

ST STEPHENS FIELD HORSTED KEYNES

Transport Statement

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1 INTRODUCTION

Report Brief

- 1.1 RPS has been instructed on behalf of Rydon Homes Ltd., to prepare a Transport Statement (TS), to support their planning application for up to 30 residential dwellings located at to the south of Hamsland in Horsted Keynes, West Sussex.
- 1.2 The site is located approximately 500m south of Horsted Keynes village centre and falls within the local planning authority (LPA) administrative area of Mid Sussex District (MSD), with the local highway authority (LHA) being West Sussex County Council (WSCC).
- 1.3 The site is currently used for agricultural purposes with vehicle access via a gate with Hamsland. The site is bounded to the north by the Catholic Church of Saint Stephen and Hamsland, to the east by a residential dwelling and to the south and west by agricultural land.
- 1.4 This TS describes the transport characteristics of the site, and the site accessibility to facilities by sustainable modes of travel. It includes an assessment and analysis of the travel characteristics of the local High Weald Ward obtained from the 2011 Census. This information has been used to predict the future travel demand of the proposed development site and the likely impact on the local highway network.
- 1.5 This TS has been prepared in accordance with the National Planning Policy Framework – Planning Guidance for Transport Assessments and Transport Statements and with reference to Manual for Streets.
- 1.6 This TS was issued to WSCC highways as part of the pre-app scoping discussions and they have confirmed that in principle they have not objections to the development proposal. A copy of the pre-app response is included in **Appendix A** to this report.

Report Format

- **Chapter 2** of the report describes the existing transport characteristics of the site and its location. It also includes the details of existing traffic flows and parking stress on Hamsland;
- **Section 3** of the report describes the existing site's accessibility to facilities by sustainable modes of travel. This includes a description of walking and cycling facilities and access to public transport;
- **Section 4** of the report provides a review of the relevant central government and local government land use and transport planning policies and guidelines;
- **Section 5** provides details of the residential development including number of dwellings, access arrangements and parking;
- **Section 6** reviews road safety in terms of the access proposal and existing PIA;
- **Section 7** details the likely traffic generation associated with the proposed development and considers the impact of the development on the local road network; and
- **Section 8** provides a summary of the TS and conclusions.

2 EXISTING TRANSPORT CHARACTERISTICS

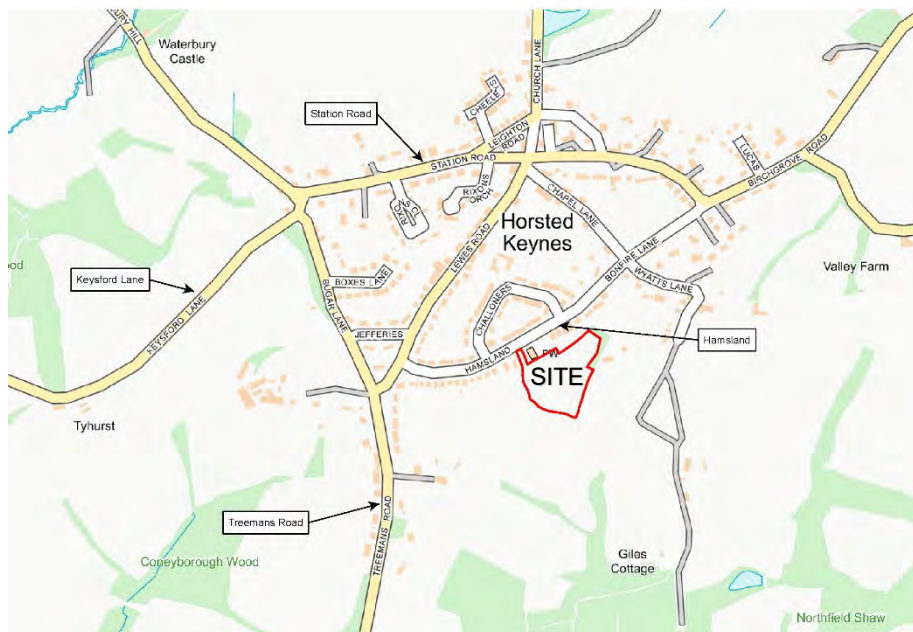
Introduction

- 2.1 This section of the report considers the site's transport context, existing level of car ownership in Horsted Keynes area, the travel to work characteristics of the residents in Horsted Keynes and a review of the local highway network, including traffic collisions. It also includes details of the existing traffic flows on Hamsland and parking stress.

Site Context

- 2.2 The site is located approximately 500m south of Horsted Keynes village centre. Horsted Keynes is located 5 miles north east of Haywards Heath and has a population of 1,586 residents based on the 2011 Census. The site location is shown in **Figure 1**, and the site location plan provided at **Appendix B**.

Figure 1: Site Context Plan



- 2.3 The site is currently used for agricultural purposes with vehicle access via a gate with Hamsland. The site is bound to the north by the Catholic Church of Saint Stephen and Hamsland, to the east by a residential dwelling and to the south and west by agricultural land.

Car Ownership

- 2.4 **Table 2.1** shows the household car ownership in the High Weald Ward, as obtained from the 2011 Census data.

Table 2.1: Household Car Ownership Levels in High Weald Ward

Car Ownership	High Weald Ward
None	7%
One	32%
Two	41%
Three	13%
Four or more	7%

- 2.5 From the 2011 Census data it is possible to ascertain the overall and average levels of car ownership of the Ward based on the and number of dwellings. For the High Weald ward the data is as follows:

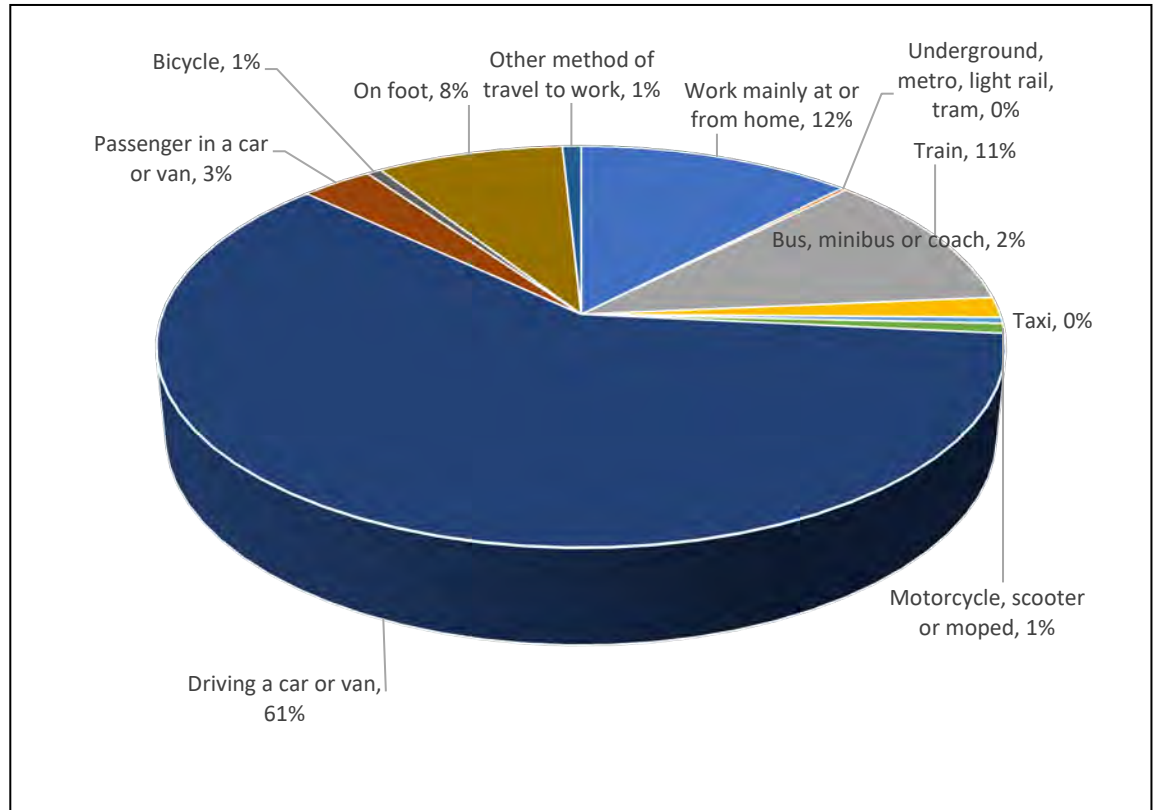
Table 2.2: Car Ownership Per Dwelling

	2011 Census Data
No. Households – High Weald Ward	2,114
Total number of cars owned	2,040
Average Car Ownership Per Household	1.036

Travel to Work Characteristics

- 2.6 The 2011 Census 'Method of Travel to Work' (main mode) for the High Weald Ward identifies that 9 % of residents walk or cycle, 13% of residents use public transport and 64 % travel by car of which 3% are passengers. **Figure 2** below details the modal splits for journeys to work of the High Weald Ward.

Figure 2: Modal Split – Method of Travel to Work – High Weald Ward



Existing Highway Network

- 2.7 The site is located on the southern edge of Horsted Keynes village and will access directly onto Hamsland. Outlined below are details of the roads in the vicinity of the site.

Hamsland

- 2.8 Hamsland is a residential cul-de-sac situated to the north of the site, approximately 6m in width and subject a 30mph speed limit although no street lighting is provided. Hamsland has footways on both sides of the carriageway generally in excess of 1.5m which is enough to accommodate a pedestrian pushing a pram and another person to pass. There are no parking restrictions on Hamsland and parking occurs primarily along the northern side of the carriageway. Hamsland connects to Lewes Road to the west of the site and joins Bonfire Lane via a pedestrian only route at its eastern end, Hamsland also provides access to Challoners.

Challoners

- 2.9 Challoners is situated to the north of Hamsland and is a residential loop road that joins Hamsland at two points which are in the form of simple priority junction arrangements. Pedestrian routes are provided via Challoners connecting with Lewes Road and Horsted Keynes recreation ground.

Lewes Road

- 2.10 Lewes Road is a 30mph residential road which routes from Sugar Lane / Treemans Road at its southern extent to Station Road in the centre of Horsted Keynes at its northern extent. The road is approximately 6m in width with no parking restrictions and on street parking occurs along some of its length. A footway is provided along the eastern side of Lewes Road.

Bonfire Lane

- 2.11 Bonfire Lane is a no through route extending from Station Road to the north east to the Pedestrian route that links to Hamsland to the south west. Bonfire Lane is a narrow rural road, joining Chapel Lane and Wyatts Lane half way along its route and provides access to a small number of residential properties. The lane width is approximately 4.5m in width, narrower in places with no footway provision provided.

Station Road

- 2.12 Station Road is the main route through Horsted Keynes and is a single carriageway approximately 6-6.5m wide subject to a 30-mph speed limit. Across its extent footway provision is either present on the north or south side of the road. Station Road provides access to the main local facilities and bus stops.

Existing Traffic Flows

- 2.13 The following Automatic Traffic Counts (ATC) surveys were undertaken on behalf of RPS by 360 Traffic Surveys Limited:
- **Hamsland in vicinity of proposed access** - ATC survey including vehicle speeds has been undertaken on Hamsland (1 weeks data collected in March 2019). The results of the ATC have been used to aid the design of the site access arrangements; and
 - **Hamsland near the junction with Lewes Road** – ATC survey has been undertaken on Hamsland (1 weeks data collected in June 2019) near the junction with Lewes Road. The purpose of the survey is to identify the total number of vehicle movements along Hamsland.
- 2.14 **Table 2.3** provides a summary of the average weekday morning and evening peak hour movements and daily movements on Hamsland recorded near the junction with Lewes Road.

Table 2.3: Existing Traffic Flows on Hamsland Near Junction with Lewes Road

	Weekday Average Morning Peak 08:00-09:00	Weekday Average Evening Peak 17:00-18:00	Weekday Average Daily (24hr)
Eastbound	11	30	290
Westbound	28	17	284
Two-way	39	47	574

- 2.15 The above table identifies that Hamsland is very lightly trafficked in the morning and evening peak hours. The existing two-way movements in the peak hours represent less than 1 vehicle movement per minute.

