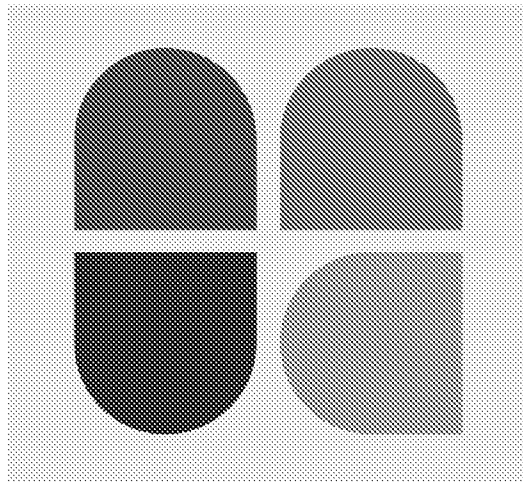




B R I G H T P L A N

107 FELPHAM WAY, FELPHAM

**MIXED RESIDENTIAL AND RETAIL
DEVELOPMENT**

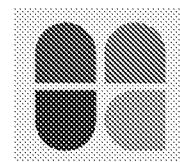
Transport Statement

Prepared on Behalf of

Sussex Reeves Homes Limited

PITP/19/6108

25 October 2019



DOCUMENT CONTROL

Project: 107 Felpham Way, Felpham
Mixed Residential and Retail Development
Document: Transport Statement

Client: Sussex Reeves Homes Limited

Reference: PITP/19/6108

Document Checking:

Author: SMO **Date:** 26/11/2019

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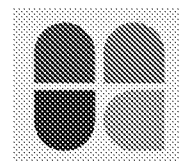
Approved by: PMR **Date:** 29/11/2019

Status:

Issue	Date	Status	Issued by
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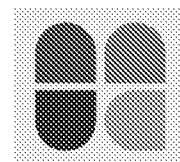
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DRAWINGS

2019-6108-001

Site Overview

2019-6108-002

Site Access Overview

APPENDICES

Appendix A

Proposed Layout

Appendix B

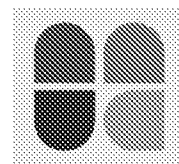
Residential Car Parking Provision Tool

Appendix C

TRICS - Retail

Appendix D

TRICS - Residential



1 INTRODUCTION

- 1.1.1 This Transport Statement has been prepared by Bright Plan Ltd on behalf of Sussex Reeves Homes Limited to support a planning application for a mixed residential and retail development on land at 107 Felpham Way, Felpham. The development site is located to the north of the B2259 Felpham way approximately 3.1km to the east of Bognor Regis town centre. The site location is shown in **Figure 1.1**.

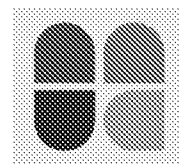


Figure 1.1 Site Location

- 1.1.2 The existing site comprises of a retail unit. The development proposes the construction of 3 residential units (2 x 2-bed and 1 x 1-bed dwellings) with a flexible use commercial unit and part of the existing retail unit to be retained.

1.2 Scope of Transport Statement

- 1.2.1 The TS outlines the key transport planning matters in accordance with national, regional and local guidance, reviewing the site's accessibility, the proposed development layout, car and cycle parking requirements, access arrangements, servicing arrangements, and the proposed trip impact on the local road network.
- 1.2.2 The remainder of this report comprises the following sections:
- Section 2** sets out the baseline transport conditions in the local area and highway network, and provides a review of highway safety;
 - Section 3** provides an assessment of the proposed access and internal layout design;
 - Section 4** sets out the proposed parking strategy for the site;
 - Section 5** considers the anticipated traffic impact on the local highway network supported by trip generation assessment;
 - Section 6** provides a summary of the TS conclusions.



2.2 Existing Vehicle Access

- 2.2.1 Vehicular access to the site is currently served via a c.4.0m wide vehicle crossover adjoining to the B2259 Felpham Way. The forecourt fronting the site is owned by West Sussex County Council, the client has a right of access over this land. The existing crossover and forecourt is shown in **Figure 2.3**.



Figure 2.3: Existing Crossover

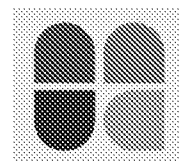
2.3 Accessibility Credentials

2.4 Pedestrian Accessibility

- 2.4.1 Felpham Way is flanked by c.2.0m wide footways on both sides of the carriageway, the footways connect to the wider footway network providing continuous links throughout Felpham and Bognor Regis facilitating pedestrian access to local services and amenities. The existing pedestrian infrastructure is shown in **Figure 2.2**.
- 2.4.2 The Chartered Institute of Highways and Transportation's (CIHT) publication 'Providing for Journeys on Foot' (2000) states that the average length of a journey on foot is 1km. It further recommends a preferred maximum walking distance of 2km for commuting journeys. A wide range of local services and amenities, including local bus stops, are situated within 1km of the application site and are therefore accessible on foot.

2.5 Cycle Accessibility

- 2.5.1 National Cycle Route (NCR) No. 2 is situated c.350m to the east of the application site and can be accessed via Felpham Way. NCR2 provides a link to Bognor Regis Town Centre via a largely traffic free route along Bognor Regis Esplanade. In addition, there are a number of local cycle routes in the vicinity of the development providing access throughout Felpham.



2.6 Accessibility by Bus

2.6.1 Firs Avenue Bus Stop (East bound and West Bound) are situated c.150m to the east of the proposed development site. The stops serve the no.69,600,141 and 700 Coastliner providing services to and from Bognor, Littlehampton, Yapton and Chichester. A summary is provided in **Figure 2.4**.

Service No.	Route Summary	Typical Frequency	Operating Hours
69	Wick – Littlehampton – Bognor Regis – Barfoots of Botley	2 per day	Mon – Sun: 05:00-06:40 and 18:15 -19:52
600	Bognor Regis – Felpham – Elmer	Every 20 mins	Mon – Fri: 06:05 – 22:01 Sat – 06:30 – 22:01 Sun: 08:05 – 18:51
141	Yapton – Felpham – Bognor Regis – Bishop Luffa School	Once a day	Mon – Fri: 06:42 – 07:30 and 14:45 – 15:30
700 Coastliner	Little Hampton - Felpham – Bognor Regis – Chichester	Every 10 mins	Mon – Fri: 05:31 – 00:33 Sat: 06:27 -00:33 Sun: 07:18-21:43

Figure 2.4: Services Available from Local Bus Stops

2.6.2 Bognor Regis train station is situated c.3.6km to the east of the application site. The stations are served by Southern Rail and provide services to and from Barnham, London Victoria and Littlehampton. A summary of the services available are provided in **Figure 2.5**.

