate a proportionate and viable means of eliminating or mitigating the identified problem, as stipulated in GG119, and in no way imply that a formal design process has been undertaken. There may be alternative methods of addressing a problem which should be equally acceptable in achieving the desired elimination or mitigation and these should be considered when responding to this report.

It is the Project Sponsor's responsibility to ensure that all problems raised by the Road Safety Audit Team are given due consideration.

In the event of a collision and any resulting legal action, Meraki Alliance Ltd would have to defend its actions on the basis that it took such care, as in all circumstances was reasonably required, to ensure that the highway was not dangerous to road users. It is important therefore that recommendations contained in the report are acted upon wherever possible.

1.6 Departures or Relaxations from Standards

No Departures or Relaxations from Standard were submitted to the Road Safety Audit Team.

1.7 Items Raised in Previous Road Safety Audits

No previous Road Safety Audits have been undertaken.

1.8 Information Not Included at Stage 1

Drainage

Signing

Street Lighting

Construction Details

Resurfacing.

1.9 Items Considered but Deemed to be Outside the Scope of the RSA

There are no items.

2 Items Raised at Stage 1 Road Safety Audit

This section details the findings of this Stage 1 Road Safety Audit. All locations of identified problems are illustrated on the plan included at **Appendix 2**.

2.1 RSA Problems

PROBLEM	**1-1**
Location:	Swanstree Avenue
Summary:	Inappropriate intervisibility between pedestrians at uncontrolled crossings and approaching vehicles can lead to an increased risk of pedestrian/vehicle collisions.
Two uncontrolled pedestrian crossings are proposed to the east of the site access on Swanstree Avenue. These crossings tie into the existing location of Public Rights of Way (PRoW). There is considerable vegetation located all along the southern boundary of Swanstree Avenue. Details of site clearance are not shown on the drawings and therefore the Audit Team were concerned that intervisibility between pedestrians and approaching vehicles on Swanstree Avenue could lead to an increased risk of pedestrian/vehicle collisions.	
RECOMMENDATION	
Provide the correct intervisibility between pedestrians and vehicles based on the speed limit and ensure that the hedge line is cut back sufficiently to stop the issue of regrowth becoming an ongoing problem on Swanstree Avenue.	

PROBLEM	**1-2**
Location:	Swanstree Avenue
Summary:	Insufficient footway/cycleway width can increase the risk of both cycle/cycle and pedestrian/cycle collisions.
It is proposed to construct a new footway/cycleway from the site access to Highsted Road along the southern side of Swanstree Avenue. As part of these works the existing brick retaining wall (roughly 23m in length), will be set back to the rear of the new footway/cycleway. The Audit Team were concerned that where vertical features are located adjacent to a cycleway additional width is required to allow cyclists to move into the centre of the footway/cycleway to avoid striking the feature. Insufficient footway/cycleway width can increase the risk of both cycle/cycle and pedestrian/cycle collisions.	

RECOMMENDATION
DMRB CD 195 shows that for any feature over 600mm high an additional width of at least 0.5m should be provided.

PROBLEM		1-3
Location:	Footway/cycleway.	
Summary:	Inappropriate footway/cycleway layouts will increase the risk of collisions.	
It is proposed to construct a new footway/cycleway from the site access to Highsted Road along the southern side of Swanstree Avenue. It is unclear how cyclists are meant to leave this new facility and either enter Swanstree Avenue prior to Highsted Road or continue their journeys on Highsted Road. The route appears to lead cyclists towards the informal connection to Snowdrop Walk and as such this is totally unsuitable without remedial works as a cycle route (problem 1-4 below should be read in conjunction with this problem). Inappropriate footway/cycleway layouts will increase the risk of collisions.		
RECOMMENDATION		
At detailed design carefully consider the needs of cyclists and how they will leave the new cycleway and continue their journeys along Swanstree Avenue and Highsted Road.		

PROBLEM	1-4
Location:	Informal Connection to Snowdrop Walk.
Summary:	A lack of suitable footway/cycleway will increase the risk of slips and falls.

It is proposed to construct a new footway/cycleway to the informal connection to Snowdrop Walk (Photo). This link is heavily overgrown and is uneven and in wet weather becomes muddy. Promoting this route to pedestrians and cyclists will increase the risk of slips and falls.

RECOMMENDATION

Continue the footway/cycleway through to Snowdrop Walk removing all vegetation.

PROBLEM	1-5
Location:	Uncontrolled crossing Highsted Road
Summary:	Vegetation blocking visibility splays will increase the risk of Non-Motorised User/vehicle collisions.

It is proposed to construct a new uncontrolled crossing of Highsted Road. The verges are severely overgrown with trees and other vegetation. NMUs crossing at this location will have their visibility obstructed by this vegetation increasing the risk of NMU/vehicle collisions

RECOMMENDATION
At detailed design provide visibility splays and site clearance.

PROBLEM		1-6
Location:	Highsted Road/Swanstree Avenue	
Summary:	A lack of uncontrolled crossings will increase the risk of NMU/vehicle collisions as well as pedestrian trips and falls.	

Whilst undertaking the site visit the Audit Team observed a number of pedestrians walking down the informal route from Snowdrop Walk, crossing Highsted Road and walking down the verge to the junction with Highsted Road/Swanstree Avenue. At this point they crossed just to the side of the block paved bay and headed north onto the footway cycleway and either headed east along Swantree Avenue or north onto Highsted Road (walking in the carriageway).

The Audit Team were concerned that the development would increase the number of pedestrians and cyclists using both formal and informal routes leading to an increased risk of NMU/vehicle collisions as well as trips and falls.

RECOMMENDATION
The Audit Team accept that a crossing will be provide just to the west of the site access. However, it was considered that NMUs would be likely to cross at the existing junction. Consider at detailed design NMU routes and introduce an uncontrolled crossing point close to this junction on existing desire lines.

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

3 Audit Team Statement

We certify that this Road Safety Audit has been carried out in accordance with GG119	
ROAD SAFETY AUDIT TEAM LEADER	
NAME:	JONATHAN BIRKETT
SIGNED:	
POSITION:	DIRECTOR
ORGANISATION	MERAKI ALLIANCE LTD
DATE:	11 MAY 2022
ROAD SAFETY AUDIT TEAM LEADER	
NAME:	GILLIAN KIDD
SIGNED:	
POSITION:	AUDIT TEAM MEMBER
ORGANISATION	MERAKI ALLIANCE LTD
DATE:	11 MAY 2022

Appendix 1 – Audited Drawings and Documents

1464 Location Plan

1464-18-B

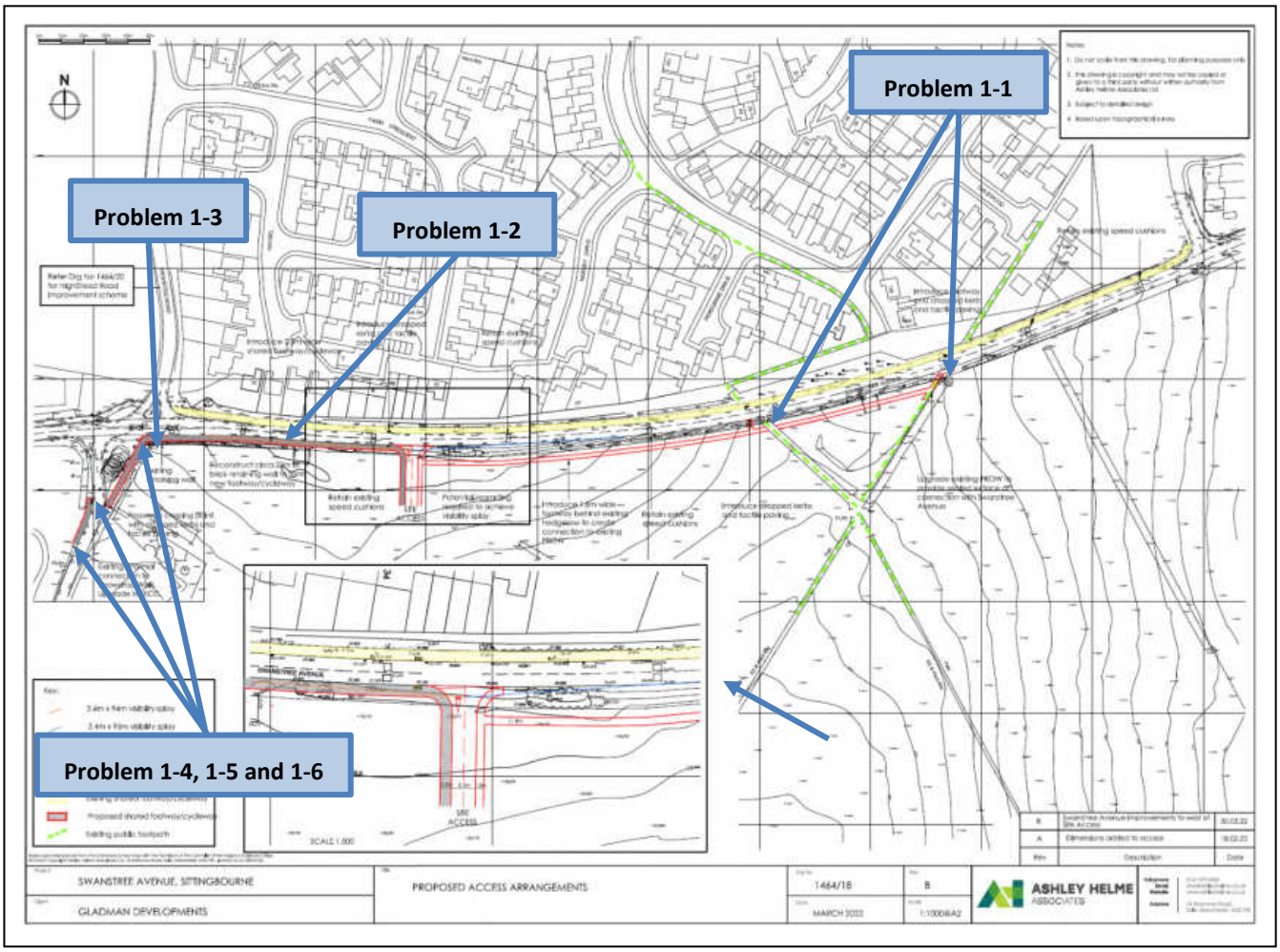
1464-21

1464-SP-10-A

1464-SP-11-B

1464-SP-12-A

Appendix 2 – Problem Location Plan



B Drg No 1464/18C & 1464/21/A

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0m 10m 20m 30m 40m 50m

N

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4. Based upon topographical survey