Existing Car Parking Stress on Hamsland

- 2.16 On-street parking currently occurs along Hamsland, although many properties have off street parking available. In order to determine the extent of on-street parking that occurs a car parking stress survey was undertaken on two separate days as follows:
- Sunday 14 July and Thursday 18 July 2019 at the following times:
 - 06:00-10:00, 12:00-14:00 and 17:00-21:00.
- 2.17 The times surveys are considered to include the busiest periods when the majority of cars would be parked on Hamsland.
- 2.18 The parking stress survey identifies the parking demand for on-street car parking for the full length of Hamsland. A copy of the parking survey can be found at **Appendix B**.
- 2.19 Hamsland, excluding driveways, provides room for up to 42 cars to park at any one time. This has been calculated based on the available kerb length for parking on the northern side of Hamsland.
- 2.20 The results of the survey for the days surveyed are summarised in **Tables 2.4 and 2.5** below

Table 2.4: Hamsland Parking Stress – Thursday 18 July 2019

Time Period	Total Spaces Available	Occupied	Spare Spaces	Stress (%)
06:00 - 07:00	42	22	20	52%
08:00 - 09:00	42	18	24	43%
09:00 - 10:00	42	16	26	38%
12:00 - 13:00	42	15	27	36%
13:00 - 14:00	42	17	25	40%
17:00 - 17:30	42	18	24	43%
17:30 - 18:30	42	19	23	45%
19:00 - 19:30	42	21	21	50%
20:00 - 21:00	42	24	18	57%

Table 2.5: Hamsland Parking Stress – Sunday 14 July 2019

Time Period	Total Spaces Available	Occupied	Spare Spaces	Stress (%)
06:00 - 10:00	42	23	19	55%
12:00 - 13:00	42	21	21	50%
13:00 - 14:00	42	22	20	52%
17:00 - 19:00	42	21	21	50%
19:00 - 21:00	42	22	20	52%

-
- 2.21 The results identify that based on the maximum parking available only 57% of the capacity was used at the busiest period which was recorded on the Thursday at 20:00-21:00 with 24 cars parked on the northern side of Hamsland.
- 2.22 On average number of vehicles parked between 06:00 and 21:00 on Thursday was 19 (45%) and on the Sunday the average was 22 (52%). The maximum occupancy recorded on a Sunday was 23 vehicles parked or 55% occupancy. Therefore, on average around 50% of the potential maximum parking capacity on Hamsland is used on a regular basis.
- 2.23 The survey team identified that all vehicles parked on the north side of Hamsland allowing one unobstructed lane in and out of Hamsland. In addition, the survey team noted that there were no issues relating the parked cars and sufficient gaps were provided between parked vehicles for vehicles to pass easily
- 2.24 In summary, the level of on street parking that occurs along Hamsland is not considered significant and there are sufficient gaps between vehicles for vehicles to pass if required. The level of traffic that uses Hamsland is low as it is a cul-de-sac and as such the level of on street parking will remain consistent as it is not generally used by vehicles other those living or visiting people in this area. The additional traffic that will be generated by the proposed development will not result in any material change to the flow of traffic that which currently occurs.

3 ACCESSIBILITY

Introduction

- 3.1 This section of the report considers the sustainability of the site in terms of opportunities for accessible travel, walking and cycling and public transport.

Existing Walking and Cycling Connectivity

- 3.2 The proposed development will be served by an internal network of footways, with new vehicular access on Hamsland that can be safely used by pedestrians and cyclists. The proposed residential development will connect to the existing pedestrian footway on the southern side of Hamsland via the vehicle access. There is footway provision on both sides of Hamsland to the east and west of the proposed site access arrangements and these connect to the wider footway network in the village.
- 3.3 The following pedestrian routes are available between the site and the village centre:
- Hamsland - Challoners - Pedestrian Cut through - Lewes Road - Station Road;
 - Hamsland - Bonfire Lane - Chapel Lane - Station Road; and
 - Hamsland - Bonfire Lane - Station Road.
- 3.4 The pedestrian route via Lewes Road is the only continuous footway provision that connects to the village centre and bus stops.
- 3.5 Bonfire Lane runs to the east of the site between Hamsland and Station Road providing access to a small number of dwellings. The western end of Bonfire Lane is a cul-de-sac and vehicles are not able to access Hamsland, although a pedestrian route is provided with bollards restricting vehicular access. The middle section of Bonfire Lane forms a cross road junction with Wyatts Lane and Chapel Lane. Bonfire Lane is a narrow single-track lane with no footway provision, although is lightly trafficked and suitable for on road walking or cycling.
- 3.6 Chapel lane runs on a north west to south east alignment between Bonfire Lane / Wyatts Lane and Lewes Road. Chapel Lane is a narrow lane accessing a small number of dwellings and Tennis Courts with no footway provision, although is very lightly trafficked and suitable for on road walking or cycling. The eastern side of Chapel Lane provides access to a public right of way via the north west corner of the cricket pitch that leads to 'The Crown Inn' car park and village centre. The north western end of Chapel Lane connects to the footway network on the village green.
- 3.7 Church Lane is a cul-de-sac joining Station Road to the east of The Green Man public house in the form of a priority junction arrangement, Church Lane also joins Leighton Road which joins Station Road further to the west. Church Lane provides access to a few residential dwellings and St Giles C of E primary school. In addition, a pedestrian link is provided between Church Lane and Station Road opposite the junction with Lewes Road. Church Lane is lightly trafficked and suitable for on road walking or cycling. Warning signage advising drivers that pedestrians walk in the road are provided along Church Lane.

- 3.8 **Appendix D** shows indicative walking isochrones taken from the site, based on a walking speed of 80m per minute (circa 4.8kph), up to a maximum walking distance of 2km from the centre of the site. The walking isochrones demonstrate that the village centre and many local facilities including bus stops are within a reasonable walking distance of the site.
- 3.9 There are no cycle facilities in the vicinity of the site or within Horsted Keynes, although the local highway network lends itself to on road cycling, enabling all local facilities to be within easy cycle distance of the site.
- 3.10 **Appendix E** shows indicative cycle isochrones from the site at 1km (circa 5-minute cycle time) intervals. The cycle isochrones indicate that all local facilities in Horsted Keynes are within easy cycle distance of the site.

Public Transport

Bus

- 3.11 The closest bus stops to the site, are located on Station Road, approximately 550m to the north of the site. These bus stops provide access to the 270-bus route. The westbound bus stop includes timetable information, a shelter and waste bin, the eastbound bus stop includes seating provision and timetable information although no shelter is provided. Details on the route and frequency of this bus route is provided in **Table 3.1** below.

Table 3.1: Bus Routes and Frequencies

Service	Route	Average Frequency (per hour)				
		Mon-Fri			Sat	Sun
		AM Peak	Off Peak	PM Peak		
Lewes Road Bus Stop (Westbound)						
270	East Grinstead – Horsted Keynes – Haywards Heath – Hassocks – Brighton	1	1	1	1	0-1

- 3.12 **Table 3.1** demonstrates that the site is accessible to an hourly bus service which provides residents with access to a range of locations including; East Grinstead, Ashurst Wood, Forest Row, Wych Cross, Horsted Keynes Station, Lindfield, Haywards Heath, Burgess Hill, Hassocks and Brighton. The 270 bus routes also links to Haywards Heath, East Grinstead and Haywards Heath Rail Station, providing access to National Rail services.

Rail

- 3.13 The closest rail station to the site is Haywards Heath Rail Station, which is approximately 7.5 kilometres from the proposed site access junction. The station is managed by Southern and provides access to 312 cycle parking spaces and has a car park which serves up to 826 vehicles. Haywards Heath Rail Station provides links to several locations including; Brighton, Littlehampton, Eastbourne, London Victoria, Cambridge, Ore, Bedford and Central London. The rail station also provides access to Gatwick Express services to Gatwick Airport.

- 3.14 Haywards Heath Rail Station can be accessed in approximately 20 minutes by using bus route 270.

Accessibility to Local Facilities

- 3.15 In accordance with National and Local planning policy guidance, land use development sites should be accessible by a variety of transport modes thereby resulting in less reliance on the private car.
- 3.16 **Appendix C** shows the location of day-to-day facilities and services near the site.
- 3.17 Manual for Streets (Paragraph 4.4.1) states the following:
 “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.”
- 3.18 Furthermore, Local Transport Note 1/04a (Department for Transport 2004), considers acceptable walking and cycling distances at Paragraph 3.10.3, stating:
 “There are limits to the distances generally considered acceptable for utility walking and cycling. The mean average length for walking journeys is approximately 1 km (0.6 miles)’ and for cycling, it is 4 km (2.4 miles)’ although journeys of up to three times these distances are not uncommon for regular commuters. The distances people are prepared to walk, or cycle depend on their fitness and physical ability, journey purpose, settlement size, and walking/cycling conditions. Useful guidance on desirable, acceptable and preferred maximum walking distances for different purposes is included in Tables 3.2 and 3.3 of Providing for Journeys on Foot, IHT 2000.”
- 3.19 The Institution of Highways and Transportation (IHT) ‘Guidelines for Providing Journeys on Foot’ (2000) suggests acceptable, desirable and maximum walking distances. **Table 3.2** below replicates the IHT suggested walking distances for pedestrians without mobility impairment for some common trip purposes.

Table 3.2: Acceptable, Desirable and Maximum Walking Distances

Definition	Walking Distances (m)		
	Town Centres	Commuting / Schools	Elsewhere
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

- 3.20 It is evident from **Table 3.2** that walking offers a great potential to replace short car trips, particularly, but not exclusively, for trips less than 2 kilometres.
- 3.21 **Table 3.3** identifies the walking and cycle distance and time to local facilities and amenities measured from the centre of the proposed development. This table is not meant to provide an

exhaustive list but rather an example of distances and travel time to local facilities and amenities.

Table 3.3: Walking and Cycling Distances to Local Facilities*

Facility	Approx. Distance (M)	Approx. Walking Time	Approx. Cycle Time
Public Transport			
Lewes Road Eastbound Bus Stop	500m	6 mins	2 mins
Lewes Road Westbound Stop	500m	6 mins	2 mins
Educational Facilities			
St Giles C of E Primary School	950m	12 mins	4 mins
Local Facilities			
Catholic Church of Saint Stephen	50m	1 min	NA
Horsted Keynes Store	600m	7 mins	2 mins
The Green Man (PH)	550m	7 mins	2 mins
The Crown Inn	550m	7 mins	2 mins
Horsted Keynes Parish Council	600m	8 mins	3 mins
St Giles Church	850m	10 mins	4 mins
Recreational Facilities			
Horsted Keynes Recreation Ground (including Children Play Area)	250m	3 mins	1 min
Tennis Courts	280m	4 mins	1 min
Cricket Pitch and Pavilion	370m	4 mins	1 min

(*) Distances and times taken from Google Maps which takes into account local topography.

- 3.22 The site is well located in relation to the existing pedestrian facilities provided within Horsted Keynes and suitable walking routes are available to connect the site to the village centre and local primary school. The local facilities within Horsted Keynes, except for the primary school and church are all within the recommended 800m walk distance from the site. The primary school and church are well within the recommended preferred maximum distances identified in IHT Guidelines. On this basis, it is considered that the site is located within a suitable walking distance from the services and facilities available in Horsted Keynes.

Residential Travel Information Pack

- 3.23 Given the locality of the site in relation to public transport and modes other than the private car, the opportunity exists to encourage residents and visitors to use non-car modes by providing a Residential Travel Information Pack.
- 3.24 Reference is made to the DfT's publication 'Making Residential Travel Plans Work' – which states:

“A residential Travel Pack is a package of measures designed to reduce car use originating from new housing by supporting alternative forms of transport and reducing the need to travel in the first place. They are an important tool to help deliver accessible communities and offer clear benefits to all the parties involved – public, private and the community.”

- 3.25 A typical Travel Information Pack will include the following:
- Details of cycle parking facilities that are available at key areas such as railway stations, retail, services and leisure etc.;
 - Bus discount voucher to be used on the local bus routes (for a limited period);
 - Details of pedestrian and cycle routes in the area; and
 - Public transport timetable / maps – website addresses.
- 3.26 The information will help introduce residents to alternative modes and enable them to consider the trips to be made and the mode by which they can use. By providing a Travel Pack, it is intended that this will encourage a change in perceptions and attitudes and therefore promote the desired change in travel behaviour.

Summary

- 3.27 The site benefits from good accessibility to bus service 270 that provides residents with access to a range of locations including; East Grinstead, Ashurst Wood, Forest Row, Wych Cross, Horsted Keynes Station, Lindfield, Haywards Heath, Burgess Hill, Hassocks and Brighton. The 270 bus route also links the site to Haywards Heath, East Grinstead and Haywards Heath Rail Station, providing access to National Rail services.
- 3.28 The site is well located in relation to the existing pedestrian facilities provided within Horsted Keynes and suitable walking routes are available to connect the site to the village centre and local primary school. The local facilities within Horsted Keynes, except for the primary school and church are all within the recommended 800m walk distance from the site. The primary school and church are well within the recommended preferred maximum distances identified in IHT Guidelines. On this basis, it is considered that the site is located within a suitable walking distance from the services and facilities available in Horsted Keynes.
- 3.29 In terms of sustainability, the location of the site is conducive to providing future residents with a realistic alternative choice to the private car for many day-to-day journeys.

4 PLANNING POLICY

Introduction

4.1 This section of the report evaluates the development proposal against the appropriate national and local land use and transport planning policies:

- National Planning Policy Framework (NPPF);
- Planning Practice Guidance;
- West Sussex Local Transport Plans 2011 to 2026;
- Mid Sussex District Plan 2014-2031; and
- West Sussex Guidance for Parking in New Residential Developments.

National Planning Policy Framework (NPPF)

4.2 National policy in relation to the transport planning of developments is set out in the National Planning Policy Framework (NPPF) (February 2019). Section 9 'Providing Sustainable Transport – considering development proposals' states the following:

4.3 Paragraph 108 states that:

- a) "In assessing site that may be allocated for development in plans, or specific applications for development, it should be ensures that:
- b) Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
- c) Safe and suitable access to the site can be achieved for all users; 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."

4.4 Paragraph 109 states that:

- a) "Development should only be prevented or refuse on highway grounds if there would be an unacceptable impact on highway safety or residual cumulative impacts on the road network would be severe."

4.5 Paragraph 111states that:

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

4.6 Regarding parking, Paragraph 105 of the NPPF states that:

- a) "If setting local parking standards for residential and non-residential development, policies should take into account:
 - The accessibility of the development;

- The type, mix and use of the development;
- The availability of and opportunities for Public Transport;
 - Low car ownership levels; and
- the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.”