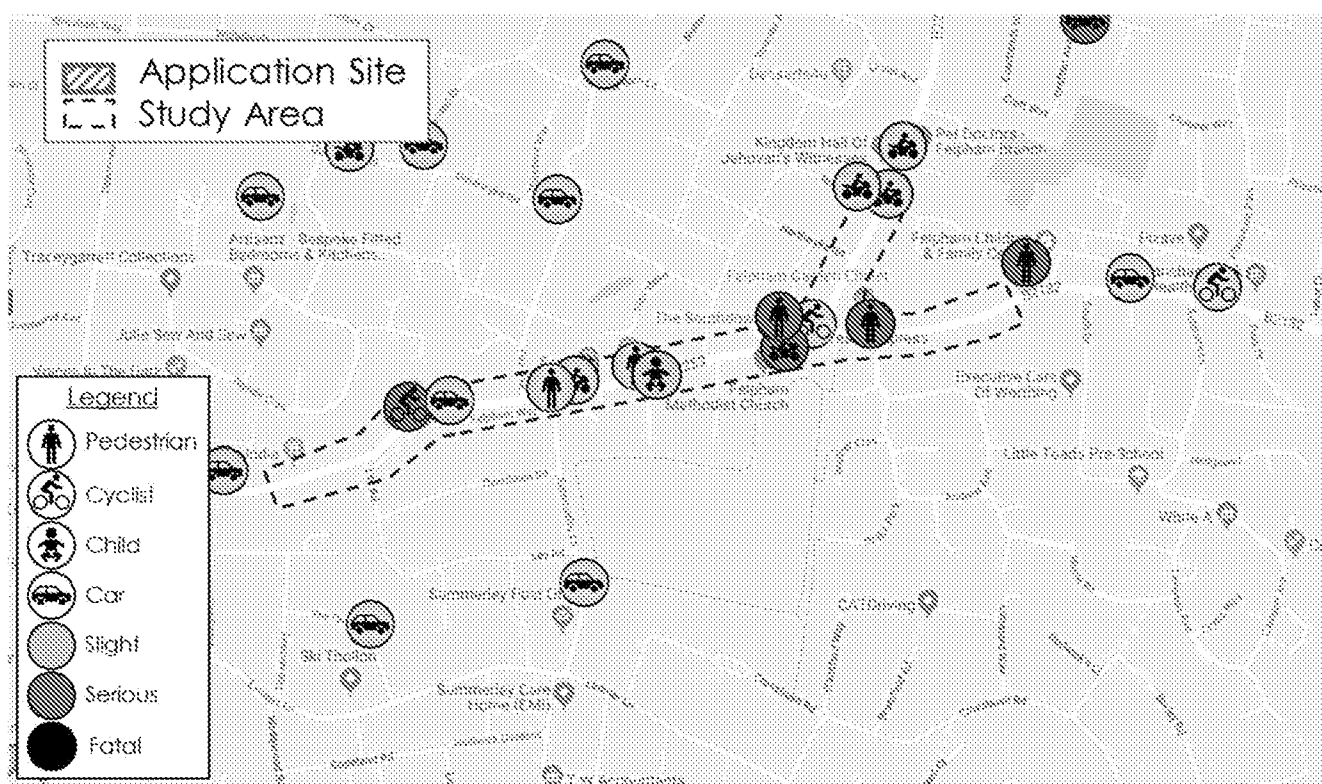
Destination	Route Summary	Typical Journey Time	Typical Frequency
Barnham	Direct	7 mins	Every 15 mins
London Victoria	Barnham, Ford, Arundel, Billingshurst, Horsham, Crawley, Three Bridges, Gatwick Airport, Clapham Junction	1 hour 45 mins	Every 15 mins
Littlehampton	Barnham, Ford	18 mins	Every 30 mins

Figure 2.5: Services Available from Bognor Regis Railway Station

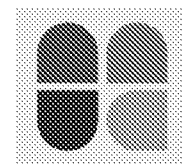
2.7 Accident Data

2.7.1 To determine the existing highway safety record on the local road network an assessment of Personal Injury Accidents (PIAs) has been undertaken for a 5-year period from January 2014 to January 2019 using the Crash Map online data portal. The study area considered includes Garden Close, Freeman Way and Spencer Way.

2.7.2 Patterns displayed in incident proximity, frequency, severity can be assessed to establish if there are any underlying highways design issues that require a more detailed investigation. Collisions are classified as 'slight', 'serious' or 'fatal', depending on the severity of the incident. The location of incidents relative to the site is displayed on **Figure 2.6**.



2.7.3 The PIA assessment found a total of 13 incidents within the study area. The incidents did not reveal any pattern in terms of incident frequency and circumstances that suggests there is any underlying highways safety issues in the study area.



3 PROPOSED DEVELOPMENT

3.1 Overview

- 3.1.1 The development proposes the conversion of the existing retail unit to provide 3 residential units, a flexible use commercial unit and a retail unit. The proposed accommodation schedule is shown in **Figure 3.1** and proposed layout is attached in **Appendix A**.

Unit Type	No. of Dwellings
1 bed flat	1
2 bed flat	2
Total	3 residential units
Commercial	91sqm
Retail	30sqm

Figure 3.1: Accommodation Schedule

3.2 Vehicle Access

- 3.2.1 Vehicle access to the site would be provided to access the frontage forecourt only. The access would take the form of a 9m wide vehicle crossover adjoining Felpham Way. The proposed access arrangement is demonstrated in **Drawing 2019-6108-001**.
- 3.2.2 The access geometries would allow for vehicles to comfortably access the parking bays assigned for the retail unit adjoining Felpham Way. A vehicle swept path analysis has been undertaken demonstrating these manoeuvres in **Drawing 2019-6108-002**.

3.3 Visibility

- 3.3.1 Using the calculation coefficients set out in 'Manual for Streets' (MfS) guidance, a stopping site distance (adjusted for bonnet length) of 43.0m would be required in the primary direction and secondary direction. Visibility from the access accordingly achieves the necessary sightlines in both directions as demonstrated in **Drawing 2019-6108-001**.