Refer Drg No 1464/20 for HighStead Road improvement scheme

Introduce pedestrian crossing between the splitter island on Highsted Road (N) and southern kerbline on Swanstree Avenue. Crossing to include dropped kerbs and tactile paving

Introduce 2.5m wide shared footway/cycleway

Introduce dropped kerbs and tactile paving

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

Retain existing speed cushions

PEDESTRIAN CROSSING A

PEDESTRIAN CROSSING B

Introduce footway and dropped kerb and tactile paving

Retain existing speed cushions

Some vegetation removal. Full extent to be determined at detailed design stage

33m inter-visibility splay between southbound motorist and pedestrian crossing

Existing retaining wall

Reconstruct brick retaining wall to form new footway/cycleway (width 3.0m coincident with retaining wall)

Proposed crossing point with dropped kerbs and tactile paving

Existing informal connection to Snowdrop Walk. Upgrade by KCC.

33m inter-visibility splay between northbound motorist and pedestrian crossing

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

Retain existing speed cushions

Potential regrading required to achieve visibility splay

SITE ACCESS

Introduce 1.8m wide footway behind existing hedgerow to create connection to existing PROW

Retain existing speed cushions

Introduce dropped kerbs and tactile paving. Clear hedgerow either side of proposed crossing point A.

Remove hedgerow 10m either side of Pedestrian Crossing A

Remove hedgerow 10m to the west of Pedestrian Crossing B

Upgrade existing PROW to provide sealed surface at connection with Swanstree Avenue

SWANSTREE AVENUE

HIGHSTED ROAD

HAYSEL

FARM CRESCENT

HARVEY DRIVE

PEREGRINE DRIVE

DALEWOOD

Ward Bdy

El Sub Sta

CF

Path

ED & Ward Bdy

SCALE 1:500

Key:

- 2.4m x 94m visibility splay
- 2.4m x 95m visibility splay
- Proposed kerbline
- Proposed road markings
- Existing road markings
- Existing shared footway/cycleway
- Proposed shared footway/cycleway
- Existing public footpath

Rev	Description	Date
C	Revisions following Stage 1 Road Safety Audit	16.05.22
B	Swanstree Avenue improvements to west of Site Access	30.03.22
A	Dimensions added to access	18.02.22

Project: SWANSTREE AVENUE, SITTINGBOURNE

Client: GLADMAN DEVELOPMENTS

Title: PROPOSED ACCESS ARRANGEMENTS

Drg No: 1464/18

Rev: C

Date: MAY 2022

Scale: 1:1000@A2

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0m 5m 10m 20m

N

Key:

- Proposed shared footway/cycleway
- Proposed footway
- Proposed tactile paving

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Introduce pedestrian crossing between the splitter island on Highsted Road (N) and southern kerbline on Swanstree Avenue. Crossing to include dropped kerbs and tactile paving

Slightly reduce length of block paved bay

33m inter-visibility splay between southbound motorist and pedestrian crossing

Relocate road sign

Existing retaining wall

Some vegetation removal. Full extent to be determined at detailed design stage

Reconstruct brick retaining wall to form new footway/cycleway (width 3.0m coincident with retaining wall)

Introduce 2.5m wide shared footway/cycleway

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

Introduce 2.5m wide shared footway/cycleway

Proposed crossing point with dropped kerbs and tactile paving

Existing informal connection to Snowdrop Walk. Upgrade by KCC.

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

33m inter-visibility splay between northbound motorist and pedestrian crossing

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

SITE ACCESS

SWANSTREE AVENUE

PALISADE FENCING

TIMBER FENCE

POST & WIRE FENCE

TARMAC

BLOCK PAVED

TREE CANOPY

Rev	Description	Date
A	Revisions following Stage 1 Road Safety Audit	16.05.22

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: PROPOSED SHARED FOOTWAY/CYCLEWAY	Drawing No: 1464/21	Rev: A
Client: GLADMAN DEVELOPMENTS		Date: MAY 2022	Scale: 1:500@A3

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C RSA Decision Log and Statements

RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
1. Inappropriate intervisibility between pedestrians at uncontrolled crossings and approaching vehicles can lead to an increased risk of pedestrian/vehicle collisions. Two uncontrolled pedestrian crossings are proposed to the east of the site access on Swanstree Avenue. These crossings tie into the existing location of Public Rights of Way (PRoW). There is considerable vegetation located all along the southern boundary of Swanstree Avenue. Details of site clearance are not shown on the drawings and therefore the Audit Team were concerned that intervisibility between pedestrians and approaching vehicles on Swanstree Avenue could lead to an increased risk of pedestrian/vehicle collisions.	Provide the correct intervisibility between pedestrians and vehicles based on the speed limit and ensure that the hedge line is cut back sufficiently to stop the issue of regrowth becoming an ongoing problem on Swanstree Avenue.	Pedestrian-vehicle intervisibility sightlines are shown on Drg No 1464/18/C. The sightlines are based on the Stopping Sight Distances (SSDs) of vehicles travelling in eastbound and westbound directions along Swanstree Avenue. The sightline measured to the east is 95m. The sightline measured to the west is 94m. For ease of reference, the proposed pedestrian crossing closest to the Site access is annotated as Pedestrian Crossing **A** on Drg No 1464/18/C. The easternmost crossing is annotated as Pedestrian Crossing **B**. Drg No 1464/18/C demonstrates that the pedestrian-vehicle intervisibility sightlines at Pedestrian Crossing A are largely contained to within the carriageway. Therefore, the existing hedgerow is unlikely to affect the intervisibility. However, to ensure visibility is maintained in the future, the applicant proposes to remove 10m of hedgerow (ie 20m in total) either side of Pedestrian Crossing A on the south (Site) side of Swanstree Avenue. Drg No 1464/18/C demonstrates that the pedestrian-vehicle intervisibility sightline at Pedestrian Crossing B is largely contained to within the carriageway in the direction towards the west. In the direction to the east, the sightline is		

		generally coincident with the southern kerbline of Swanstree Avenue. Therefore, the existing hedgerow is unlikely to affect this intervisibility. However, to ensure visibility is maintained in the future, the applicant proposes to remove the existing hedgerow 10m on the west side of Pedestrian Crossing B on the south (Site) side of Swanstree Avenue. The hedgerow on the east side of Pedestrian Crossing B falls outside the red line boundary. However, the highway authority has the power, and a duty, the trim back vegetation that overhangs the public highway.		
2. Insufficient footway/cycleway width can increase the risk of both cycle/cycle and pedestrian/cycle collisions. It is proposed to construct a new footway/cycleway from the site access to Highsted Road along the southern side of Swanstree Avenue. As part of these works the existing brick retaining wall (roughly 23m in length), will be set back to the rear of the new footway/cycleway. The Audit Team were concerned that where vertical features are located adjacent to a cycleway additional width is required to allow cyclists to move into the centre of the footway/cycleway to avoid striking the feature. Insufficient footway/cycleway width can increase the risk of both cycle/cycle and pedestrian/cycle collisions.	DMRB CD 195 shows that for any feature over 600mm high an additional width of at least 0.5m should be provided.	The proposed shared footway/cycleway on the Swanstree Avenue and Highsted Road (S) is 2.5m wide. In accordance with the recommendation of the Stage 1 RSA, the width of the shared footway/cycleway is increased to 3.0m coincident with the retaining wall. This is shown on Drg Nos 1464/18/C and 1464/21/A.		

3. Inappropriate footway/cycleway layouts will increase the risk of collisions It is proposed to construct a new footway/cycleway from the site access to Highsted Road along the southern side of Swanstree Avenue. It is unclear how cyclists are meant to leave this new facility and either enter Swanstree Avenue prior to Highsted Road or continue their journeys on Highsted Road. The route appears to lead cyclists towards the informal connection to Snowdrop Walk and as such this is totally unsuitable without remedial works as a cycle route (problem 1-4 below should be read in conjunction with this problem). Inappropriate footway/cycleway layouts will increase the risk of collisions.	At detailed design carefully consider the needs of cyclists and how they will leave the new cycleway and continue their journeys along Swanstree Avenue and Highsted Road.	The locations of cycle lane to carriageway and carriage to cycle lane transitions are annotated on Drg No 1464/21/A. The precise details (ie location, geometry, signage, etc) can be determined at Detailed Design Stage.		
4. A lack of suitable footway/cycleway will increase the risk of slips and falls It is proposed to construct a new footway/cycleway to the informal connection to Snowdrop Walk (Photo). This link is heavily overgrown and is uneven and in wet weather becomes muddy. Promoting this route to pedestrians and cyclists will increase the risk of slips and falls. can increase the likelihood of pedestrian/cycle collisions.	Continue the footway/cycleway through to Snowdrop Walk removing all vegetation.	The connection between Highsted Road (S) and Snowdrop Walk does not form part of the proposed scheme to be delivered by the applicant. The land required to form the link is controlled by a third party. Therefore, Kent County Council have agreed that they will negotiate with the third party and deliver the link.		
5. Vegetation blocking visibility splays will increase the risk of Non-Motorised User/vehicle collisions. It is proposed to construct a new uncontrolled crossing of Highsted Road. The verges are severely	At detailed design provide visibility splays and site clearance.	Vehicle speeds in the vicinity of the proposed crossing on Highsted Road (S) are unlikely to be high as vehicles are either slowing as they approach the Swanstree Avenue junction or have just turned from Swanstree Avenue into Highsted		