4.7 Paragraph 106 states that:

- a) “Maximum parking standards for residential and non-residential development should only be set where there is a clear and compelling justification that they are necessary for managing the local road network, or for optimising the density of development in city and town centres and other locations that are well served by public transport (in accordance with Chapter 11 of this Framework). In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe and secure, alongside measures to promote accessibility for pedestrians and cyclists.”

Planning Practice Guidance

- 4.8 This Guidance provides advice on when Travel Plans, Transport Assessments and Statements are required, and what they should contain.
- 4.9 Transport Assessments and Statements are ways of assessing the potential transport impacts of developments, and they may propose mitigation measures to promote sustainable developments. Transport Assessments are thorough assessments of the transport implications of development, and Transport Statements are a ‘lighter-touch’ evaluation to be used where this would be more proportionate to the potential impact of the development.
- 4.10 Transport Assessments and Statements can be used to establish whether the residual cumulative transport impacts of a proposed development are likely to be “severe”, which may be a reason for refusal, in accordance with NPPF.

West Sussex Local Transport Plan 2011 to 2026

- 4.11 The West Sussex Local Transport Plan provides a strategic direction for transport within West Sussex, but aligns itself with other major strategies, such as the County Strategy and Local Communities Strategies. The key objectives of the plan are:
- “Promoting economic growth;
 - Tackling climate change;
 - Providing access to services, employment and housing; and
 - Improving safety, security and health.”
- 4.12 In addition, the key measures that are identified that are applicable to residential developments include:
- “Ensure an appropriate amount of parking is provided at new residential development and that parking space is provided at non-residential development in line with our agreed parking standards;

- Ensuring that new employment and residential developments are accessible by sustainable modes of transport;
- Continuing to secure travel plans for new residential and employment developments; and
- Encouraging home working and the promotion of home delivery services through SIDD, to design new facilities and services which meet customer needs.”

Mid Sussex District Plan 2014-2031

4.13 Mid Sussex District Council adopted the Mid Sussex Plan in March 2018 and it replaces the Mid Sussex Local Plan 2004. The District Plan is the main planning document used by the Council when considering planning applications. It covers the period to 2031 and includes the strategy, proposed level of development and several planning policies.

4.14 The District Plan policy DP21 states the following in relation to Transport:

“Development will be required to support the objectives of the West Sussex Transport Plan 2011- 2026, which are:

- A high-quality transport network that promotes a competitive and prosperous economy;
- A resilient transport network that complements the built and natural environment whilst reducing carbon emissions over time; • Access to services, employment and housing; and
- A transport network that feels, and is, safer and healthier to use. To meet these objectives, decisions on development proposals will take account of whether:
- The scheme is sustainably located to minimise the need for travel noting there might be circumstances where development needs to be in the countryside, such as rural economic uses (see policy DP14: Sustainable Rural Development and the Rural Economy);
- Appropriate opportunities to facilitate and promote the increased use of alternative means of transport to the private car, such as the provision of, and access to, safe and convenient routes for walking, cycling and public transport, including suitable facilities for secure and safe cycle parking, have been fully explored and taken up;
- The scheme is designed to adoptable standards, or other standards as agreed by the Local Planning Authority, including road widths and size of garages;
- The scheme provides adequate car parking for the proposed development taking into account the accessibility of the development, the type, mix and use of the development and the availability and opportunities for public transport; and with the relevant Neighbourhood Plan where applicable;
- Development which generates significant amounts of movement is supported by a Transport Assessment/ Statement and a Travel Plan that is effective and demonstrably deliverable including setting out how schemes will be funded;
- The scheme provides appropriate mitigation to support new development on the local and strategic road network, including the transport network outside of the district, secured where necessary through appropriate legal agreements;

- The scheme avoids severe additional traffic congestion, individually or cumulatively, taking account of any proposed mitigation;
 - The scheme protects the safety of road users and pedestrians; and
 - The scheme does not harm the special qualities of the South Downs National Park or the High Weald Area of Outstanding Natural Beauty through its transport impacts.
- Where practical and viable, developments should be located and designed to incorporate facilities for charging plug-in and other ultra-low emission vehicles.”

Guidance for Parking in New Residential Developments

- 4.15 West Sussex County Council has taken a strongly evidence-led approach to residential parking in new developments, to ensure that the number of parking spaces provided is appropriate to the location and the characteristics of the development.
- 4.16 The developer will use the West Sussex Residential Parking Demand Calculator to calculate the number of parking spaces required at the proposed development. The calculator predicts levels of car ownership using information about the location (ward), unit type, unit tenure, unit size and the number of allocated spaces.
- 4.17 If garages are provided, they should be at least 6m x 3m internally. If garages meet this requirement, they should be regarded as an allocated parking space and calculations of parking demand should take account of this.
- 4.18 Car parking provision for disabled people should be consistent with the standards set out in Manual for Streets, which state that 5% of residential car parking spaces are designated for use by disabled people.
- 4.19 The recommended levels of cycle provision are set out in **Table 4.1** below:

Table 4.1: Recommended Levels of Cycle Provision

Type	Size	Cycle Provision (per Unit)
Houses	Up to four rooms (one / two bed)	One space
	Five + rooms (three + bed)	Two spaces
Flats	Up to three rooms (one / two bed)	0.5 Spaces (If communal storage, otherwise the same as a one / two bed house)
	Four + rooms (three + bed)	One space

Summary

- 4.20 The key transportation policy is to ensure that development is in locations which are or can be made sustainable. Future development should be in accessible locations, which can reduce the need to travel for employment, leisure and education and encourage the use of sustainable transport modes such as walking, cycling and public transport.
- 4.21 In terms of sustainability, the site benefits from accessibility to the existing bus service that runs through Horsted Keynes and access local towns and rail stations. Local facilities including

shops and education are accessible by walking and cycling modes. The site therefore provides future residents with travel options other than the private car for some journeys.

4.22 As such, the sites location is considered to accord to the relevant land use and transport policy.

5 DEVELOPMENT PROPOSAL AND ACCESS

Introduction

- 5.1 The proposed development site is located on land to the south of Hamsland on the edge of the village of Horsted Keynes and will accommodate up to 30 residential dwellings.
- 5.2 A full description of the proposed residential development is contained in the planning application's supporting Planning Statement and accompanying plans. The following description is pertinent in transport terms.
- 5.3 The master plan for the development proposal has been provided by Rydon Homes Ltd, and a copy is provided at **Appendix F**.

Proposed Vehicular Access Arrangement

- 5.4 The proposed access to the site will be in the location of the existing gated access to the west of the Saint Stephen Church. The proposed access takes the form of a priority junction with Hamsland.
- 5.5 The vehicular access will be provided with a 5.5m carriageway narrowing to 4.8m as it enters the development site. The 5.5m width of the access, is enough to allow two large vehicles to pass and consistent with the advice contained within Manual for Streets (MfS). It is proposed that the junction radii are provided at 5m to accommodate the swept path of the largest design vehicle a large refuse vehicle.
- 5.6 Whilst a formalised kerbed access arrangement is proposed, the opportunity exists to provide a shared surfaced arrangement. Manual for Streets suggests that shared streets are likely to work well where the volume of motor traffic is below 100 vehicles per hour and where parking is controlled or takes place in designated areas. The level of traffic generated by a development of 30 dwellings would be significantly less than 100 vehicle movements per hour and as such a shared surface would be considered an acceptable arrangement.
- 5.7 Adjacent to the site, residents on Hamsland currently park on the northern side of the carriageway reducing the width to approximately 3.5m.
- 5.8 The parking survey that was undertaken showed that parking opposite the site occurs on a regular basis, it is therefore proposed as part of the new development a layby on the northern side of Hamsland opposite the access is provided. The provision of the layby would accommodate approximately 10 cars and increase the width of Hamsland in the vicinity of the access and allow cars to pass more easily. The layby can be accommodated within the extent of the existing verge without affecting the existing footway which runs behind the verge. The provision of the layby would also maintain the existing level of parking that occurs along this section of Hamsland.
- 5.9 The design of the proposed priority junction and layby provision on Hamsland is provided at **Appendix G**.
- 5.10 The development proposal is for up to 30 residential dwellings. The provision of a second access for emergency use is not considered necessary as it is stated within MfS.

“Authorities have often argued that the larger the site, the more likely it is that a single access could be blocked for whatever reason. The fire service adopts a less numbers driven approach and considers each application based on a risk assessment for the site and response time requirements.”

Visibility at the Proposed Access Arrangement

- 5.11 The visibility at the proposed junction ensures there is adequate inter-visibility between vehicles on the major and minor arms.
- 5.12 The Department for Transport’s ‘*Manual for Streets*’ states the following regarding the application of visibility standards:

“MfS focuses on lightly trafficked residential streets, but many of its key principles may be applied to other types of street, for example high streets and lightly trafficked rural areas.”
- 5.13 Paragraph 1.4.4 of MfS expands on the above and states:

“The Design Manual for Roads and Bridges is not an appropriate design standard for most streets, particularly those in lightly trafficked residential areas.”
- 5.14 The volume of traffic movements recorded on Hamsland (detailed in the traffic survey and **Table 2.3**) are low, with only 47 two-way peak hour trips and only 574 two-way daily weekday movements. Hamsland is considered a lightly trafficked residential road and therefore MfS will apply.
- 5.15 In terms of traffic speeds MfS states the following at paragraph 7.5.1:

“This section provides guidance on stopping sight distance (SDD’s) for streets where the 85th percentile speeds are up to 60km/hr. At speeds above this the recommended SDD’s in the Design Manual for Roads and Bridges maybe appropriate.”
- 5.16 To ensure that the proposed access accords to the relevant design standards an ATC has been placed on the Hamsland in the vicinity of the proposed access to establish the 85th percentile speed. The results of the speed survey undertaken are as follows:
 - Eastbound 26.1mph; and
 - Westbound 25.8mph.
- 5.17 The results of the speed survey indicate that the derived SSD for streets in Table 7.1 of MfS can be applied.
- 5.18 The level of visibility is based on the 85th percentile speeds measurements and the calculation provided in MfS. The visibility requirements are 2.4m x 34.8m to the right and 2.4m x 35.3m to the left.
- 5.19 In addition, road users waiting to turn right into the access from Hamsland, can also see more than the 25.8m to the west.
- 5.20 The visibility splays at the proposed access arrangement are indicated on the site access drawing attached at **Appendix G**.

Pedestrian and Cycle Access

- 5.21 In terms of pedestrian and cycle access the scheme design seeks a permeable development. Pedestrian and cycle access will be along the proposed vehicular access arrangement via a 1.5m wide footway on the east side of the access which in turn will connect to the existing southern footway on Hamsland.

Servicing

- 5.22 In order to ensure that the largest vehicles that are likely to access the site on a regular basis, can do so easily, the Auto Track computer programme has been utilised. The largest vehicle assessed is a large refuse vehicle.
- 5.23 The results of the swept path analysis are shown in **Appendix H**.

Parking Provision

- 5.24 The developer will use the West Sussex Residential Parking Demand Calculator to calculate the number of parking spaces required at the proposed development. The cycle parking will be provided in accordance with the West Sussex County Council's guidance detailed in **Table 4.1**.

6 ROAD SAFETY

Introduction

- 6.1 This section reviews the safety of the proposed access arrangement and the existing road collisions that have occurred in the vicinity of the site over the past five years.

Stage 1 Road Safety Audit

- 6.2 West Sussex County Council's Safety Audit Adopted policy states that:
- “an Audit is required for all ‘major’ planning applications that include alteration to the existing highway, intensification of use of an existing access, formation of a new access, off-site improvements or roads to be offered for adoption under the terms of a Section 38 Agreement of the Highways Act 1980 (‘major’ applications are defined as residential development of 10 units or more or 0.5 ha or more when the numbers are unknown and commercial development of 1,000 sqm or more or 1ha or more).”
- 6.3 The Stage 1 Road Safety Audit has been carried out by Taylor Bowie Ltd who is an independent Safety Auditing Company. A copy of the Audit and designer's response is provided in **Appendix I**.

Road Traffic Collision Analysis

- 6.4 A review of the ‘Crash Map UK’ website indicates there have been no personal injury collisions on the following roads and junctions near the site within the past 5 years:
- Hamsland; and
 - Lewes Road including the northern priority junction with Station Road and southern priority junction with Sugar Lane.
- 6.5 An extract from ‘Crashmap’ is included in **Appendix J**.

7 TRIP GENERATION AND TRAFFIC IMPACT

Introduction

- 7.1 This section of the TS considers the likely level of traffic that could be generated by 30 residential dwellings and the potential impact on the local highway network.

Residential Trip Generation

- 7.2 The TRICS database has been used as part of the assessment in determining the likely trip generation of up to 30 residential dwellings. To ensure the sites selected are comparable to the proposed residential development the following selection parameters have been applied:
- House privately owned;
 - Number of dwellings: Range 27 to 42;
 - Location; Suburban Area, Neighbourhood Centre; and
 - Car ownership: 1.1 -1.5.
- 7.3 The table below summarises the peak hour trip rates obtained from the TRICS database. A copy of the TRICS output is provided at **Appendix K**.