3.4 Emergency Access

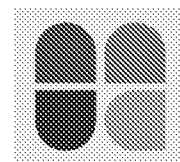
- 3.4.1 The proposed development would provide access within 45m of all buildings, in accordance with Building Regulation requirements for emergency vehicles.

3.5 Pedestrian Access

- 3.5.1 Pedestrian access to the development site would be served via a 2.6m + wide footpath on the western side of the application site. The proposed footpath would lead c.30m into the site providing access to the proposed residential dwellings.

3.6 Servicing Arrangements

- 3.6.1 Refuse collection would take places as per the current arrangements, with collection taken from Felpham Way. Bin carry distances are compliant with those set out in Manual for Streets Design Guidance (30.0m for residents, 25.0m for collectors).



4 PARKING PROVISION

- 4.1.1 The site forms part of a parade of shops along Felpham Way that provides parking on forecourt areas located at some shop frontages as shown in **Figure 4.1**. The proposed development would be consistent with this arrangement providing 3 parking bays on its frontage forecourt proposed to serve the proposed retail unit.



Figure 4.1 Existing Shop Parking

- 4.1.2 All bays would use dimensions of 2.8m x 5.0m. A vehicle swept path analysis has been undertaken demonstrating car parking manoeuvres in **Drawing 2018/6108/002**.

4.2 Residential Car Parking Provision

- 4.2.1 The residential car parking provision has been determined using the West Sussex County Council Residential Car Parking Provision Tool. A summary of the required and proposed residential car parking provision is shown in **Figure 4.1**.

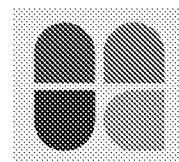
Residential	Car Parking Demand	Proposed Provision
Unallocated Spaces	5 spaces	0 spaces
Total	5 spaces	0 spaces

Figure 4.1: Residential Car Parking Provision

- 4.2.2 As shown in **Figure 4.1**, the site would provide a shortfall of 5 spaces capered with the maximum standards. It is therefore anticipated that the residential units would result in a parking demand for 5 spaces on the local road network.

4.3 Retail and Commercial Car Parking Provision

- 4.3.1 The retail and commercial car parking provision has been determined using the standards set out within the WSCC Supplementary Planning Guidance. To determine the trip rates associated with the flexible use commercial unit (which could serve as either a B1 B2, B8, A1 or A2), the commercial use has robustly been considered as an A1 retail land use, which has the highest car parking demand. A summary of the required and proposed residential car parking provision is shown in **Figure 4.2**.



Retail and Commercial	Required Parking Provision	Car Parking Demand	Proposed Provision
121sqm A1 Retail	1 space per 14sqm	9	3
Total	-	9	3

Figure 4.2: Retail and Commercial Car Parking Provision

4.3.2 As shown in **Figure 4.2**, the site would provide a shortfall of 6 spaces compared to the maximum standards. It is therefore anticipated that the residential units would result in a parking demand for 6 spaces on the local road network.

4.4 Lambeth Survey

4.4.1 As identified in **Figures 4.1 and 4.2**, the site is expected to result in an 11 space overspill on the local road network. In order to assess the existing on-street parking demand and available capacity in the vicinity of the site, an independent parking survey has been undertaken. As the surrounding area is predominately residential a Lambeth survey methodology has been used to identify peak parking stress on the local road network in the vicinity of the application site.

4.5 Methodology

4.5.1 The 'Lambeth' methodology identifies the peak parking conditions for residents by undertaking surveys overnight when residents are typically at home and therefore parked on the local road network. Parked vehicle counts were recorded at 01:00am on Wednesday 7th and Thursday 8th of October. The methodology requires parking counts to be undertaken within all viable on-street parking areas within a 200m walking distance of the development site.

4.5.2 The parking counts can be compared to the total capacity in the study area to determine the parking stress as a percentage. The maximum parking capacity was established assuming standard passenger car unit (PCU) dimensions of 6.0m x 2.0m. The PCU size provides a robust estimation of the parking capacity in the survey area, as in reality cars can park at a higher density than this unit allows.

4.5.3 In calculating the maximum capacity, care was taken to exclude parking areas in front of dropped kerbs that serve private driveways. The study area and maximum parking capacity on each road is demonstrated in **Figures 4.3 and 4.4**. The results of the survey are attached in **Appendix C**.

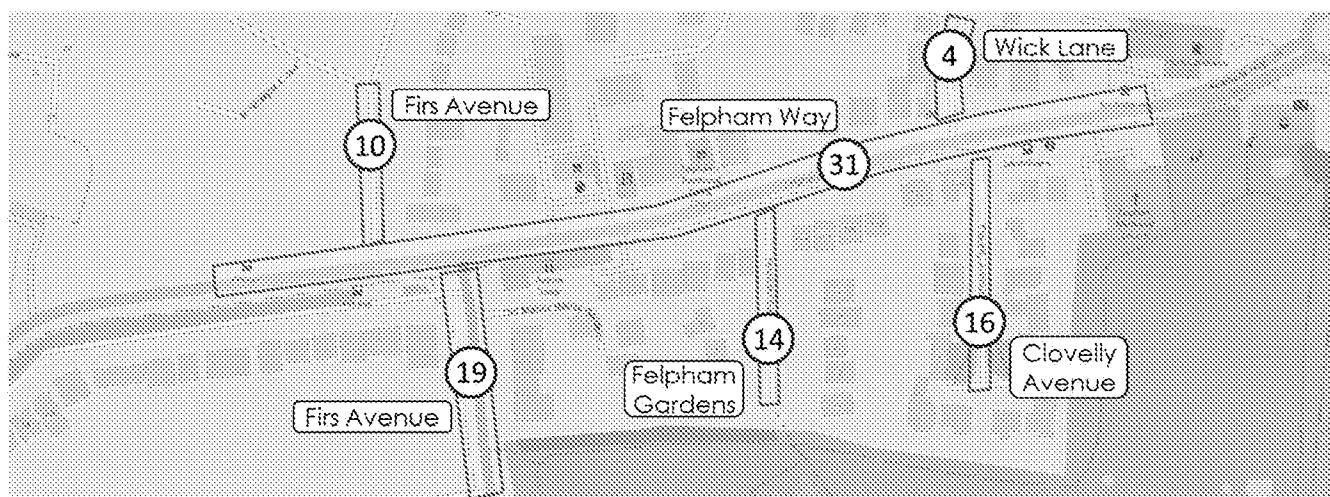
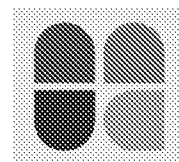


Figure 4.3 Survey Area and Maximum Parking Capacities



Location	Capacity
Felpham Way	31
Summerly Lane	19
Firs Avenue	10
Felpham Gardens	14
Clovelly Avenue	16
Wick Lane	4
Wick Close	0
Total	94

Figure 4.4: Survey Area and Maximum Parking Capacities

4.6 Results

4.6.1 This section summarises the results from the car parking survey using the average remaining capacity over the two surveys days. A summary of the results is demonstrated in **Figure 3.5**.