overgrown with trees and other vegetation. NMUs crossing at this location will have their visibility obstructed by this vegetation increasing the risk of NMU/vehicle collisions		Road (S). Drg No 1464/21/A shows pedestrian-vehicle intervisibility sightlines of 33m, which would be appropriate for a 25mph design speed. Drg No 1464/21/A shows that unobstructed intervisibility is available between a pedestrian standing on the east side of the crossing and an approaching vehicle on Highsted Road (S) travelling in a northbound direction. The full extent of sightline is contained to within the carriageway. Towards Swanstree Avenue, there may be a requirement to cut back some of the vegetation on the east side of Highsted Road (S) to provide intervisibility between a pedestrian and a vehicle completing left and right turn movements into Highsted Road (S). This can be determined on Site at Detailed Design Stage. The vegetation is within land controlled by KCC. On the west side of the proposed crossing, Drg No 1464/21/A shows that the intervisibility sightline between a pedestrian and vehicle travelling in a northbound direction is contained to within the new footway and the carriageway. Therefore, there is unlikely to be a requirement to remove any footway on the west side of Highsted Road (S) over and above that which will be removed to form the new footway. If, at Detailed Design Stage, it is considered that some vegetation cut back would be beneficial then this is contained to within land controlled by KCC.		

6. A lack of uncontrolled crossings will increase the risk of NMU/vehicle collisions as well as pedestrian trips and falls. Whilst undertaking the site visit the Audit Team observed a number of pedestrians walking down the informal route from Snowdrop Walk, crossing Highsted Road and walking down the verge to the junction with Highsted Road/Swanstree Avenue. At this point they crossed just to the side of the block paved bay and headed north onto the footway cycleway and either headed east along Swantree Avenue or north onto Highsted Road (walking in the carriageway). The Audit Team were concerned that the development would increase the number of pedestrians and cyclists using both formal and informal routes leading to an increased risk of NMU/vehicle collisions as well as trips and falls.	The Audit Team accept that a crossing will be provide just to the west of the site access. However, it was considered that NMUs would be likely to cross at the existing junction. Consider at detailed design NMU routes and introduce an uncontrolled crossing point close to this junction on existing desire lines.	In response to the RSA comment, Drg Nos 1464/18/C and 1464/21/C show the formation of a new crossing on Swanstree Avenue at the junction with Highsted Road. An indicative crossing location is shown between the splitter island at the southern end of Highsted Road (N) and the southern kerbline of Swanstaree Avenue, to the east of Highsted Road (S). This would locate the crossing as close as possible to the desire line between Highsted Road (N) and (S). As advised by the RSA, this can be considered further at Detailed Design Stage. An alternative location would be circa 25m east of the location shown. However, this may not be as popular with users as it would involve a circa 50m detour for movements between Highsted Road (N) and (S).		

On behalf of the Design Organisation I certify that:

1. the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.

Name:	Simon Helme
Signed:	
Position:	Director
Organisation:	Ashley Helme Associates Ltd
Date:	

On behalf of the Overseeing Organisation I certify that:

1. the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation; and

2. the agreed RSA actions will be progressed.

Name:	Colin Finch
Signed:	
Position:	
Organisation:	Kent County Council
Date:	

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Drawings

0m 10m 20m 30m 40m 50m

N

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Refer Drg No 1464/20 for HighStead Road improvement scheme

Introduce pedestrian crossing between the splitter island on Highsted Road (N) and southern kerbline on Swanstree Avenue. Crossing to include dropped kerbs and tactile paving

Introduce 2.5m wide shared footway/cycleway

Introduce dropped kerbs and tactile paving

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

Retain existing speed cushions

PEDESTRIAN CROSSING A

PEDESTRIAN CROSSING B

Retain existing speed cushions

Introduce footway and dropped kerb and tactile paving

Some vegetation removal. Full extent to be determined at detailed design stage

33m inter-visibility splay between southbound motorist and pedestrian crossing

Existing retaining wall

Reconstruct brick retaining wall to form new footway/cycleway (width 3.0m coincident with retaining wall)

Existing informal connection to Snowdrop Walk. Upgrade by KCC.

Proposed crossing point with dropped kerbs and tactile paving

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

33m inter-visibility splay between northbound motorist and pedestrian crossing

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

Retain existing speed cushions

SITE ACCESS

Potential regrading required to achieve visibility splay

Introduce 1.8m wide footway behind existing hedgerow to create connection to existing PROW

Retain existing speed cushions

Introduce dropped kerbs and tactile paving. Clear hedgerow either side of proposed crossing point A

Clear hedgerow 10m to the west of pedestrian crossing point B

Upgrade existing PROW to provide sealed surface at connection with Swanstree Avenue

31.3m

SCALE 1:500

Key:

- 2.4m x 94m visibility splay
- 2.4m x 95m visibility splay
- Proposed kerbline
- Proposed road markings
- Existing road markings
- Existing shared footway/cycleway
- Proposed shared footway/cycleway
- Existing public footpath

Rev	Description	Date
C	Revisions following Stage 1 Road Safety Audit	16.05.22
B	Swanstree Avenue improvements to west of Site Access	30.03.22
A	Dimensions added to access	18.02.22

Project: SWANSTREE AVENUE, SITTINGBOURNE

Client: GLADMAN DEVELOPMENTS

Title: PROPOSED ACCESS ARRANGEMENTS

Drg No: 1464/18

Rev: C

Date: MAY 2022

Scale: 1:1000@A2

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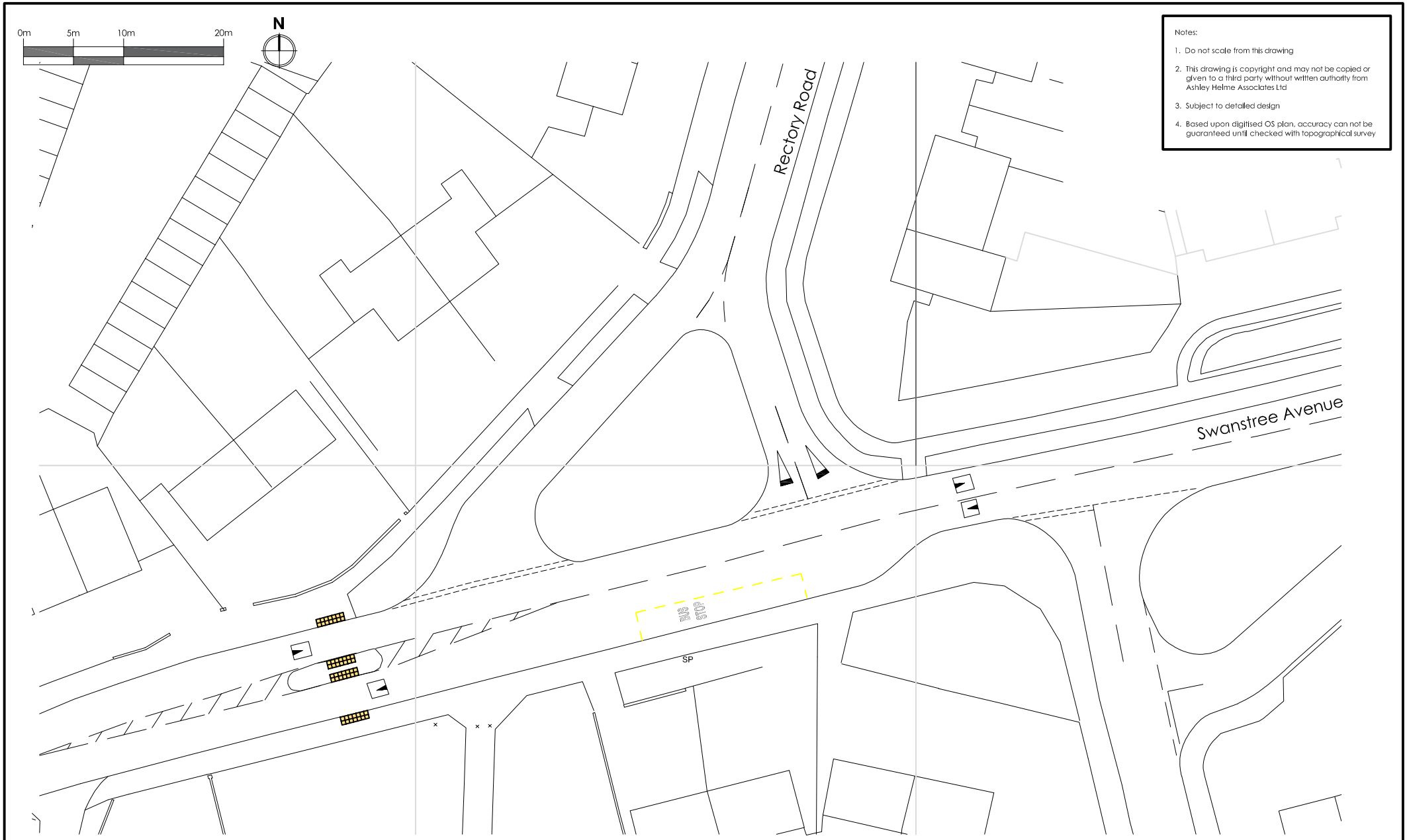

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Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 2	Drawing No: 1464/03	Rev:
Client: GLADMAN DEVELOPMENTS		Date: APRIL 2021	Scale: 1:500@A4

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Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 3	Drawing No: 1464/10	Rev:
Client: GLADMAN DEVELOPMENTS		Date: APRIL 2021	Scale: 1:500@A4