Table 7.1: TRICS Residential Trip Rates and Predicted Trip Generation for up to 30 Dwellings

	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
Trip Rate	0.252	0.456	0.708	0.449	0.190	0.639
Vehicle Movements	8	14	22	13	6	19

Source: TRICS

- 7.4 The above table indicates that 30 dwellings are likely to result in 22 two-way vehicle trips in the morning peak hour and 19 two-way in the evening peak hour.
- 7.5 It should be noted that the TRICS selection base upon private housing sites will represent a robust scenario in terms of traffic generation for the site, as rented and affordable accommodation generally have a lower trip rate than private housing.
- 7.6 The above trip rates are significantly higher than the existing trip rates made by residents within Hamsland/ Challoners which see a two-way trip rate of 0.302 in the AM Peak and 0.363 in the PM Peak (based on a total of 129 dwellings).

Traffic Impact

- 7.7 The proposed development is predicted to generate one additional trip approximately every 3 minutes during the peak hours. This level of traffic will be imperceptible to other road users on Hamsland and will not cause a 'severe' impact, when compared to the existing traffic flows and the parking along Hamsland will not affect the through movement of traffic with the development in place.

8 SUMMARY AND CONCLUSION

- 8.1 This TS has been prepared on behalf of Rydon Homes Ltd., in support of their planning application for up to 30 residential dwellings on land south of Hamsland, Horsted Keynes, West Sussex.
- 8.2 The site is located approximately 500m south of Horsted Keynes village centre and falls within the local planning authority (LPA) administrative area of Mid Sussex District (MSD), with the local highway authority (LHA) being West Sussex County Council (WSCC).
- 8.3 The site is currently used for agricultural purposes with vehicle access via a gate with Hamsland. The site is bounded to the north by the Catholic Church of Saint Stephen and Hamsland, to the east by a residential dwelling and to the south and west by agricultural land.
- 8.4 The site benefits from good accessibility to bus service 270 that provides residents with access to a range of locations including; East Grinstead, Ashurst Wood, Forest Row, Wych Cross, Horsted Keynes Station, Lindfield, Haywards Heath, Burgess Hill, Hassocks and Brighton. The 270 bus routes also link the site to Haywards Heath, East Grinstead and Haywards Heath Rail Station, providing access to National Rail services.
- 8.5 The site is well located in relation to the existing pedestrian facilities provided within Horsted Keynes and suitable walking routes are available to connect the site to the village centre and local primary school. The local facilities within Horsted Keynes, except for the primary school and church are all within the recommended 800m walk distance from the site. The primary school and church are well within the recommended preferred maximum distances identified in IHT Guidelines. On this basis, it is considered that the site is located within a suitable walking distance from the services and facilities available in Horsted Keynes.
- 8.6 In terms of sustainability, the location of the site is conducive to providing future residents with a realistic choice to the private car for many day-to-day journeys.
- 8.7 The proposed access to the site will be in the location of the existing gated access to the west of the Saint Stephen Church. The proposed access takes the form of a priority junction with Hamsland. The visibility at the vehicular access is provided in accordance with the advice contained within Manual for Streets.
- 8.8 The Hamsland vehicular access will also provide for cyclists (on-road) and pedestrians via the 1.5m eastern footway.
- 8.9 As part of the access proposals, a new lay-by will be provided to the north side of Hamsland in the vicinity of the site to accommodate the existing on-street parking and allow vehicles to pass more easily.
- 8.10 The developer will use the West Sussex Residential Parking Demand Calculator to calculate the number of parking spaces required at the proposed development. The cycle parking will be provided in accordance with the West Sussex County Council's guidance.
- 8.11 The proposed residential of up to 30 dwellings are predicted to generate up to 22 two-way vehicle trips in the morning peak hour and 19 two-way in the PM Peak hour resulting in no more than one additional vehicle every 3 minutes.

-
- 8.12 In conclusion, the site can achieve safe and suitable means of access for all modes and the development will not materially impact on the operation of the local highway network. As such there are no transport reasons why the development should not be permitted.

Appendices

Appendix A – WSCC Pre-app Scoping response

WEST SUSSEX COUNTY COUNCIL PRE APPLICATION CONSULTATION

TO:	Organisation: RPS FAO: Melanie A'Lee
FROM:	WSCC-Highways Authority
DATE:	8 October 2019
LOCATION:	Land to the rear of Catholic Church of St Stephen, Hamsland, Horsted Keynes, RH17 7DX
SUBJECT:	Internal Reference: PRE-87-19 Development of 30 residential Dwellings.
DATE OF SITE VISIT:	4th October 2019
RECOMMENDATION:	Advice
S106 CONTRIBUTION TOTAL:	TBC

Background

The Local Highways Authority (LHA) has been consulted for pre-application advice in regard to the proposed development of 30 dwellings at Land to the rear of Catholic Church of St Stephen, Hamsland, Horsted Keynes, RH17 7DX. The LHA met with RPS on the 4th October 2019 where the principle of the development was discussed on site. Hamsland is a 'D' class road subject to a 30 mph speed limit. The area is not street lit but does benefit from an existing pedestrian footpath on both sides of the carriageway.

The proposals are supported by a Transport Statement (TS) which includes a Stage 1 Road Safety Audit (RSA), Trip Rate Information Computer System (TRICS) data and a parking survey.

Site

The site is located 500m south of the Horsted Keynes village centre. The site is/has been used for agricultural purposes with access via a gate with Hamsland. The site is adjacent to the Catholic Church of St Stephen.

Access and Visibility

The application will utilise the existing access onto Hamsland albeit with modifications to take the form of a priority junction. The access is 5.5 metres and narrows to 4.8 metres going into the site. The applicant has undertaken a speed survey which indicates that speeds are 26 mph to the east and 25 mph to the west. On that basis the LHA would support the approach of Manual for Streets (MfS) of splays measuring 2.4 by 34 metre and 35 metres respectively. The applicant has provided a 25 metre forward visibility splay indicating that drivers can see sufficiently up the road. The access works would be subject to a Section 278 Agreement with the LHA's Implementation Team.

Internal Layout and Parking

No concerns would be recorded with the internal layout. The principle would appear to be acceptable. The applicant proposes a 1.5 metre internal footway which would accord with MfS parameters and provide safe access into the site for pedestrians. The applicant has provided a swept path diagram to demonstrate turning for larger vehicles within the site. This includes a refuse vehicle which we would advise is run past the Local Planning Authority's (LHA) waste collection authority for their input on the proposals. The applicant has indicated that the internal layout may be offered for adoption under a Section 38 Agreement. This can be confirmed at the planning application stage however. The applicant states that parking will according with the LHA's parking allocations. For clarity the LHA's parking calculator has been updated from August 2019. It is therefore the parameters of this which the proposals should be measured against with print outs provided within a submitted TS to the LPA.

Parking Survey

The applicant undertook a parking survey to assess the parking stress along Hamlands. The results show that the maximum parking available was 57% of the capacity at the busiest period. The LHA would be satisfied with the surveys findings that there is not significant stress on Hamland which could result in highway safety issue, coupled with this is the proposed lay-by (detailed in the section below) which will help alleviate any issues with the free flow of traffic.

Proposed Lay-By

The applicant proposes a lay-by which would be achieved by narrowing the existing highway verge. The proposed lay-by will require re-positioning the existing pedestrian crossing point. The proposed dimensions shown are accepted and would allow a larger vehicle to turn in and out of the site whilst cars are parked. In the current arrangement this manoeuvre would be restricted therefore there is an advantage to all road users with this proposed amendment. As detailed in the section below the lay-by has been considered as part of the sites access appraisals in the Stage 1 RSA. The works for the lay-by would need to be undertaken with a Section 278 Agreement with the LHA's implementation Team. This will also include a Stage 2 RSA and Technical Check as part of the process.

Stage 1 Road Safety Audit

The applicants TS provides a Stage 1 RSA. The RSA has been completed in accordance with GG 119 parameters. The RSA finds 2 problems with the proposed access arrangements. These relate to an internal accessway pinch point and the removal of the pedestrian crossing point as part of the proposals for the lay-by. The applicants Designer's Response provides confirmation that each point of the Auditors has been agreed to and the plans have been modified to include the amendments.

Capacity

A trip analysis has been undertaken on the use type 'residential' in the use class 'houses privately owned'; the assessment has been undertaken in accordance with TRICS 'Best Practice Guidance'. A copy of this report is found at the end of the

document in appendix 'J'. This establishes that there would be two defined peak hours, one at 0800-0900 and another at 1700-1800. It is anticipated that there would also be in excess of 22 movements between the hours of 0900-1000 and 19 two way trips between and 1600-1700. These numbers are below the requirement for an formal junction assessments. The LHA would therefore concur with the TA's assessment that the proposals are unlikely to have a 'Severe' residual impact on the highway network.

Accessibility

The TS provides a good overview of facilities nearby the site such as bus services which link to other nearby areas of employment and retail. Such as the location of schools and other local facilities. Other points are covered such as pedestrian walk ways and public rights of way routes.

Stage 1 Road Safety Audit

The applicants TS provides a Stage 1 RSA. The RSA has been completed in accordance with GG 119 parameters. The RSA finds 2 problems with the proposed access arrangements. These relate to an internal accessway pinch point and the removal of the pedestrian crossing point as part of the proposals for the lay-by. The applicants Designer's Response provides confirmation that each point of the Auditors has been agreed to and the plans have been modified to include the amendments.

Conclusions

I trust you appreciate that any advice given by council officers for pre-application enquiries does not constitute a formal response or decision of the council with regard to the granting of planning permission in the future. Any views or opinions expressed are given in good faith, and to the best of ability, without prejudice to the formal consideration of any application, which will be the subject of public consultation and ultimately decided by the LPA.

Jamie Brown
Planning Services

Appendix B – Site Location Plan



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Notes

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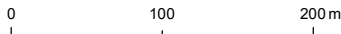
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Legend

Site Boundary


Rev	Description	By	CB	Date
Figure Number				Rev
3				-
rpsgroup.com				

Client	Rydon Homes Ltd
Project	St Stephens Fields, Horsted Keynes
Title	Site Location Plan



Status	Drawn By	PM/Checked By
FINAL	BG	CM
Project Number	Scale @ A3	Date Created
JNY10084	1:5,000	AUG 2019

20 Western Avenue, Milton Park,
Abingdon, Oxfordshire, OX14 4SH
T: +44(0)1235 821 888
E: rpsox@rpsgroup.com

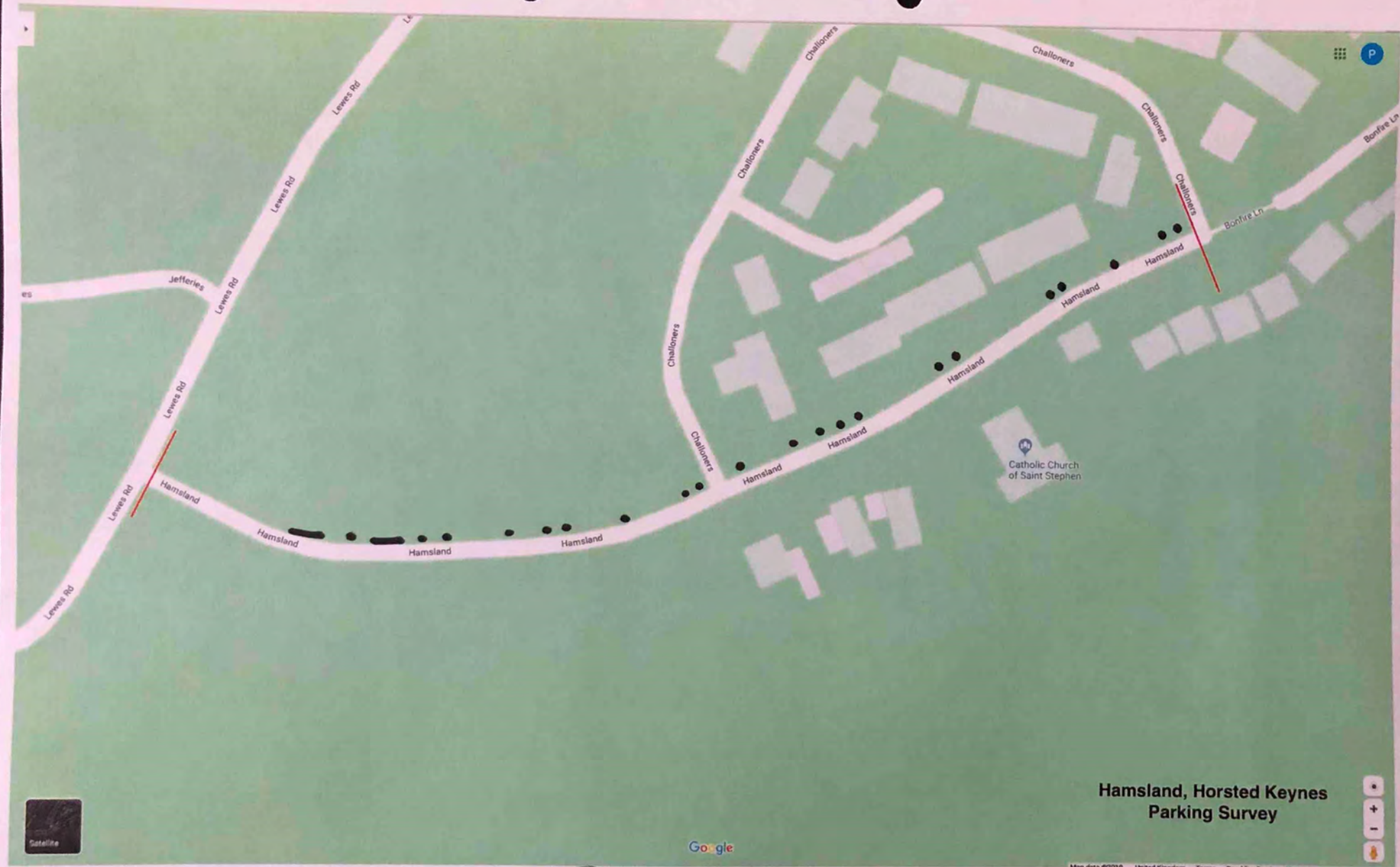


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Appendix C – Parking Stress Survey