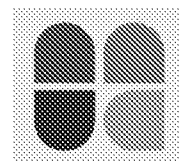
Location	Capacity	Cars parked	Available Spaces
Felpham Way	31	0	31
Summerly Lane	19	8	11
Firs Avenue	10	0	10
Felpham Gardens	14	4	10
Clovelly Avenue	16	0	16
Wick Lane	4	1	3
Wick Close	0	0	0
Total	94	13	81

Figure 4.5: Survey Results (2 Day Average) *discrepancies due to rounding

4.6.2 The survey revealed a average of 81 spaces available across the overall study, including 31 spaces available on Felpham Road. It is therefore considered that the maximum on-street parking demand for 6 vehicles arising from the proposed development can be accommodated on the local road network.

4.7 Cycle Parking

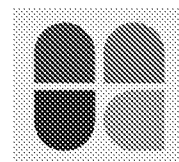
4.7.1 Cycle parking has been provided in accordance with West Sussex County Council's Guidance on Parking at New Developments August 2019. A summery of the required and proposed provision is provided in **Figure 4.5**.



Unit	Number of Units / Gross Floor Area	WSCC	Required Provision	Proposed Provision
Flats	3	0.5 communal space per dwelling	2	2
A1 Retail	30sqm	1 space per 100sqm for staff and 1 space per 100sqm for customers	2	2
B8 Commercial Storage	91sqm	1 space per 500sqm for staff and 1 space per 1000sqm for visitors	2	2
Total	-	-		6

Figure 4.5: Cycle Parking Standards

- 4.7.2 Cycle parking for the residential units would be provided within a communal secure cycle store. Cycle parking for the proposed office retail and commercial would be provided at the front of the shop.



5 TRIP GENERATION ASSESSMENT

- 5.1.1 To assess the traffic impact of the proposals, the TRICS database (version 7.6.1) has been interrogated to anticipate the likely traffic volumes generated by the existing site and the proposed development. The trip rates have then been compared to the sites existing use to establish the net vehicle trip generation resulting from the development.

5.2 Existing Site

- 5.2.1 To establish the number of the trips generated by the existing retail unit, the parameters identified in **Figure 5.1** have been used to filter the TRICS database.

TRICS (Version 7.6.1)	
Filtering Parameter:	Criteria Selected:
i. Land use	Retail (Other Individual Non-Food Superstore)
ii. Regions	England (Excluding Greater London)
iii. Number of Dwellings	714sqm – 4100sqm
iv. Date Range	01/01/11 to 14/03/19
v. Count Type	Manual
vi. Selected Days	Weekdays
vii. Selected Locations	- Suburban Area - Edge of Town

Figure 5.1 TRICS Filtering Parameters – Retail

- 5.2.2 The TRICS output is provided at **Appendix C**, whilst a summary of the weekday peak hour and daily trip rates, along with the subsequent vehicle movements associated with the retail unit is provided in **Figure 5.2**.

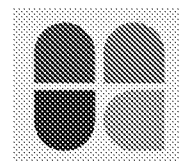
TRICS Trip Rate per 100sqm (221sqm)			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0.225	0.011	0.236
PM Peak Hour	0.848	0.945	1.793
Daily Traffic	10.166	10.346	20.512
TRICS Vehicle Trip Generation			
AM Peak Hour	0	0	1
PM Peak Hour	2	2	4
Daily Traffic	22	23	45

Figure 5.2: Existing Trip Generation

5.3 Proposed Development

Retail use

- 5.3.1 To establish the number of the trips generated by the proposed retail unit the parameters identified in **Figure 5.1** have been used to filter the TRICS database. The TRICS output is provided at **Appendix C**. A summary of the weekday peak hour and daily trip rates, along with the subsequent vehicle movements associated with the proposed retail unit is provided in **Figure 5.3**.



TRICS Trip Rate per 100sqm (30sqm)			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0.225	0.011	0.236
PM Peak Hour	0.848	0.945	1.793
Daily Traffic	10.166	10.346	20.512
TRICS Vehicle Trip Generation			
AM Peak Hour	0	0	0
PM Peak Hour	0	0	1
Daily Traffic	3	3	6

Figure 5.3: Proposed Trip Generation

Flexible Commercial Use

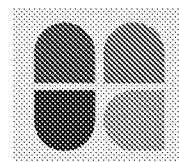
- 5.3.2 To determine the trip rates associated with the flexible use commercial unit (which could serve as either a B1 B2, B8, A1 or A2), the commercial use has robustly been considered as an A1 retail land use, which has the highest daily trip generating potential. The trip rates used for the retail unit in **Figure 5.2** have been applied to the flexible use commercial unit below in **Figure 5.4** which provides a summary of the peak hour and daily trips. The TRICS output is provided at **Appendix C**, whilst a summary of the weekday peak hour and daily trip rates, along with the subsequent vehicle movements associated with the proposed flats is provided in **Figure 5.4**.

TRICS Trip Rate per 100sqm (91sqm)			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0.225	0.011	0.236
PM Peak Hour	0.848	0.945	1.793
Daily Traffic	10.166	10.346	20.512
TRICS Vehicle Trip Generation			
AM Peak Hour	0	0	0
PM Peak Hour	1	1	2
Daily Traffic	9	9	19

Figure 5.4 Proposed Trip Generation

Residential use

- 5.3.3 To establish the number of the trips generated by the proposed residential the parameters identified in **Figure 5.5** have been used to filter the TRICS database.