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Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 4	Drawing No: 1464/09	Rev:
Client: GLADMAN DEVELOPMENTS		Date: APRIL 2021	Scale: 1:500@A4

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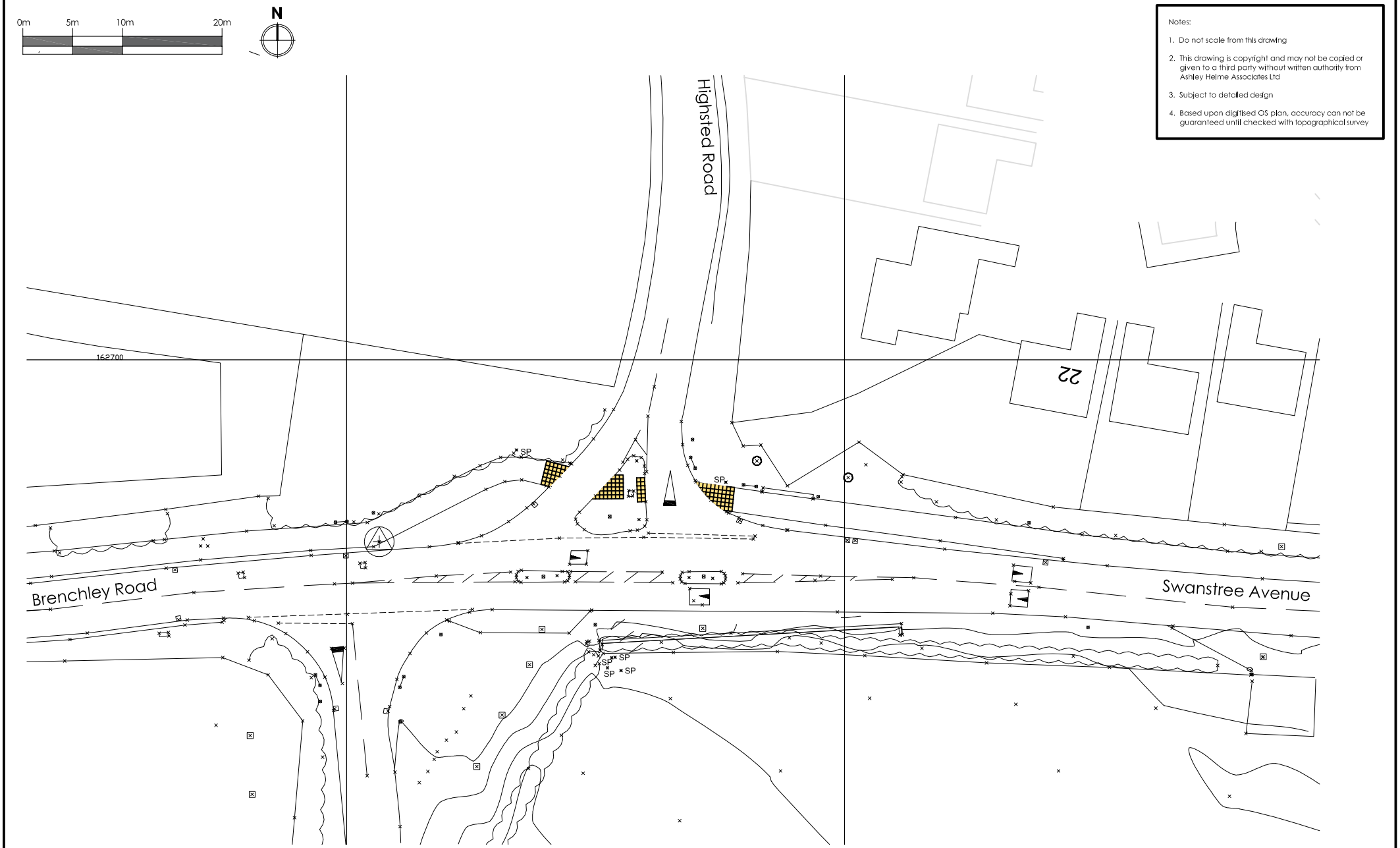

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Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 5	Drawing No: 1464/04	Rev:
Client: GLADMAN DEVELOPMENTS		Date: APRIL 2021	Scale: 1:500@A4

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0m 5m 10m 20m

N

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Project: SWANSTREE AVENUE, SITTINGBOURNE	Client: GLADMAN DEVELOPMENTS		Drawing No: 1464/05
Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 6	Date: APRIL 2021	Scale: 1:500@A3	Rev:

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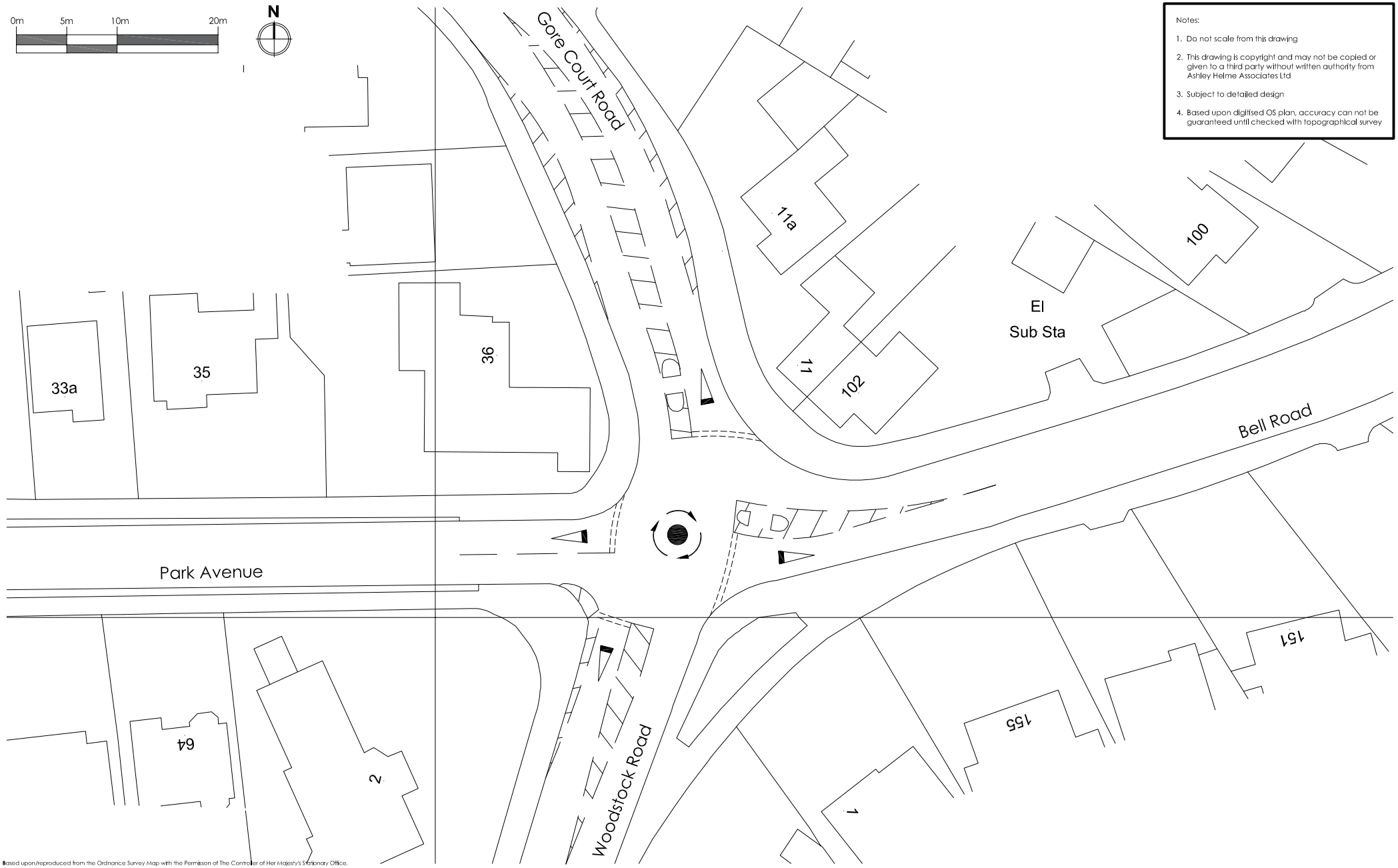

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Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: EXISTING ACCESS ARRANGEMENTS STUDY JUNCTION 7	Drawing No: 1464/19	Rev:
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2022	Scale: 1:500@A4