SUNDAY 14 JULY 2PM (22) — DRIVEWAY • PARKED VEHICLE



SUNDAY 14 JUL

SPM
- 7PM

(21)

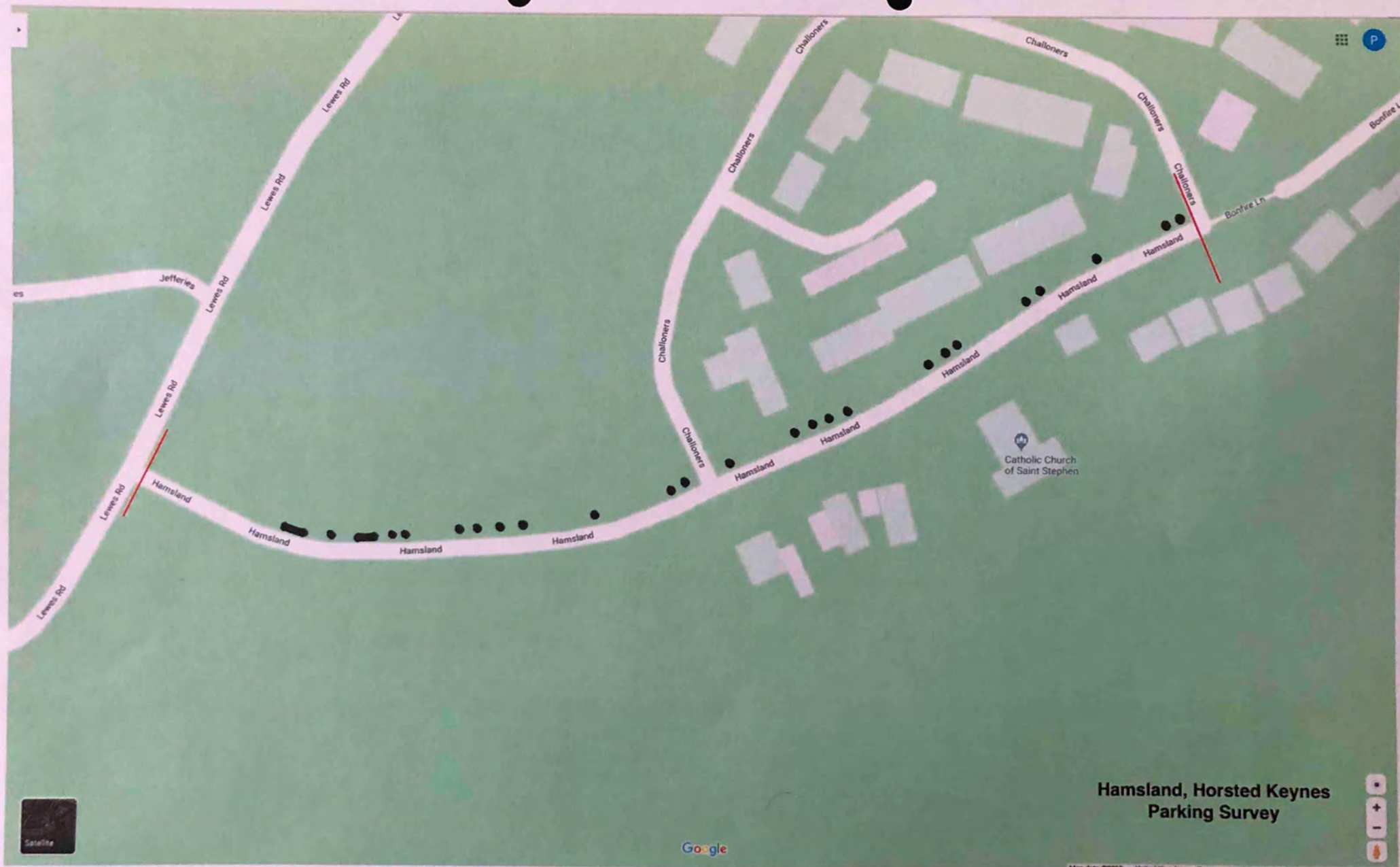


DRIVEWAY



PARKED VEHICLE

NO CHANGE SUNDAY 6AM-10AM



SUNDAY 14 JULY

6AM
- 10AM

(23)

— DRIVEWAY

• PARKED VEHICLE



SUNDAY 14 JULY

7PM
- 9PM

22

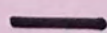
— DRIVEWAY

• PARKED VEHICLE.



SUNDAY 14 JULY 12NOON
- 1PM

(21)



DRIVEWAY



PARKED VEHICLE



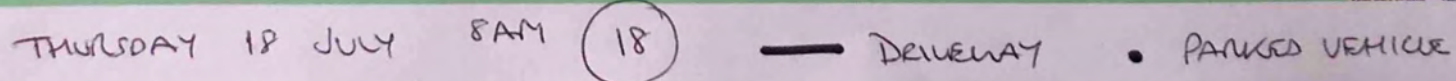
THURSDAY 18 JULY

6AM
-7AM

22

— DRIVEWAY

• PARKED VEHICLE





THURSDAY 18 JULY

9AM
- 10AM

(16)

— DRIVEWAY

• PARKED VEHICLE



THURSDAY 18 JULY 12 NOON
- 1PM

(15)

— DRIVEWAY

• PARKED VEHICLE



THURSDAY 18 JULY 2PM

(17)



DRIVEWAY



PARKED VEHICLE

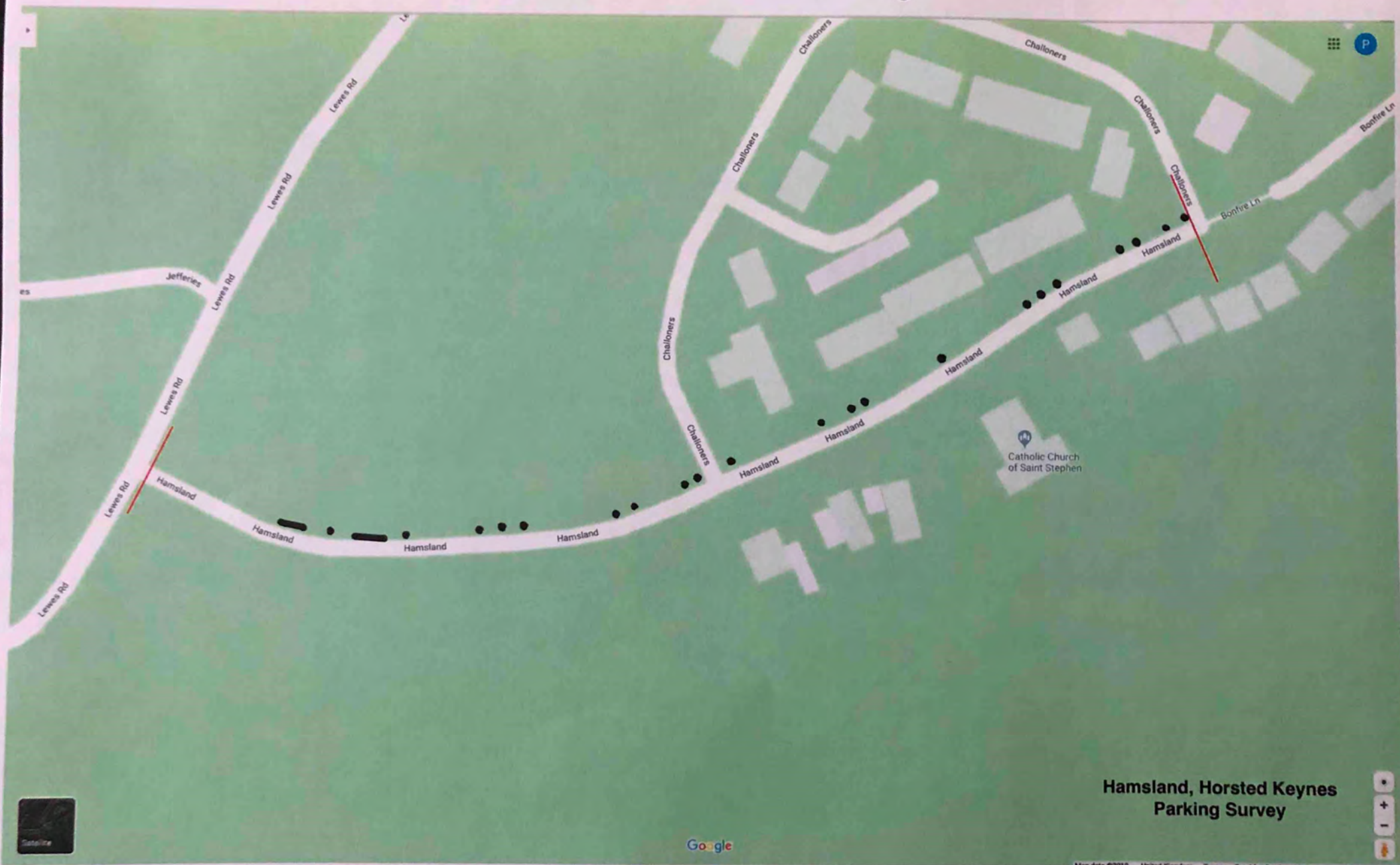


THURSDAY 18 JULY SPM (18)

— DRIVEWAY • PARKED VEHICLE



THURSDAY 18 JULY 5:30 PM (19)
- 6:30 PM



Hamsland, Horsted Keynes Parking Survey

Google

Map data ©2012 Street View Imagery ©2012

THURSDAY 18 JULY

7PM
-730PM

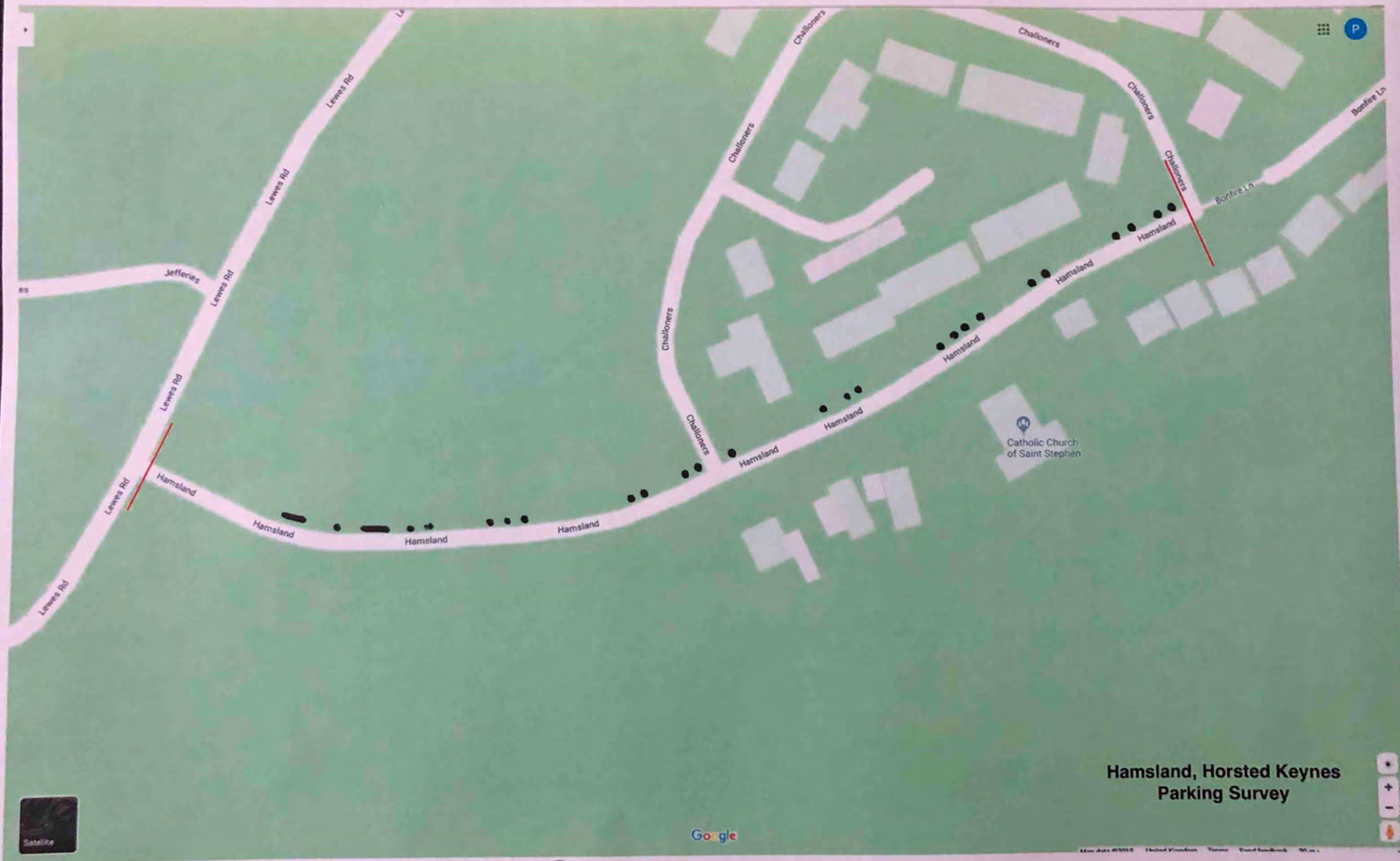
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DRIVEWAY