TRICS (Version 7.6.1)	
Filtering Parameter:	Criteria Selected:
i. Land use	Residential (Houses Privately Owned)
ii. Regions	England (Excluding Greater London)
iii. Number of Dwellings	6 -918 units
iv. Date Range	01/01/11 to 08/07/19
v. Count Type	Manual
vi. Selected Days	Weekdays
vii. Selected Locations	- Suburban Area - Edge of Town - Neighbourhood Centre

Figure 5.5: TRICS Filtering Parameters – Residential

- 5.3.4 The TRICS output is provided at **Appendix D**, whilst a summary of the weekday peak hour and daily trip rates, along with the subsequent vehicle movements associated with the proposed flats is provided in **Figure 5.6**.

TRICS Trip Rate per 100sqm (91sqm)			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0.127	0.366	0.493
PM Peak Hour	0.329	0.147	0.476
Daily Traffic	2.259	2.284	4.543

TRICS Vehicle Trip Generation			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0	1	1
PM Peak Hour	1	0	1
Daily Traffic	7	7	14

Figure 5.6 Proposed Trip Generation

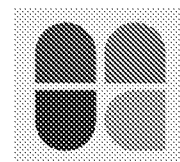
- 5.3.5 The various proposed land uses vehicle trips have been summed in **Table 5.7**.

TRICS Vehicle Trip Generation			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0	1	1
PM Peak Hour	2	1	4
Daily Traffic	19	19	39

Figure 5.7: Proposed Total Trip Generation

5.4 Net Traffic Impact

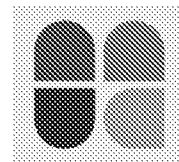
- 5.4.1 The traffic generations associated with the existing site and the proposed development have been compared to establish the net traffic generation associated with the development in **Figure 5.8**.



TRICS Vehicle Trip Generation			
	Arrivals	Departures	Two-way Total
AM Peak Hour	0	1	0
PM Peak Hour	0	-1	0
Daily Traffic	-3	-4	-6

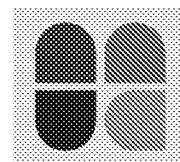
Figure 5.8: Net Trip Generation

- 5.4.2 The TRICS assessment suggests that proposed development would result in a decrease of 6 daily two-way vehicle movements across the day. During the AM peak hour (8:00 – 9:00) the assessment identifies there would be 1 additional departure. During the PM peak hour (17:00-18:00) the assessment identifies that there would be 1 less departure.