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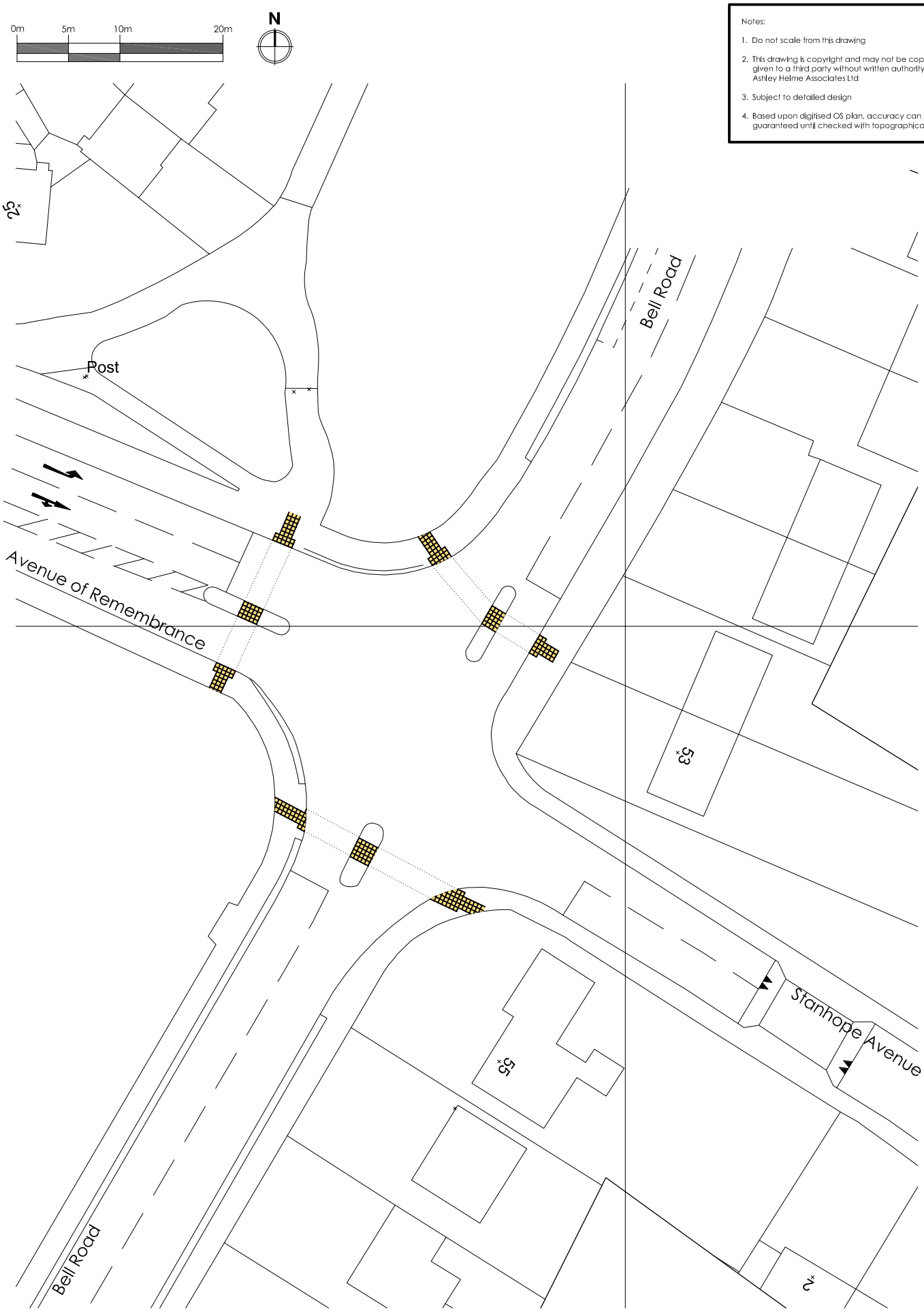

Project: SWANSTREE AVENUE, SITTINGBOURNE	Client: GLADMAN DEVELOPMENTS	Drawing No: 1464/07	Rev:
Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 8		Date: MAR 2022	Scale: 1:500@A4

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0m 5m 10m 20m

N

33m of forward visibility between southbound vehicle and stationary vehicle at build-out give-way

Maintain minimum 3.75m for emergency vehicles

School field access. Not affected by scheme

KCC have confirmed that verge between carriageway and school fence is highway land

Reduce carriageway from 5.2m to 5.0m to introduce 1.2m footway on west side of Highfield Road

Kerbed build-out to slow northbound vehicles and deflect vehicles away from the footway

Build-out can also be used as pedestrian passing point (if required)

Kerbed build-out to show southbound vehicles and deflect vehicle away from footway

Build-out can also be used as pedestrian passing point (if required)

33m inter-visibility between southbound motorist and pedestrian at crossing

Create 1.2m footway in grass verge. Use sloping paving slabs in locations where low retaining structure is required

Proposed crossing point with dropped kerbs and tactile paving

Introduce 'SLOW' road marking

33m inter-visibility between northbound motorist and pedestrian at crossing

Maintain minimum 3.75m for emergency vehicles

Build-out can also be used as pedestrian passing point (if required)

33m of forward visibility between northbound vehicle and stationary vehicle at build-out give-way

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Key:

Proposed footway

Proposed tactile paving

HIGHSTED ROAD

BRENCHLEY ROAD

PALISADE FENCING

TIMBER FENCE

BRICK WALL

GRASS

BLOCK PAVED

TARMAC

1.2m

SLOW

Project: SWANSTREE AVENUE, SITTINGBOURNE	Client: GLADMAN DEVELOPMENTS	Drawing No: 1464/20	
Title: PROPOSED IMPROVEMENT SCHEME: HIGHSTEAD ROAD	Date: MARCH 2022	Scale: 1:500@A3	Rev:

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0m 5m 10m 20m

N

Key:

- Proposed shared footway/cycleway
- Proposed footway
- Proposed tactile paving

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Introduce pedestrian crossing between the splitter island on Highsted Road (N) and southern kerbline on Swanstree Avenue. Crossing to include dropped kerbs and tactile paving

Slightly reduce length of block paved bay

33m inter-visibility splay between southbound motorist and pedestrian crossing

Relocate road sign

Existing retaining wall

Some vegetation removal. Full extent to be determined at detailed design stage

Reconstruct brick retaining wall to form new footway/cycleway (width 3.0m coincident with retaining wall)

Introduce 2.5m wide shared footway/cycleway

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

Introduce 2.5m wide shared footway/cycleway

Proposed crossing point with dropped kerbs and tactile paving

Existing informal connection to Snowdrop Walk. Upgrade by KCC.

Cycle lane transition to carriageway. Precise specification to be determined at detailed design stage

33m inter-visibility splay between northbound motorist and pedestrian crossing

Carriageway to cycle lane transition. Precise specification to be determined at detailed design stage

SITE ACCESS

SWANSTREE AVENUE

PALISADE FENCING

TIMBER FENCE

POST & WIRE FENCE

TARMAC

BLOCK PAVED

TREE CANOPY

Rev	Description	Date
A	Revisions following Stage 1 Road Safety Audit	16.05.22

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: PROPOSED SHARED FOOTWAY/CYCLEWAY	Drawing No: 1464/21	Rev: A
Client: GLADMAN DEVELOPMENTS		Date: MAY 2022	Scale: 1:500@A3

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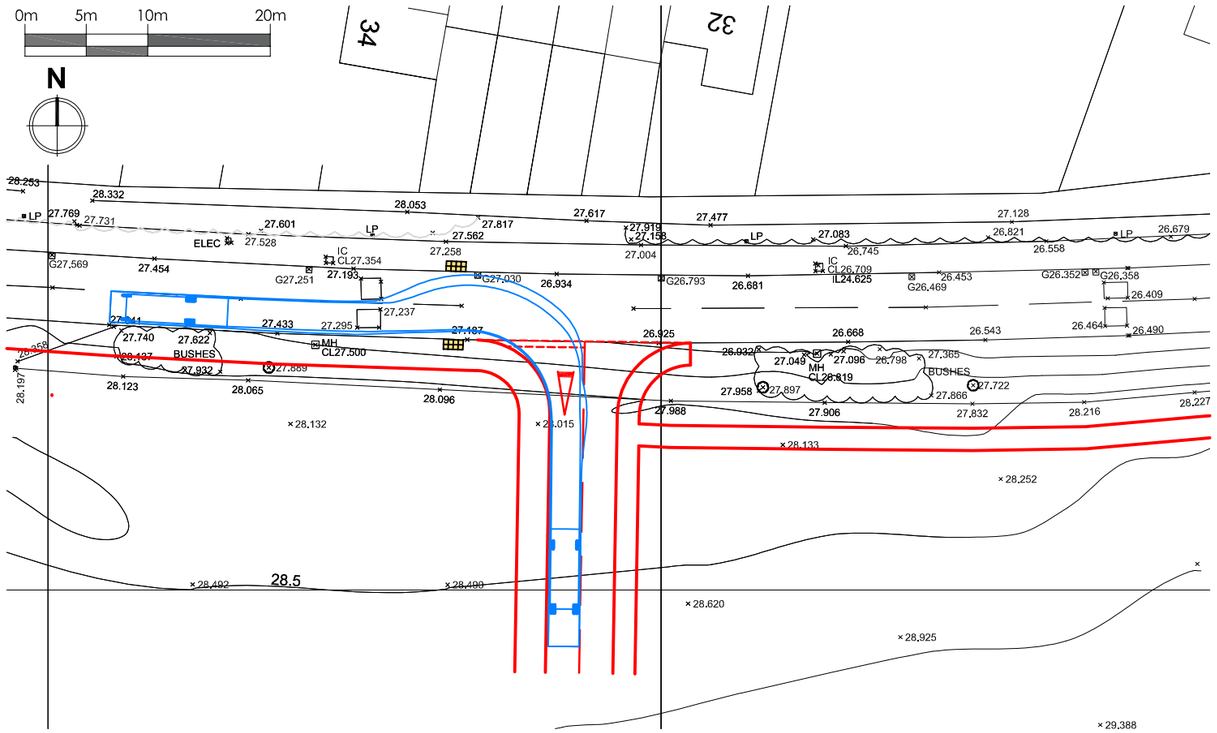