PARKED VEHICLE

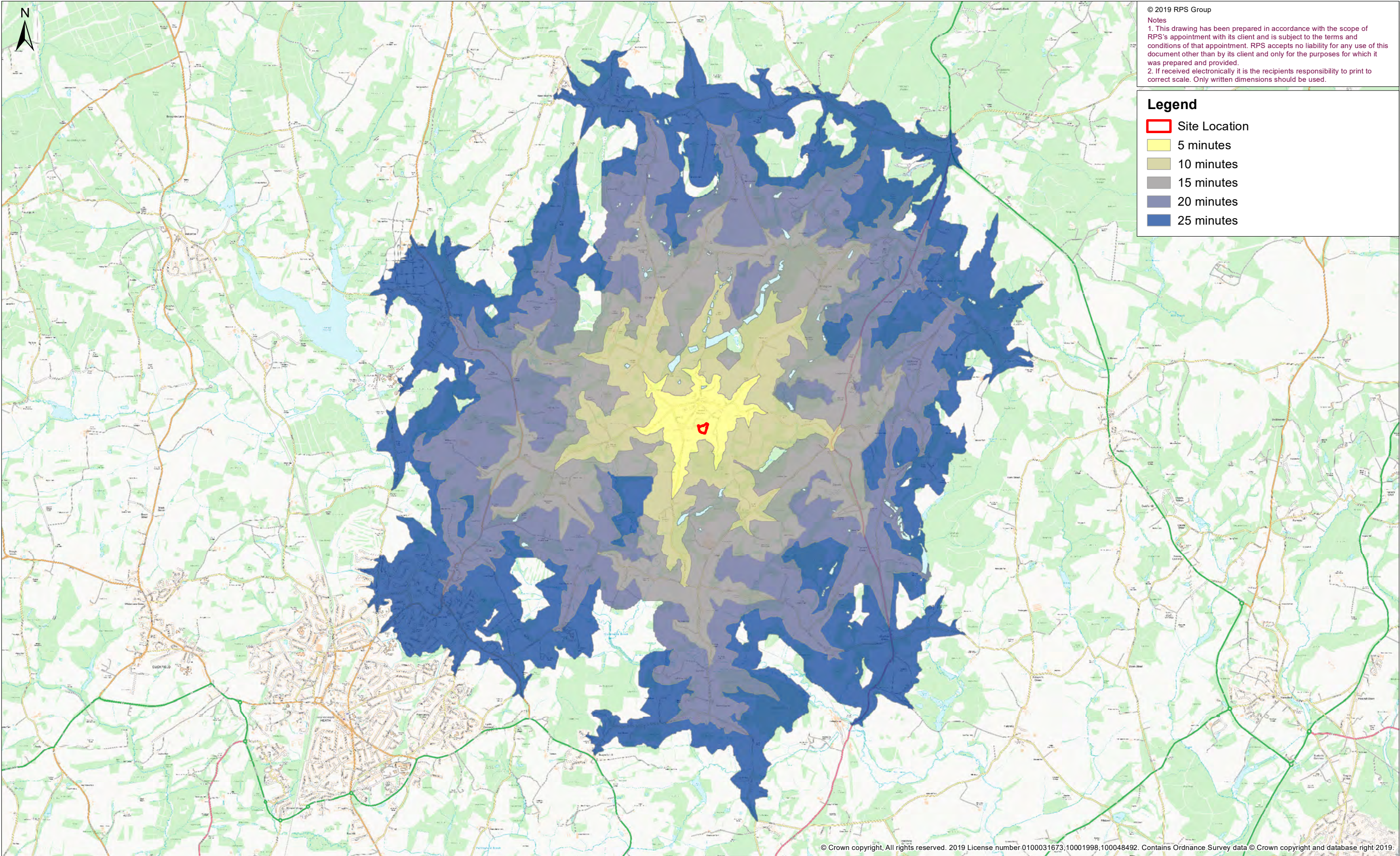


THURSDAY 18 JUL 8PM - 9PM (24) — DRIVEWAY • PARKED VEHICLE

Appendix D – Indicative Walking Isochrones

Appendix E – Indicative Cycle Isochrones

O:_TRANSPORT\JNY10084\Tech\Drawings\10084-0003-02.mxd



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Notes

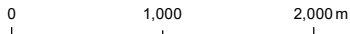
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- Legend**
- Site Location
 - 5 minutes
 - 10 minutes
 - 15 minutes
 - 20 minutes
 - 25 minutes

Rev	Description	By	CB	Date
Figure Number				Rev
2				-
rpsgroup.com				

Client	Rydon Homes Ltd
Project	St Stephens Fields, Horsted Keynes
Title	Cycle Isochrone
Note: Total end to end journey time using Basemap TRACC with Cycle speed of 16km/hr	



Status	Drawn By	PM/Checked By
FINAL	BG	CM
Project Number	Scale @ A3	Date Created
JNY10084	1:50,000	APR 2019

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Appendix F – Proposed Master Plan



Site
**LAND SOUTH OF HAMSLAND,
 HORSTED KEYNES**

Drawing
 Illustrative site layout plan for 30 homes
 including affordable housing (9 units)

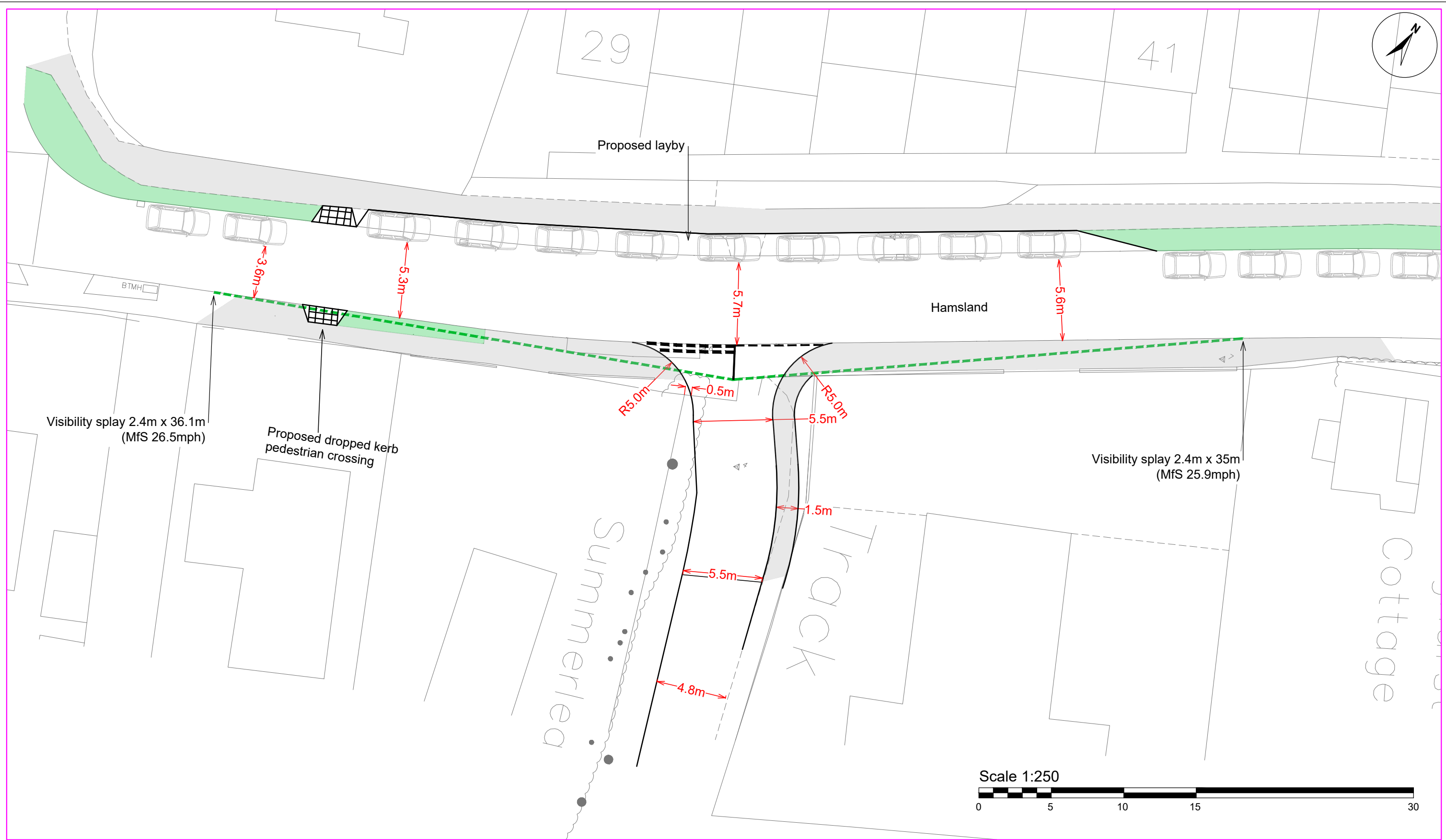
Scale
 1:500@A2

Date
 01.05.19 drawing ref 1263.06

KEY

 Site boundary

Appendix G – Proposed Access Arrangement



140 London Wall, London, EC2Y 5DN
T: +44(0)20 7280 3300 E: transport@rpsgroup.com

Client Rydon Homes Ltd

Project St Stephens Fields, Horsted Keynes

Title Proposed Site Access
Visibility Splay

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NOTES

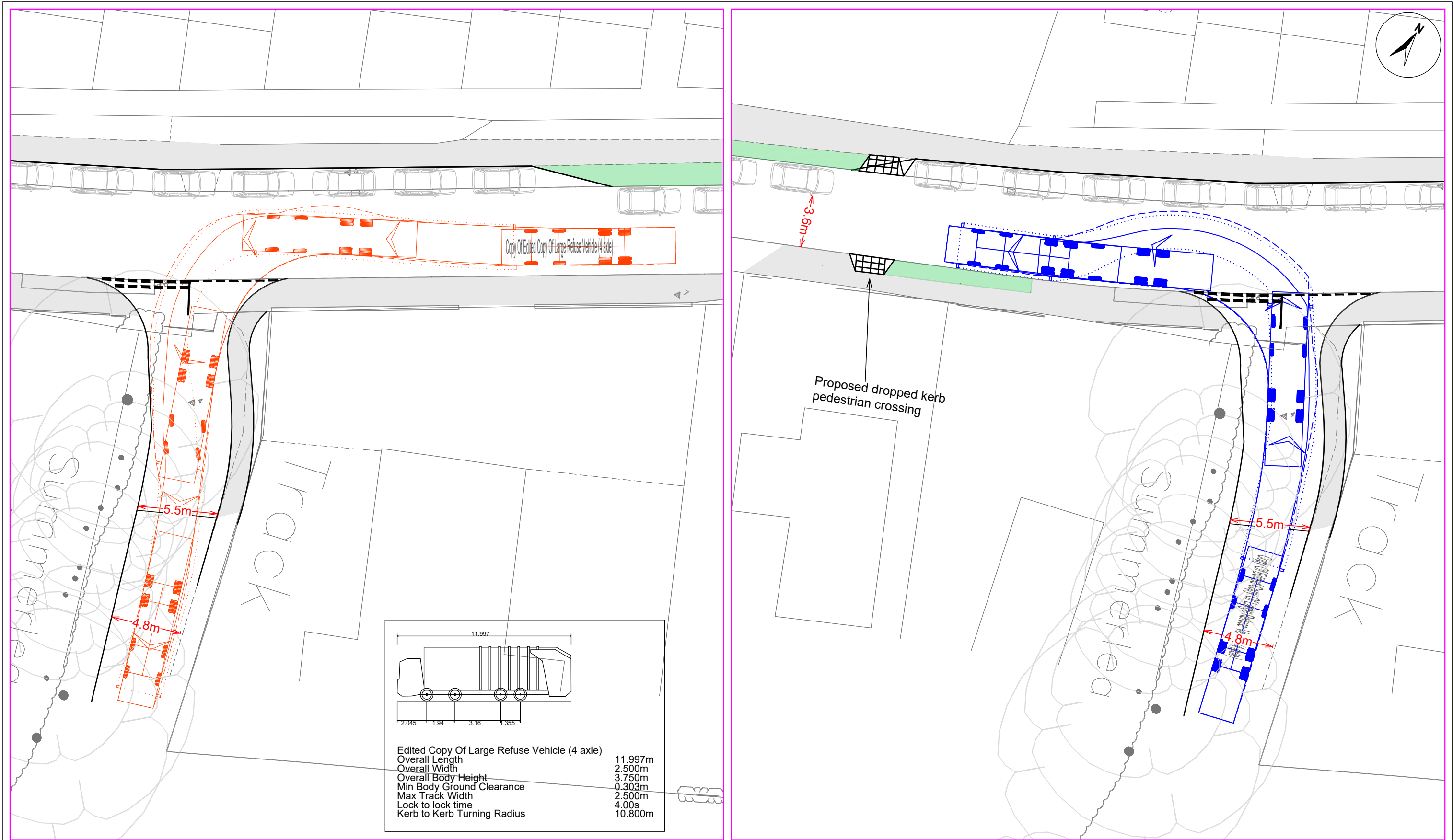
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A	Amendments Made in response to RSA	DA	MA	17/09/2019
Rev	Description	By	CB	Date

Status	Drawn By	PM/Checked by
PRELIMINARY	AJ	MRA
Project Number	Scale @ A3	Date Created
JNY10084	1:250	April 2019
RPS Drawing/Figure Number	Rev	
JNY10084-03	A	

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Appendix H – Swept Path Analysis



140 London Wall, London, EC2Y 5DN
T: +44(0)20 7280 3300 E: transport@rpsgroup.com

Client Rydon Homes Ltd

Project St Stephens Fields, Horsted Keynes

Title Proposed Site Access
12m Refuse Collection Vehicle
Swept Path Analysis

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3. This drawing is to be read in conjunction with all relevant scheme drawings.