6 SUMMARY AND CONCLUSIONS

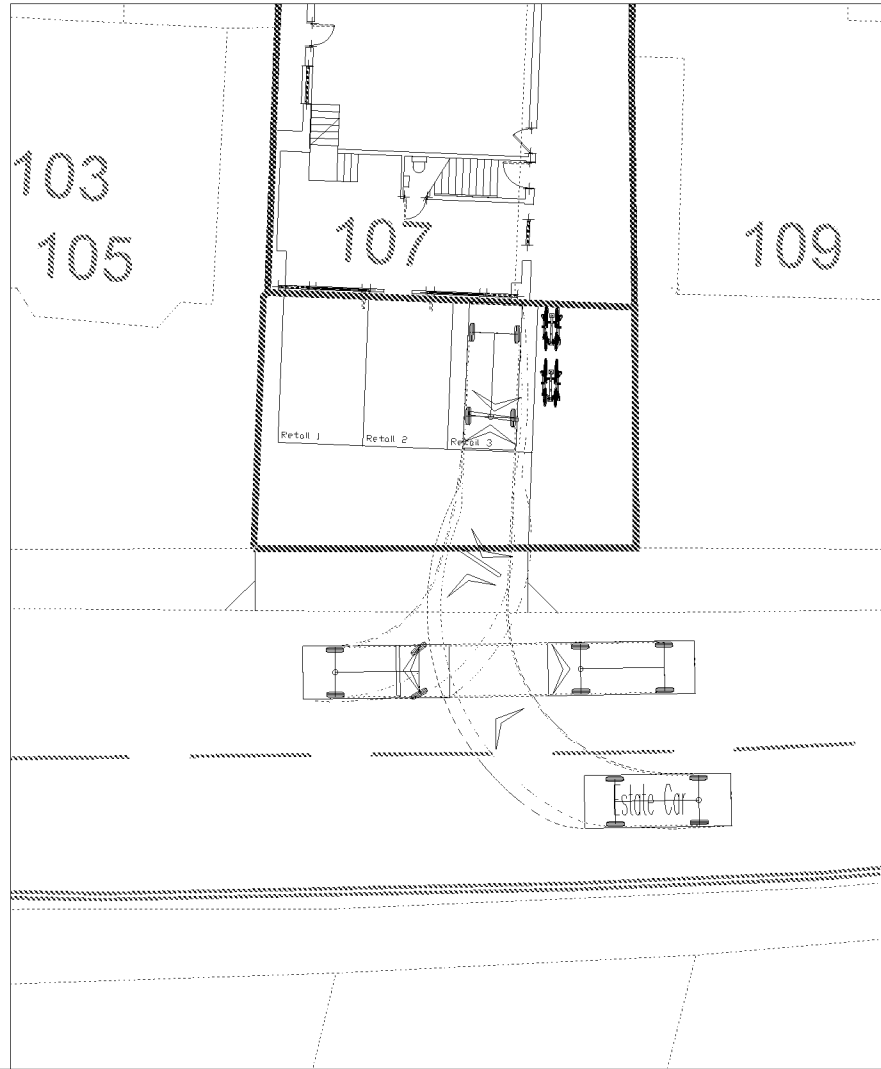
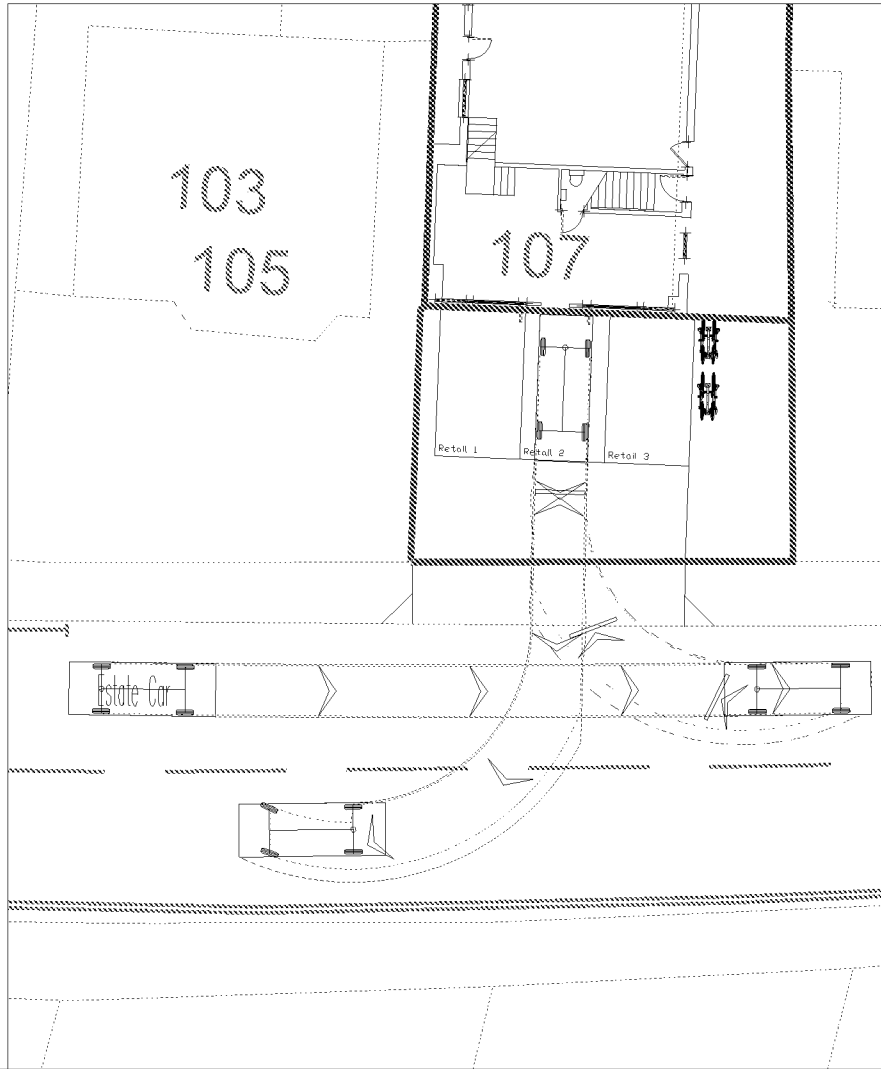
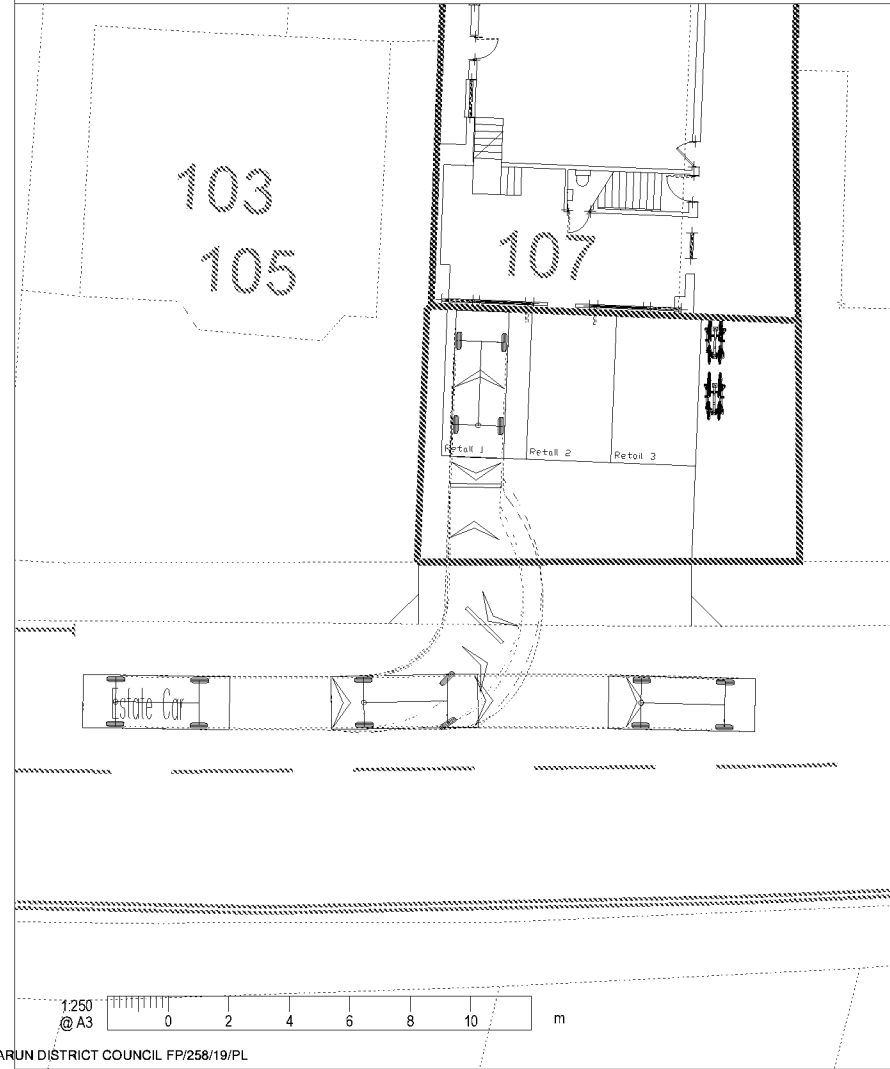
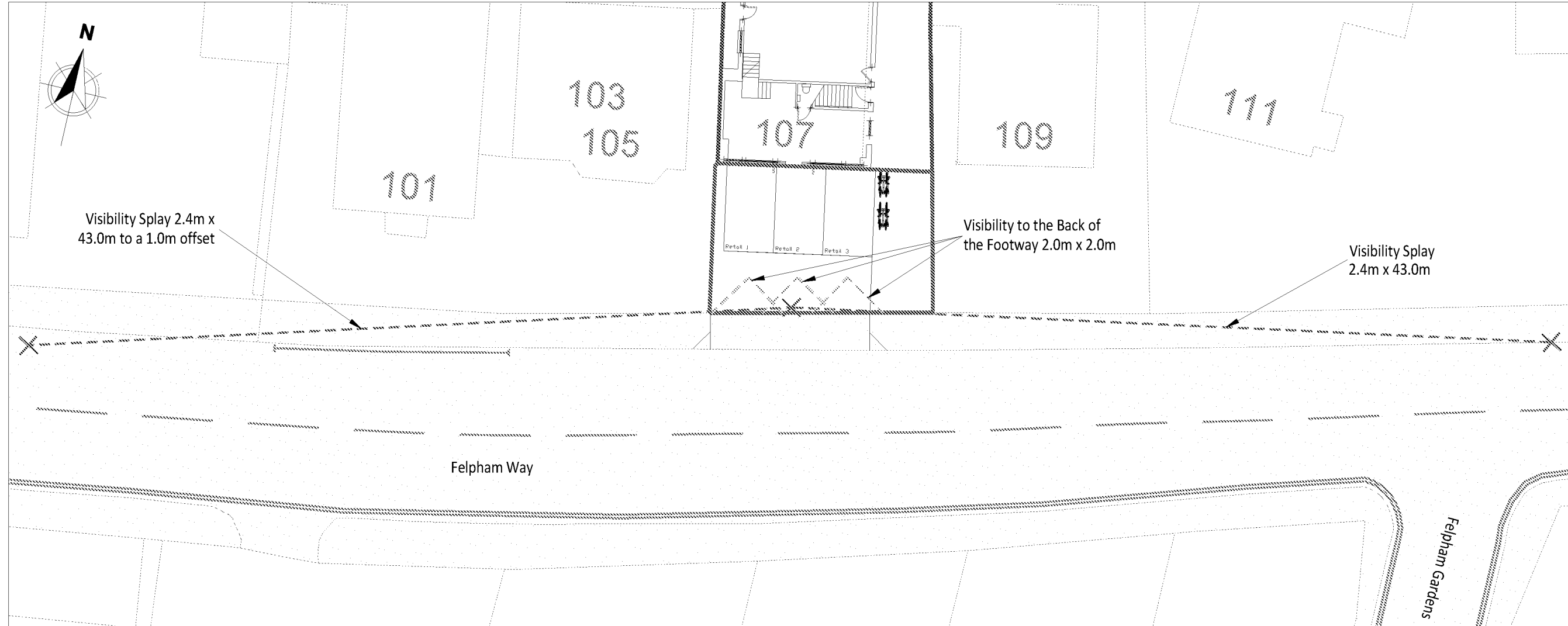
- 6.1.1 This Highways Statement has been prepared by Bright Plan Limited on behalf of Sussex Reeves Homes Limited to support the proposed development at Felpham Way, Felpham. The findings from this assessment are as follows:
- i. The proposals would involve the construction of 3 residential units, a flexible use commercial unit and a retail unit.
 - ii. The application site is readily accessible on foot, by cycle and by public transport. There is a range of services and amenities available with walking and cycling distance of the site.
 - iii. The PIA record does not reveal any pattern in terms of distribution, severity or incident circumstances that would be exacerbated by the proposed development.
 - i. The proposed access would take the form of 9.0m wide vehicle crossover. The access provides visibility in line with Manual for Streets requirements for 30mph roads.
 - iv. A vehicle swept path analysis demonstrates that an estate can access and egress the proposed parking bays.
 - v. The onsite parking provision would fall short of the WSCC requirements, parking surveys demonstrate that overspill parking would be accommodated on the local road network.
 - vi. The proposed site is anticipated to generate a total of 19 daily 2-way trips with 9 occurring during the AM/PM peak hours respectively.
 - vii. The vehicle trip generation would reduce vehicle movements on the local road network there by benefiting highway capacity and safety.