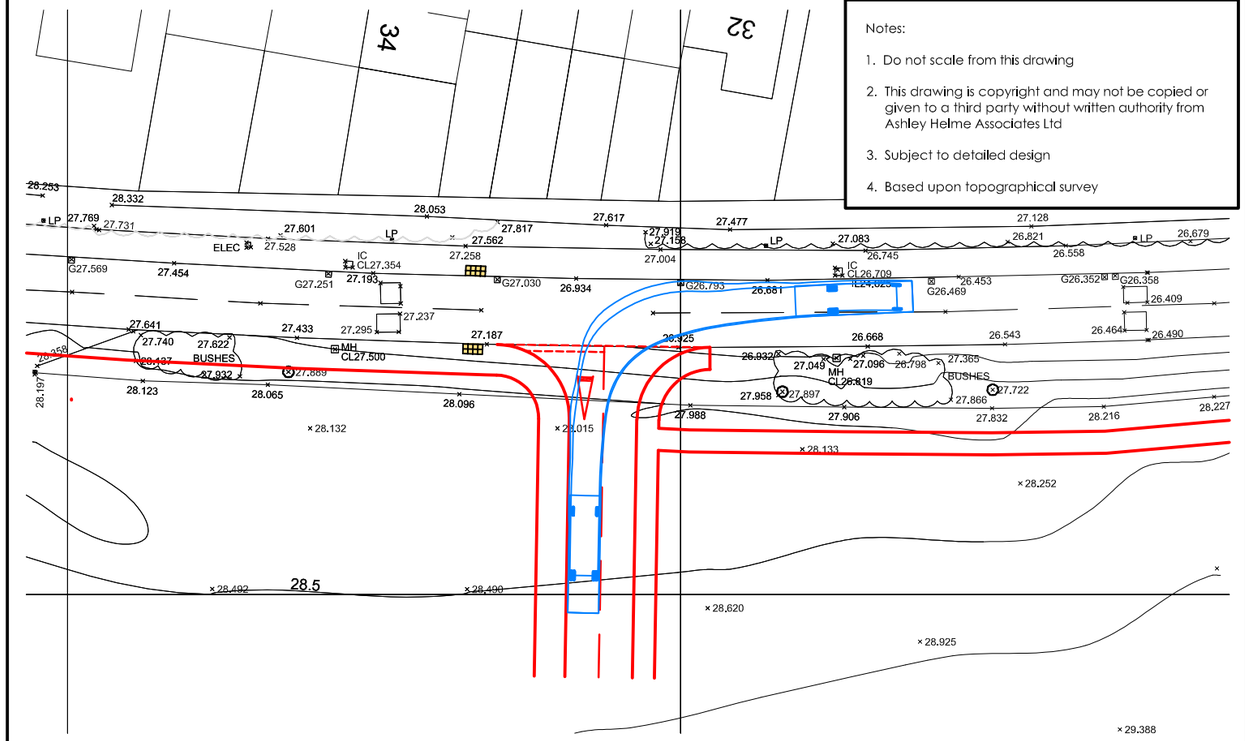

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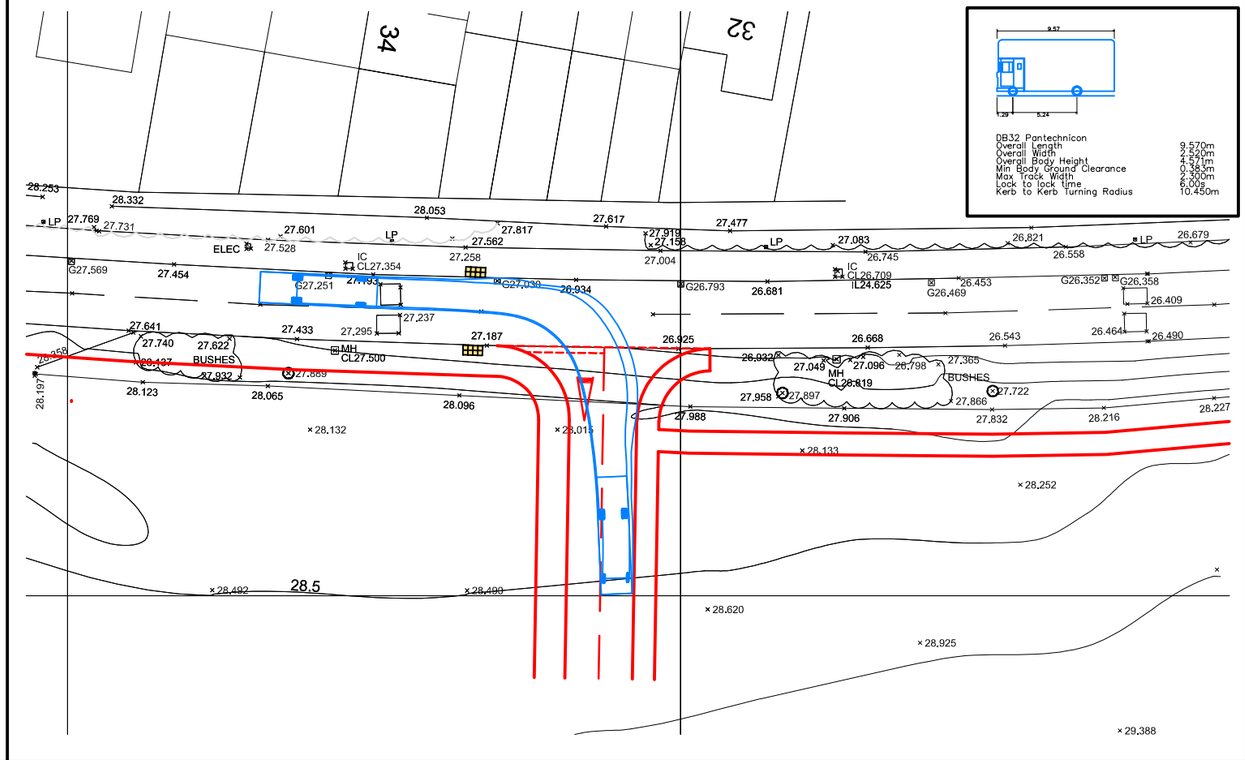

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: SWEPT PATH ANALYSIS: PANTECHNICON	Drawing No: 1464/SP/10	Rev: A
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2022	Scale: 1:500@A3

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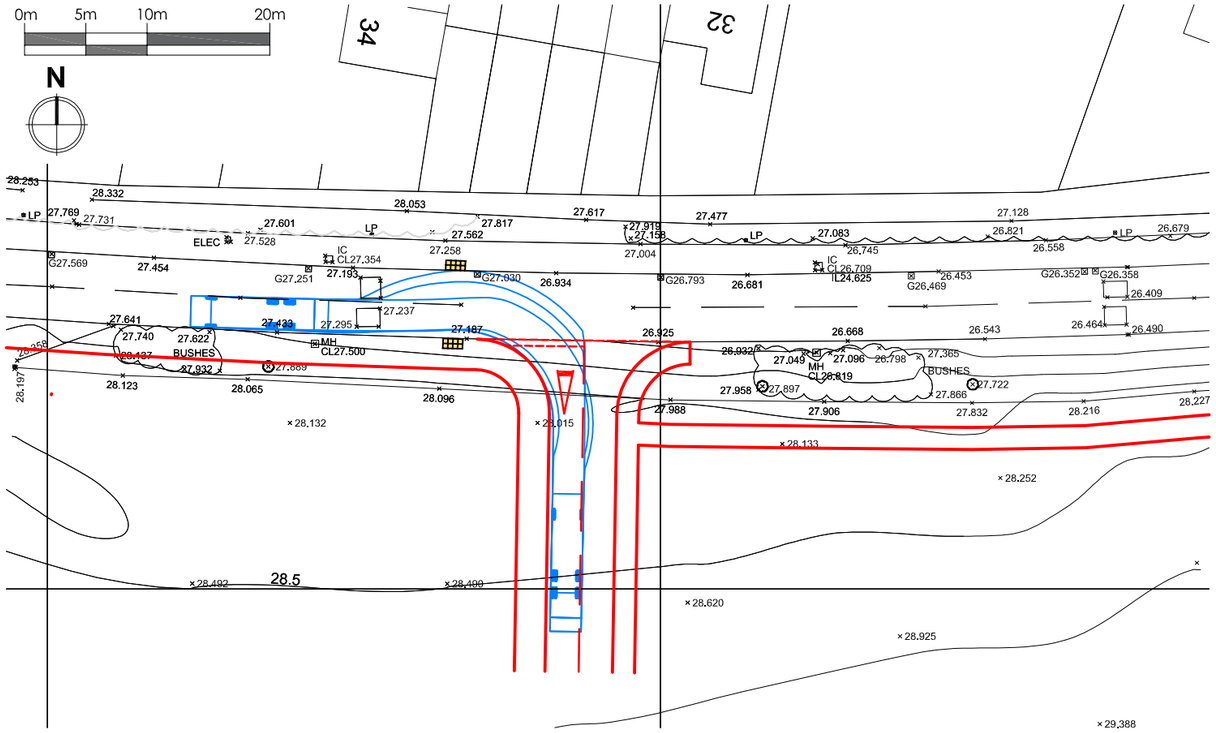