Status	Drawn By	PM/Checked by
PRELIMINARY	AJ	MRA
Project Number	Scale @ A3	Date Created
JNY10084	1:250	April 2019
RPS Drawing/Figure Number		Rev
JNY10084-04		A

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Rev	Description	By	CB	Date

Appendix I – Road Safety Audit and Designer's Response

LAND AT ST STEPHENS FIELDS, HORSTED KEYNES, WEST SUSSEX

Proposed Site Access

Road Safety Audit - Stage 1

Final Report

September 2019

Document Reference: TBL19/120

REPORT APPROVAL

Project Details

Project Title	Land at St Stephens Fields, Horsted Keynes, West Sussex		
Project Sub Title	Proposed Site Access		
Road Safety Audit	Stage 1		
Document Reference	TBL19/120 Rev 0	Audit Brief Date	12 th August 2019
Overseeing Organisation	West Sussex County Council		
Design Organisation	Melanie A'Lee	RPS	
Client	-	-	
Maintaining Agent Details	-	-	

Approvals

This document requires the following approvals:

Name	Title
Sarah Bowie	Audit Team Leader
Mario Gatti	Audit Team Member

Distribution

This document has also been distributed to:

Name	Title & Organisation
Melanie A'Lee	Associate Director - RPS

1 INTRODUCTION

1.1 The Scheme and its Purpose

The proposed development site is located on land to the south of Hamsland, Horsted Keynes, West Sussex.

The proposals are associated with a residential development of up to 30 dwellings. Access to the site is to be provided directly off Hamsland via a priority junction. As part of the new development a layby is to be provided on the northern side of Hamsland opposite the junction. The provision of the layby would accommodate approximately 10 cars and increase the width of Hamsland in the vicinity of the access, allowing cars to pass.

1.2 Terms of Reference & Audit Report

The Road Safety Audit Brief was approved and issued by Melanie A'Lee of the Design Organisation. The RSA team has been approved by Melanie A'Lee of the Design Organisation.

Table 1 - Audit Team Membership

Membership	Name	Details
Audit Team Leader	Sarah Bowie	IEng, MICE, FIHE, MCIHT, MSoRSA, HE RSA Cert Comp
Audit Team Member	Mario Gatti	BSc Civ Eng, MCIHT, MSoRSA, HE RSA Cert Comp

The Road Safety Audit was undertaken in accordance with the requirements of GG 119. No additional audit requirements were requested. The audit comprised of an examination of the brief and the documents provided to the Audit Team, listed in **Appendix A**.

The audit took place at Taylor Bowie Ltd Letchworth office during August 2019 and both Audit Team Members examined the site together in daylight hours on the afternoon of Tuesday 20th August 2019 between the times of 1230 and 1400hrs. The weather during the site visit was sunny and warm. The carriageway was dry. Traffic flows at all times within the site extents were light. Three pedestrians and no cyclists were observed during the site visit.

The scheme has been examined, and this report compiled only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.

No Departures from Standards (DfS) have been provided to the Audit Team. It is important that if there are any DfS, then they are submitted to the Overseeing Authority (OA) as soon as possible with appropriate mitigating measures for the OA to approve, particularly with regard to the proposed parking layby directly opposite the proposed development site access.

The Audit Team were not provided with any information regarding street lighting, signage, lane widths, carriageway surfacing specifications or drainage for this stage of audit. It is important that this information is provided for the next stage of Road Safety Audit.

All Problems and Recommendations are referenced to the design drawings and the locations have been indicated on the A4 plan supplied for use by the Audit Team in **Appendix B**.

1.3 Audit Administration

Issues identified during the audit and site visit which the Terms of Reference exclude from this report, but which the audit team wishes to draw to the attention of the Overseeing Organisation, will be set out in a separate letter. These issues could include maintenance items and operational issues.

The Audit Team has not identified any issues during this Stage 1 Road Safety Audit and site visit that are considered to be outside the Terms of Reference.

2 ITEMS RAISED AT PREVIOUS ROAD SAFETY AUDITS

No previous Road Safety Audits have been undertaken on these proposals.

3 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

3.1 Local Alignment

PROBLEM	1
Location	The proposed development site access road to Hamsland (Drwg No. JNY10084-03)
Summary	There appears to be a pinch point along the development site access road for northwest bound traffic that may increase the risk of vehicle to vehicle head on type collisions.
The western kerb alignment along the development access road for traffic travelling towards Hamsland appears to include a pinch point. There may be an increased risk of vehicle to vehicle head on type collisions as vehicles negotiate the pinch point.	
RECOMMENDATION	
The Audit Team recommends that for the next stage of Audit vehicle tracking movements are carried out for large cars negotiating the pinch point so that opposing cars can safely travel through the pinchpoint without colliding with each other.	

3.2 General

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

3.3 Junctions

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

3.4 Walking, Cycling and Horse Riding

PROBLEM	2
Location	Dropped crossing opposite proposed Development Site Access (Drwg No. JNY10084-03)
Summary	Removal of uncontrolled pedestrian crossing facility may force pedestrians to cross between parked vehicles with a risk of vehicle to pedestrian type collisions
<p>The proposals show that the proposed layby opposite the proposed development access will effectively remove the existing uncontrolled pedestrian crossing. This may increase the risk of pedestrians crossing between parked vehicles where the pedestrian to driver inter visibility may be reduced and may lead to vehicle to pedestrian type collisions.</p>	
RECOMMENDATION	
<p>The Audit Team recommends that safe crossing points are provided to ensure the pedestrian to driver inter visibility is adequate for the traffic speeds along Hamsland.</p>	

3.5 Traffic Signs, Carriageway Markings and Lighting


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

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

4 AUDIT TEAM STATEMENT

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

AUDIT TEAM LEADER	
Name	Sarah Bowie - IEng, MICE, FIHE, MCIHT, MSoRSA, HE RSA Cert Comp
Signed	
Position	Director
Organisation	Taylor Bowie Ltd
Date	9 th September 2019

AUDIT TEAM MEMBER	
Name	Mario Gatti - BSc Civ Eng, MCIHT, MSoRSA, HE RSA Cert Comp
Signed	
Position	Associate Consultant
Organisation	Taylor Bowie Ltd
Date	9 th September 2019

APPENDIX A

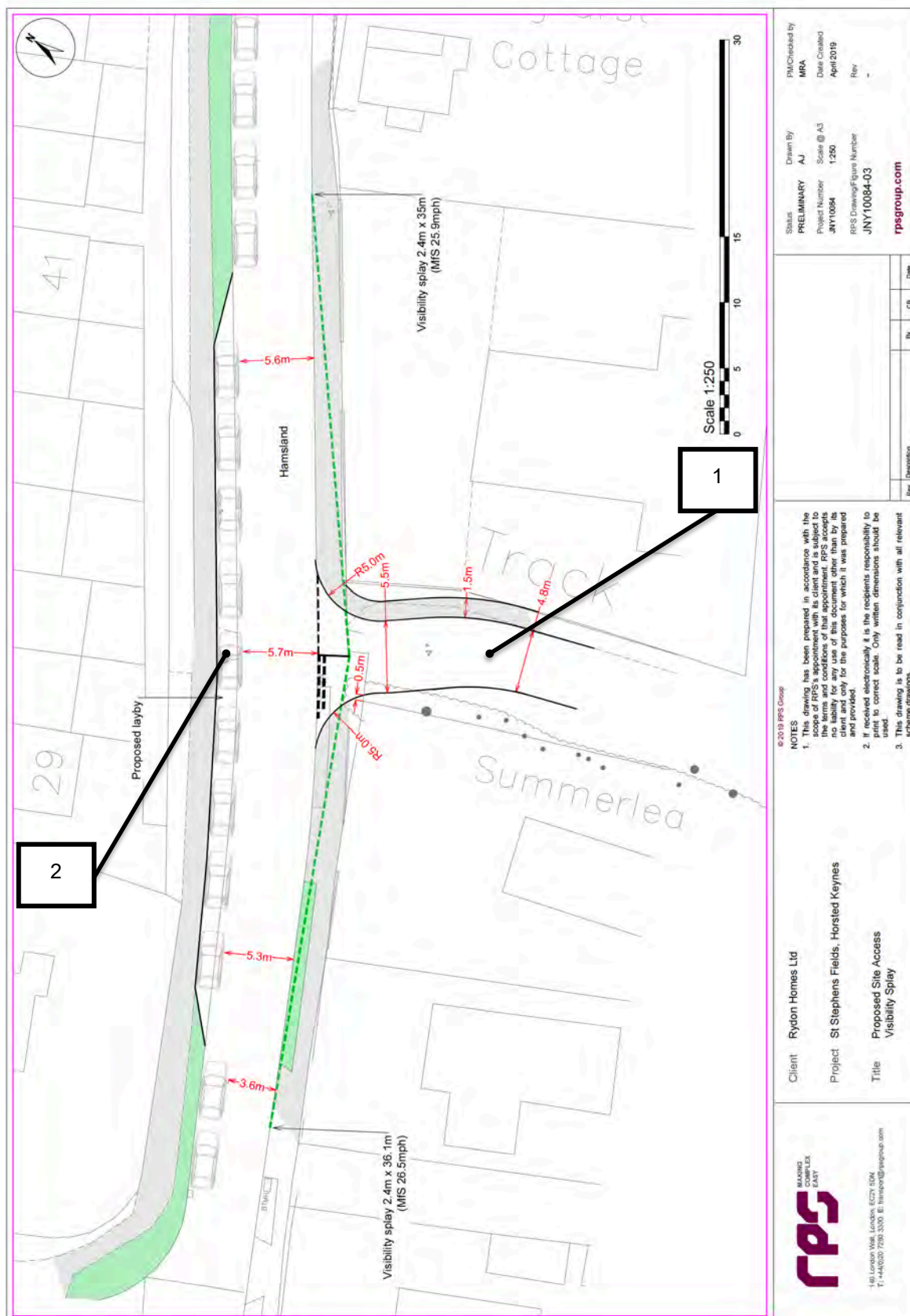
Documents Forming the Audit Brief

Drawings:

DRAWING NO.	TITLE
JNY10084-03	Proposed Site Access - Visibility Splay
JNY10084-04	Proposed Site Access - 12m Refuse Collection Vehicle Swept Path Analysis