DRAWINGS

001	Site Overview
002	Site Access Overview





NOTES

1.

This drawing is to be read in conjunction with all other Bright Plan drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.

2.

Bright Plan accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.

3.

Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.

4.

Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain.

-LEGEND-

Site Boundary

WSCC Land Ownership

Highway Boundary

Existing Road Markings

Visibility Splays

Visibility to the Back of Footway

Wheel Track

Over Swing

4.845

1.750

1.424

0.189

1.655

4.00s

4.950m

Estate Car

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Max Track Width

Lock to lock time

Kerb to Kerb Turning Radius

Original Issue

Nov 2019

Rev.

Amendments

Date

BRIGHT PLAN

Transport Planning and Civil Engineering Consultants

2 West Barn, Norton Lane, Chichester, West Sussex PO20 3AF

Tel: 01243 210418 Email: enquiries@bpcivils.co.uk

www.bpcivils.co.uk

Drawing Status

DRAFT

Client

Sussex Reeves Homes Limited

Project

107 Felpham Way, Felpham

Drawing Title

Vehicular Access Overview

Scale

1:500

Date

Nov 19

Drawn By

SMO

Checked By

ALB

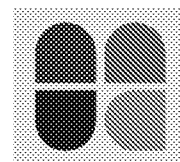
Drawing No.

2019-6108-002

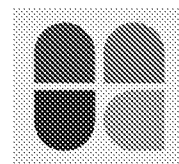
Rev.