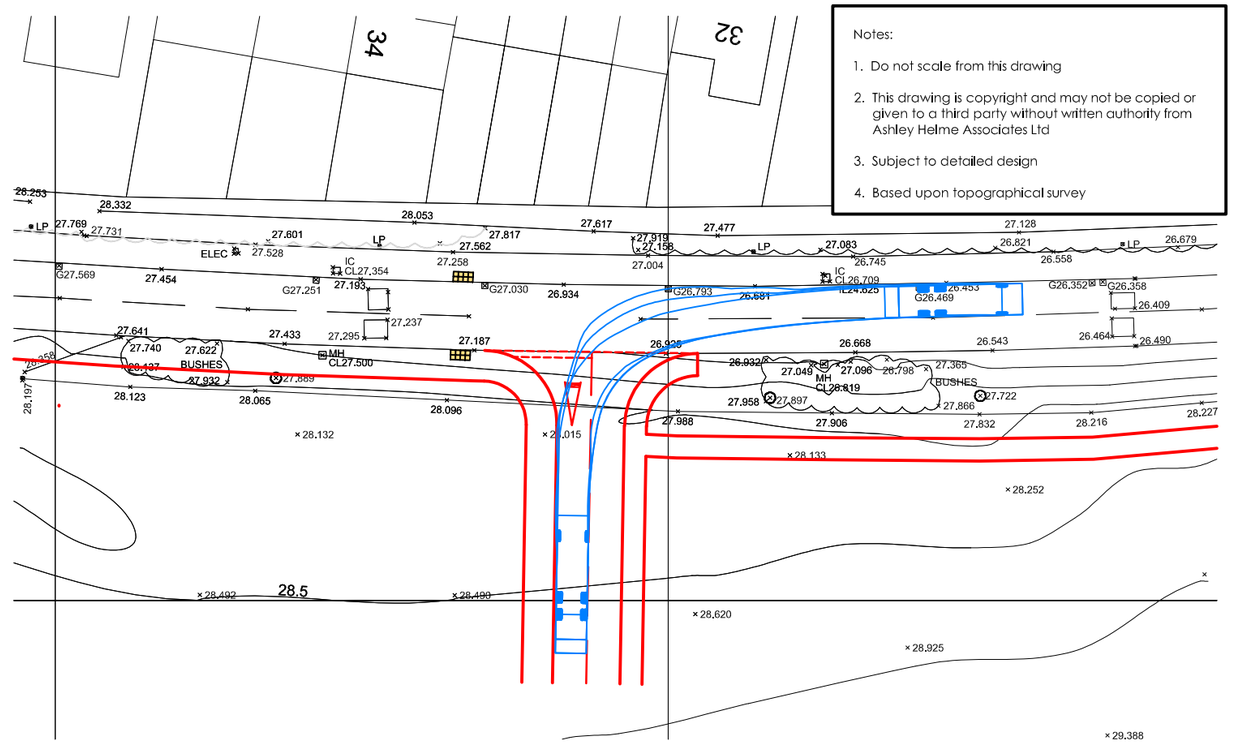

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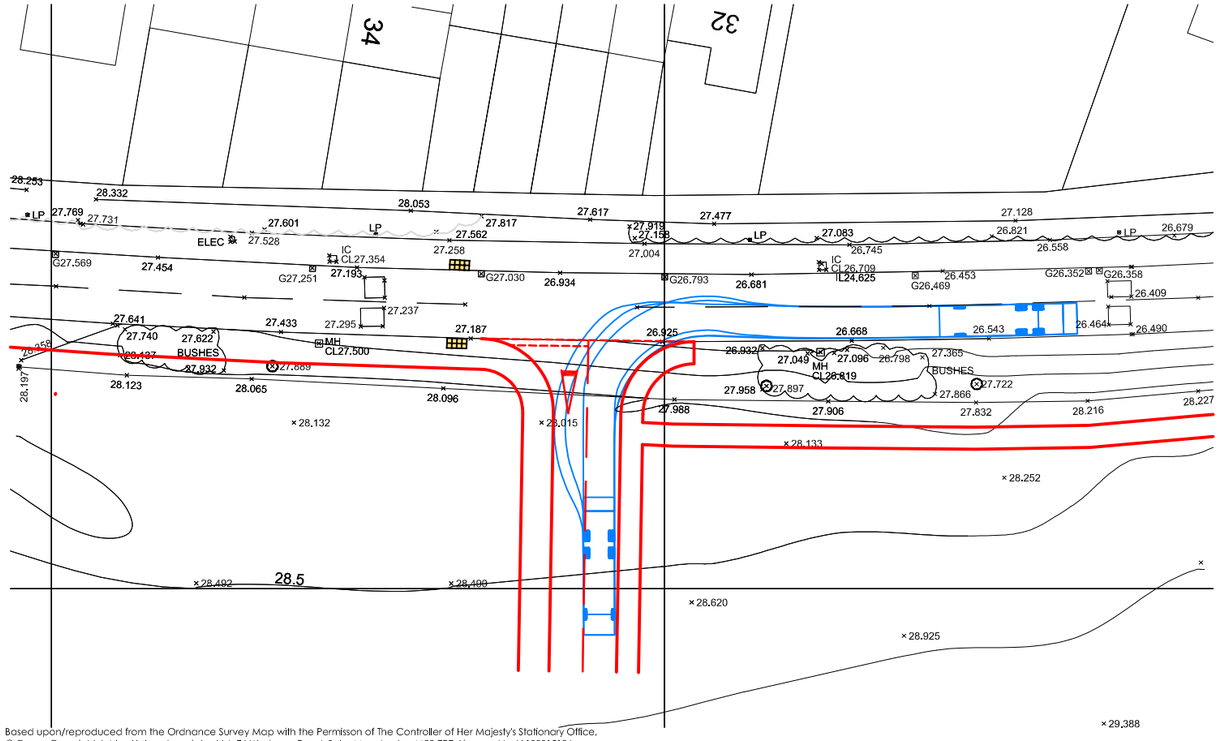

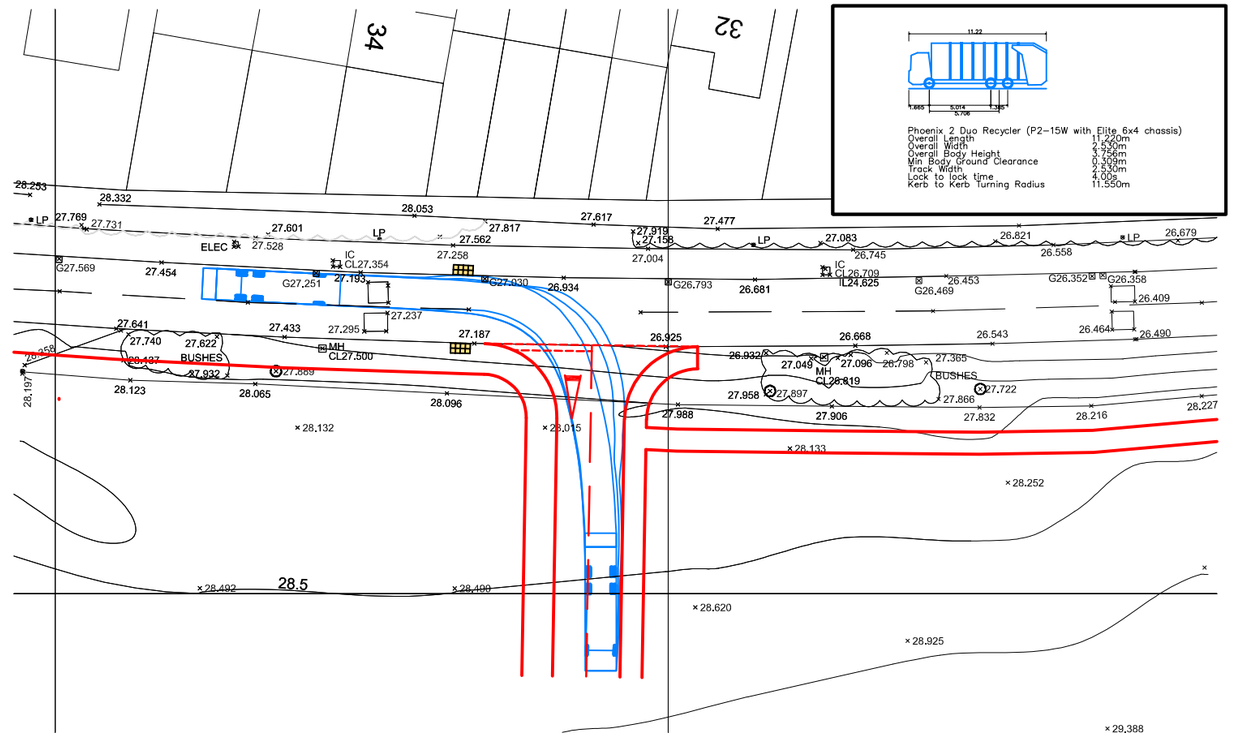

Phoenix 2 Duo Recycler (P2-15W with Elite 6x4 chassis)

Overall Length	11.220m
Overall Width	2.550m
Overall Body Height	3.726m
Min Body Ground Clearance	0.350m
Track Width	2.550m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	11.550m

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: SWEPT PATH ANALYSIS: REFUSE VEHICLE	Drawing No: 1464/SP/11	Rev: B
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2022	Scale: 1:500@A3

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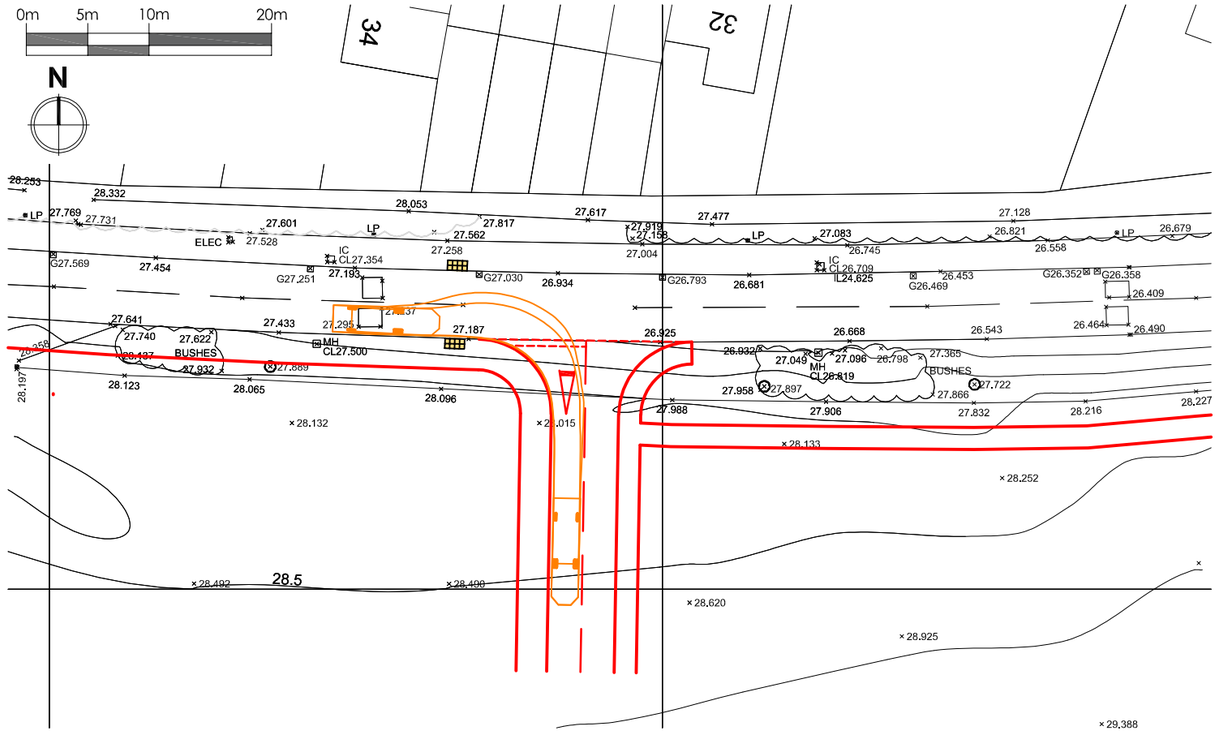