APPENDIX B

Problem Location Plan



Taylor Bowie Ltd
ROAD SAFETY & TRANSPORTATION CONSULTANCY

E: info@taylorbowie.co.uk

W: www.taylorbowie.co.uk

M: 07810 712985

Horsted Keynes, West Sussex – Proposed Site Access

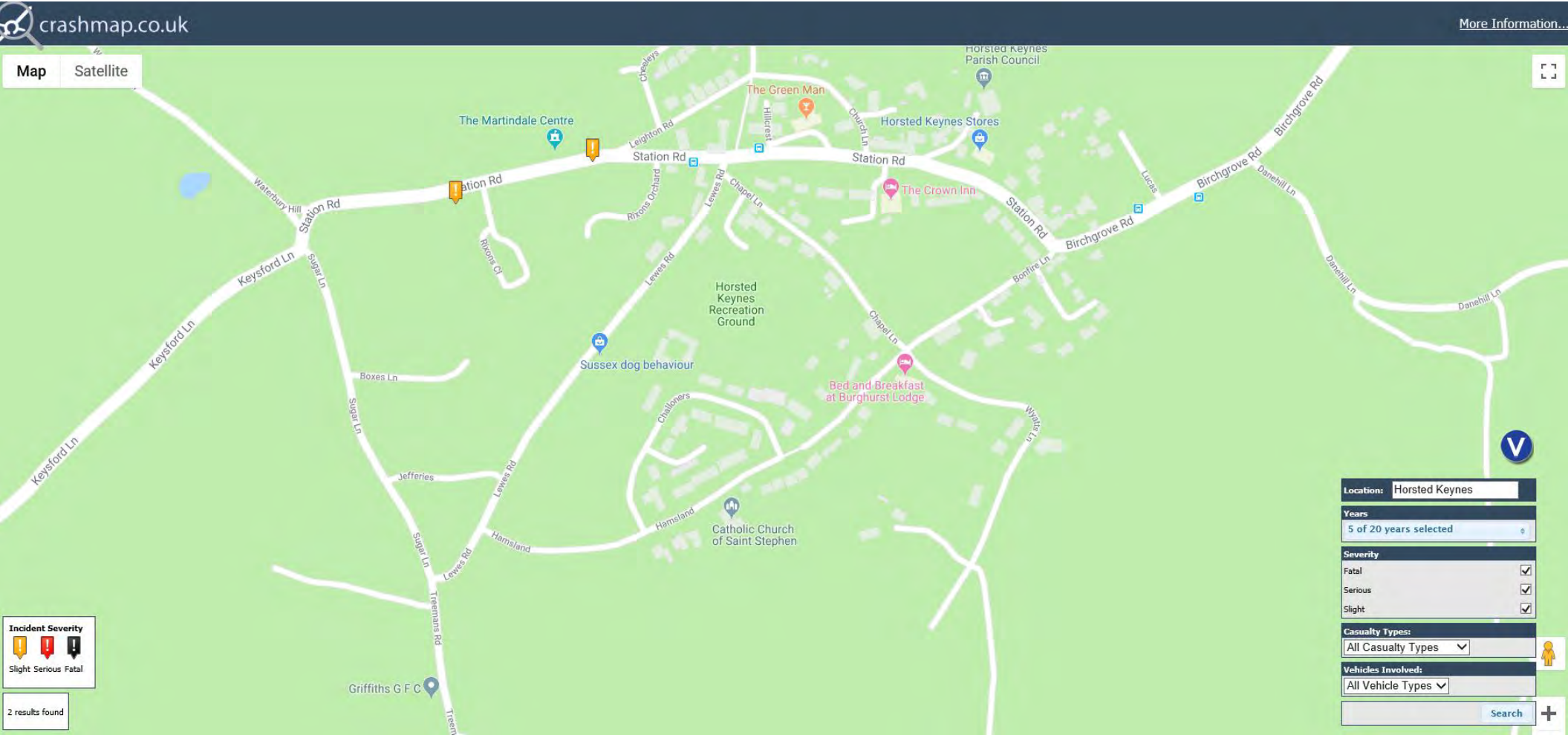
Stage 1 Road Safety Audit – Designers Response

Project Ref: JNY10084

Audit Ref	Problem Summary and Recommendation	Designers Response
3.1	<p>Summary: A pinch point along the development site access road may increase the risk of vehicle to vehicle head on type collisions.</p> <p>Recommendation: The Audit Team recommends that for the next stage of Audit vehicle tracking movements are carried out for large cars negotiating the pinch point so that opposing cars can safely travel through the pinch point without colliding with each other.</p>	<p>The proposed access road will be 5.5m as it enters the site narrowing to 4.8m. The extent over which the access road is 5.5m has been extended to provide more room for vehicles as they enter the site. Swept path analysis has been carried out to demonstrate that two vehicles will be able to pass.</p>
3.4	<p>Summary: Removal of uncontrolled pedestrian crossing facility may force pedestrians to cross between parked vehicles with a risk of vehicle to pedestrian type collisions.</p> <p>Recommendation: The Audit Team recommends that safe crossing points are provided to ensure the pedestrian to driver inter visibility is adequate for the traffic speeds along Hamsland.</p>	<p>The layout has been amended to include a dropped kerb new crossing point.</p>

Appendix J – Crashmap Extract

HORSTED KEYNES – CRASH MAP EXTRACT



Appendix K – TRICS Data

Calculation Reference: AUDIT-515506-190812-0848

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

03	SOUTH WEST	
DV	DEVON	1 days
SM	SOMERSET	2 days
WL	WILTSHIRE	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
 Actual Range: 27 to 42 (units:)
 Range Selected by User: 15 to 50 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/00 to 13/11/18

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

Selected survey days:

Tuesday	2 days
Wednesday	1 days
Thursday	1 days

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

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	2
Neighbourhood Centre (PPS6 Local Centre)	2

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	2
Village	2

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

Secondary Filtering selection:

Use Class:

C3	4 days
----	--------

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	2 days
25,001 to 50,000	2 days

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

Population within 5 miles:

75,001 to 100,000	2 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	4 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:

No	4 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	4 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	DV-03-A-01 BRONSHILL ROAD TORQUAY	TERRACED HOUSES	DEVON
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 37 <i>Survey date: WEDNESDAY 30/09/15</i>		
2	SM-03-A-02 HYDE LANE NEAR TAUNTON CREECH SAINT MICHAEL	MIXED HOUSES	SOMERSET
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 42 <i>Survey date: TUESDAY 25/09/18</i>		
3	SM-03-A-03 HYDE LANE NEAR TAUNTON CREECH ST MICHAEL	MIXED HOUSES	SOMERSET
	Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 41 <i>Survey date: TUESDAY 25/09/18</i>		
4	WL-03-A-02 HEADLANDS GROVE SWINDON	SEMI DETACHED	WILTSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 27 <i>Survey date: THURSDAY 22/09/16</i>		

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
NF-03-A-01	inc bungalows

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

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.129	4	37	0.347	4	37	0.476
08:00 - 09:00	4	37	0.252	4	37	0.456	4	37	0.708
09:00 - 10:00	4	37	0.197	4	37	0.279	4	37	0.476
10:00 - 11:00	4	37	0.197	4	37	0.150	4	37	0.347
11:00 - 12:00	4	37	0.184	4	37	0.177	4	37	0.361
12:00 - 13:00	4	37	0.170	4	37	0.245	4	37	0.415
13:00 - 14:00	4	37	0.224	4	37	0.231	4	37	0.455
14:00 - 15:00	4	37	0.238	4	37	0.252	4	37	0.490
15:00 - 16:00	4	37	0.265	4	37	0.231	4	37	0.496
16:00 - 17:00	4	37	0.306	4	37	0.265	4	37	0.571
17:00 - 18:00	4	37	0.449	4	37	0.190	4	37	0.639
18:00 - 19:00	4	37	0.231	4	37	0.143	4	37	0.374
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		2.842			2.966			5.808	

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

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

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Parameter summary

Trip rate parameter range selected:	27 - 42 (units:)
Survey date date range:	01/01/00 - 13/11/18
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	1

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.

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

TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.000	4	37	0.000	4	37	0.000
08:00 - 09:00	4	37	0.007	4	37	0.007	4	37	0.014
09:00 - 10:00	4	37	0.007	4	37	0.007	4	37	0.014
10:00 - 11:00	4	37	0.000	4	37	0.007	4	37	0.007
11:00 - 12:00	4	37	0.000	4	37	0.000	4	37	0.000
12:00 - 13:00	4	37	0.000	4	37	0.000	4	37	0.000
13:00 - 14:00	4	37	0.000	4	37	0.000	4	37	0.000
14:00 - 15:00	4	37	0.000	4	37	0.000	4	37	0.000
15:00 - 16:00	4	37	0.000	4	37	0.000	4	37	0.000
16:00 - 17:00	4	37	0.007	4	37	0.007	4	37	0.014
17:00 - 18:00	4	37	0.007	4	37	0.000	4	37	0.007
18:00 - 19:00	4	37	0.007	4	37	0.007	4	37	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.035			0.035			0.070

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.

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

OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.007	4	37	0.000	4	37	0.007
08:00 - 09:00	4	37	0.007	4	37	0.007	4	37	0.014
09:00 - 10:00	4	37	0.000	4	37	0.007	4	37	0.007
10:00 - 11:00	4	37	0.000	4	37	0.000	4	37	0.000
11:00 - 12:00	4	37	0.007	4	37	0.000	4	37	0.007
12:00 - 13:00	4	37	0.000	4	37	0.007	4	37	0.007
13:00 - 14:00	4	37	0.000	4	37	0.000	4	37	0.000
14:00 - 15:00	4	37	0.000	4	37	0.000	4	37	0.000
15:00 - 16:00	4	37	0.000	4	37	0.000	4	37	0.000
16:00 - 17:00	4	37	0.000	4	37	0.000	4	37	0.000
17:00 - 18:00	4	37	0.000	4	37	0.000	4	37	0.000
18:00 - 19:00	4	37	0.000	4	37	0.000	4	37	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.021			0.042

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.

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

PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.007	4	37	0.007	4	37	0.014
08:00 - 09:00	4	37	0.014	4	37	0.014	4	37	0.028
09:00 - 10:00	4	37	0.000	4	37	0.000	4	37	0.000
10:00 - 11:00	4	37	0.000	4	37	0.000	4	37	0.000
11:00 - 12:00	4	37	0.000	4	37	0.000	4	37	0.000
12:00 - 13:00	4	37	0.000	4	37	0.000	4	37	0.000
13:00 - 14:00	4	37	0.000	4	37	0.000	4	37	0.000
14:00 - 15:00	4	37	0.000	4	37	0.000	4	37	0.000
15:00 - 16:00	4	37	0.020	4	37	0.020	4	37	0.040
16:00 - 17:00	4	37	0.000	4	37	0.000	4	37	0.000
17:00 - 18:00	4	37	0.007	4	37	0.007	4	37	0.014
18:00 - 19:00	4	37	0.000	4	37	0.000	4	37	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.048			0.048			0.096

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.

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

CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.020	4	37	0.020	4	37	0.040
08:00 - 09:00	4	37	0.014	4	37	0.041	4	37	0.055
09:00 - 10:00	4	37	0.000	4	37	0.007	4	37	0.007
10:00 - 11:00	4	37	0.000	4	37	0.000	4	37	0.000
11:00 - 12:00	4	37	0.000	4	37	0.000	4	37	0.000
12:00 - 13:00	4	37	0.014	4	37	0.014	4	37	0.028
13:00 - 14:00	4	37	0.000	4	37	0.000	4	37	0.000
14:00 - 15:00	4	37	0.007	4	37	0.007	4	37	0.014
15:00 - 16:00	4	37	0.048	4	37	0.014	4	37	0.062
16:00 - 17:00	4	37	0.020	4	37	0.007	4	37	0.027
17:00 - 18:00	4	37	0.027	4	37	0.054	4	37	0.081
18:00 - 19:00	4	37	0.014	4	37	0.007	4	37	0.021
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.164			0.171			0.335

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.

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

CARS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.102	4	37	0.306	4	37	0.408
08:00 - 09:00	4	37	0.177	4	37	0.388	4	37	0.565
09:00 - 10:00	4	37	0.129	4	37	0.211	4	37	0.340
10:00 - 11:00	4	37	0.177	4	37	0.129	4	37	0.306
11:00 - 12:00	4	37	0.150	4	37	0.150	4	37	0.300
12:00 - 13:00	4	37	0.122	4	37	0.177	4	37	0.299
13:00 - 14:00	4	37	0.184	4	37	0.184	4	37	0.368
14:00 - 15:00	4	37	0.197	4	37	0.211	4	37	0.408
15:00 - 16:00	4	37	0.238	4	37	0.204	4	37	0.442
16:00 - 17:00	4	37	0.272	4	37	0.197	4	37	0.469
17:00 - 18:00	4	37	0.374	4	37	0.150	4	37	0.524
18:00 - 19:00	4	37	0.197	4	37	0.129	4	37	0.326
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	2.319			2.436			4.755		

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.

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

LGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.014	4	37	0.034	4	37	0.048
08:00 - 09:00	4	37	0.048	4	37	0.041	4	37	0.089
09:00 - 10:00	4	37	0.061	4	37	0.054	4	37	0.115
10:00 - 11:00	4	37	0.020	4	37	0.014	4	37	0.034
11:00 - 12:00	4	37	0.027	4	37	0.027	4	37	0.054
12:00 - 13:00	4	37	0.048	4	37	0.061	4	37	0.109
13:00 - 14:00	4	37	0.041	4	37	0.048	4	37	0.089
14:00 - 15:00	4	37	0.041	4	37	0.034	4	37	0.075
15:00 - 16:00	4	37	0.007	4	37	0.007	4	37	0.014
16:00 - 17:00	4	37	0.027	4	37	0.061	4	37	0.088
17:00 - 18:00	4	37	0.054	4	37	0.034	4	37	0.088
18:00 - 19:00	4	37	0.027	4	37	0.007	4	37	0.034
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.415			0.422			0.837

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.*

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

MOTOR CYCLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	37	0.000	4	37	0.000	4	37	0.000
08:00 - 09:00	4	37	0.000	4	37	0.000	4	37	0.000
09:00 - 10:00	4	37	0.000	4	37	0.000	4	37	0.000
10:00 - 11:00	4	37	0.000	4	37	0.000	4	37	0.000
11:00 - 12:00	4	37	0.000	4	37	0.000	4	37	0.000
12:00 - 13:00	4	37	0.000	4	37	0.000	4	37	0.000
13:00 - 14:00	4	37	0.000	4	37	0.000	4	37	0.000
14:00 - 15:00	4	37	0.000	4	37	0.007	4	37	0.007
15:00 - 16:00	4	37	0.000	4	37	0.000	4	37	0.000
16:00 - 17:00	4	37	0.000	4	37	0.000	4	37	0.000
17:00 - 18:00	4	37	0.007	4	37	0.000	4	37	0.007
18:00 - 19:00	4	37	0.000	4	37	0.000	4	37	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.007			0.007			0.014

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.

Contact

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