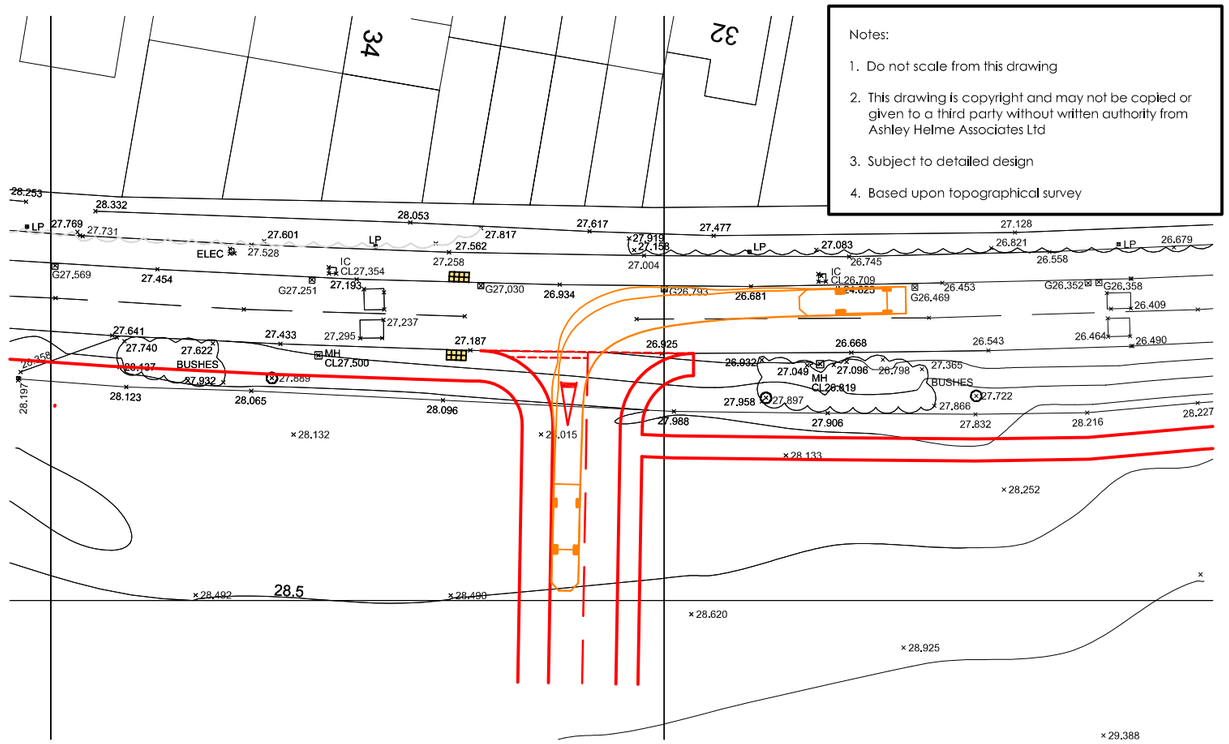

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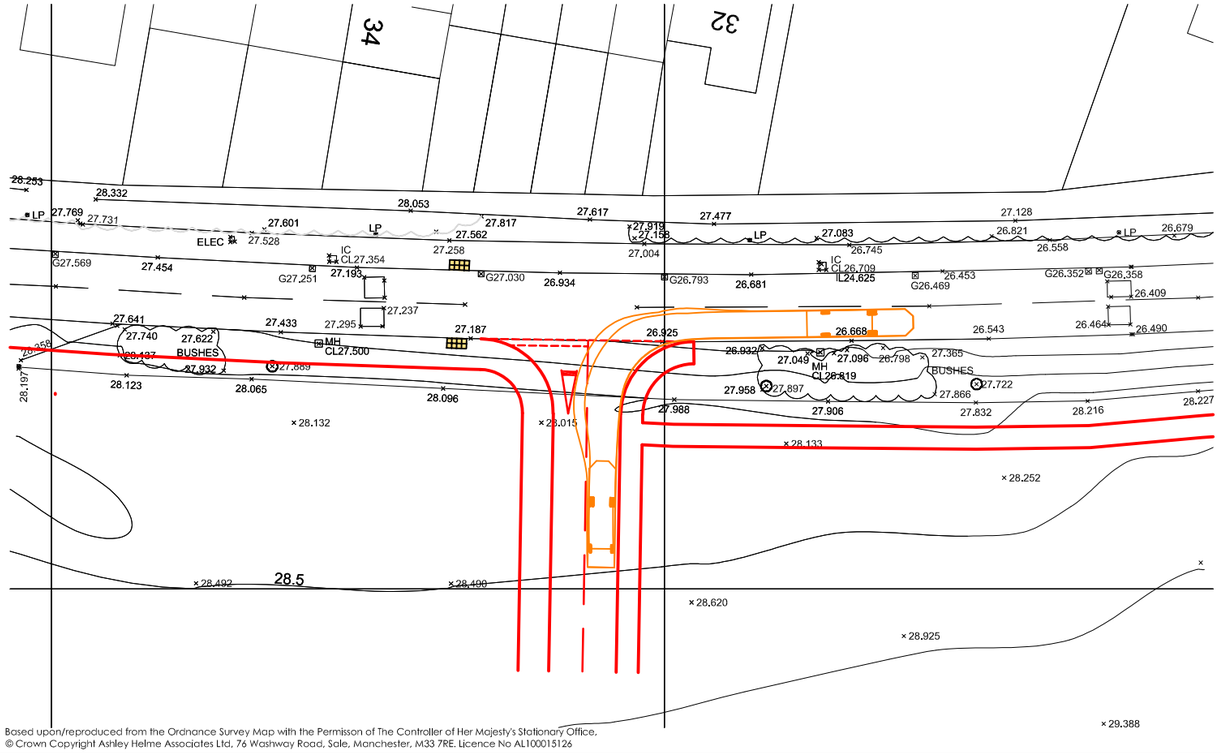

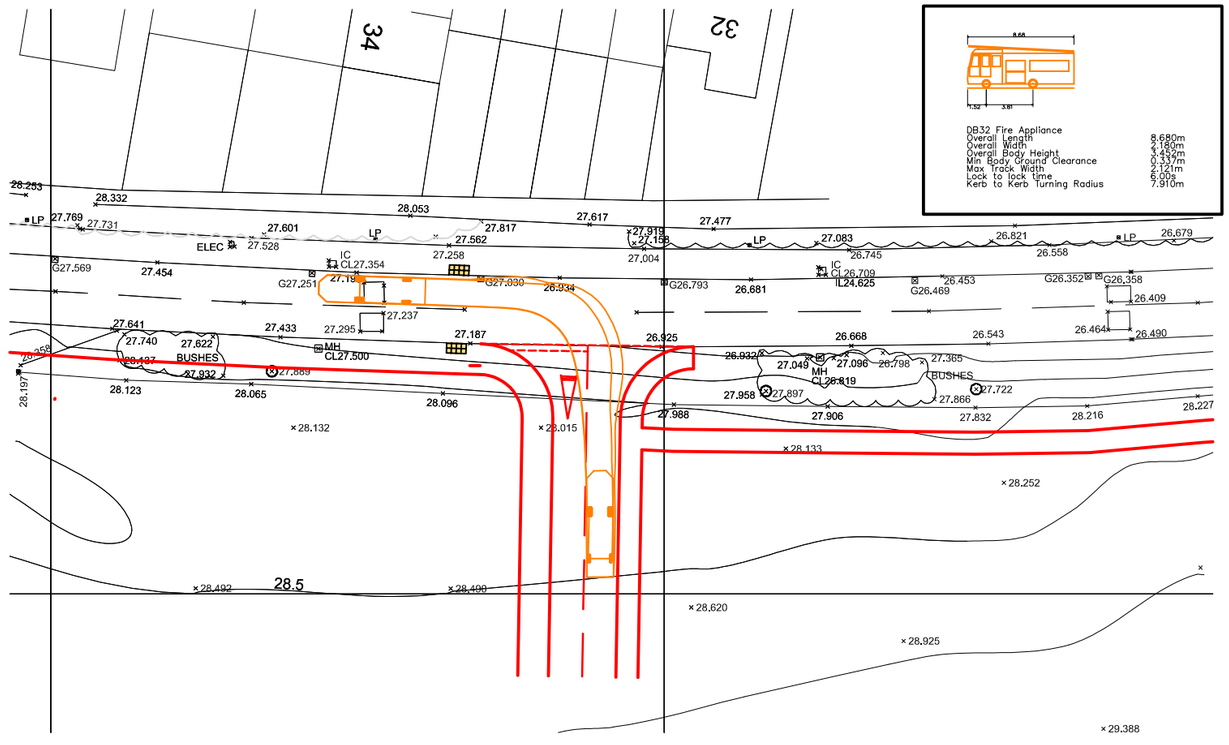

Project: SWANSTREE AVENUE, SITTINGBOURNE	Title: SWEPT PATH ANALYSIS: FIRE APPLIANCE	Drawing No: 1464/SP/12	Rev: A
Client: GLADMAN DEVELOPMENTS		Date: MARCH 2022	Scale: 1:500@A3

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