-

ARUN DISTRICT COUNCIL FP/258/19/PL

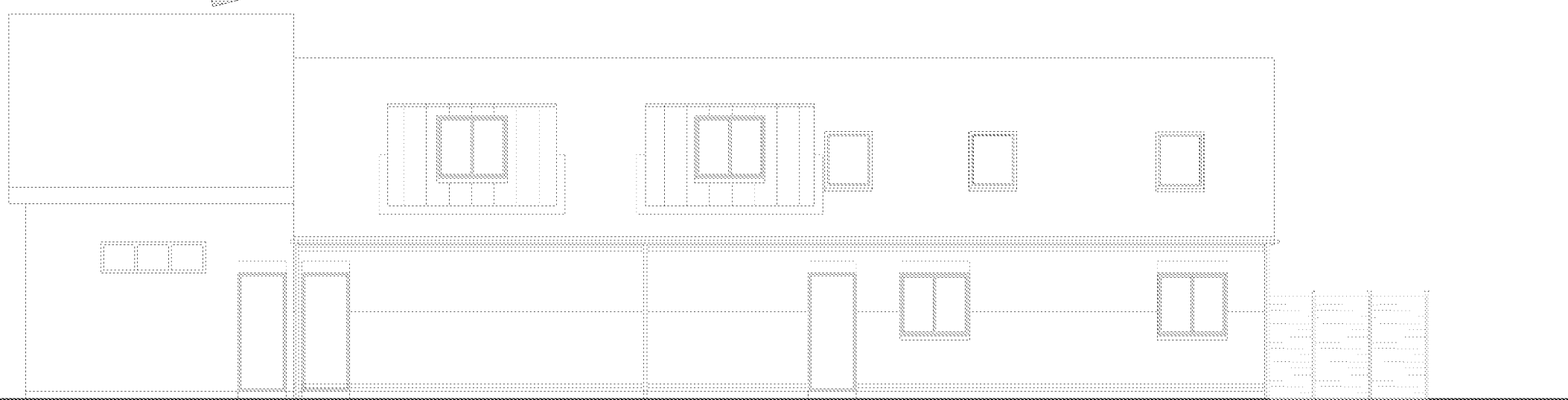


APPENDICES

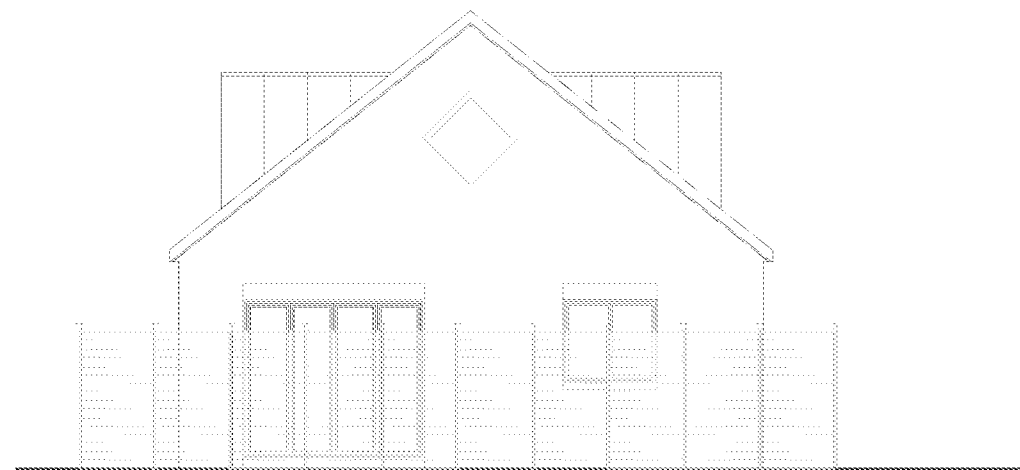


Appendix A

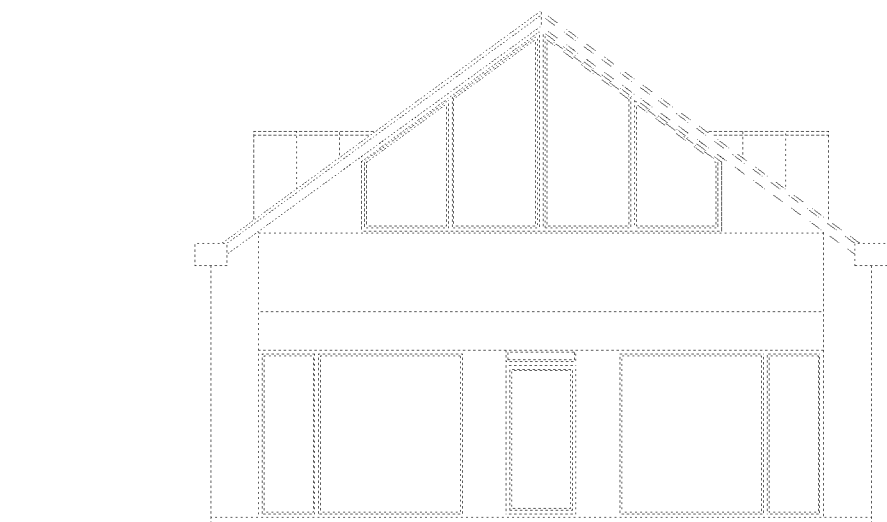
Proposed Layout



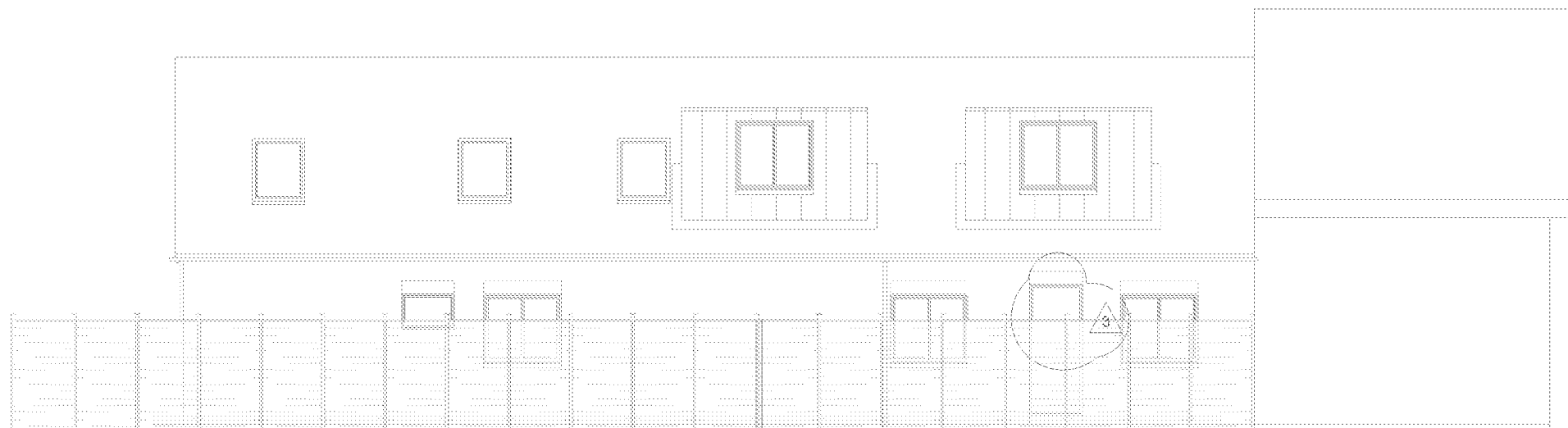
East Elevation Block A - Proposed 1:100



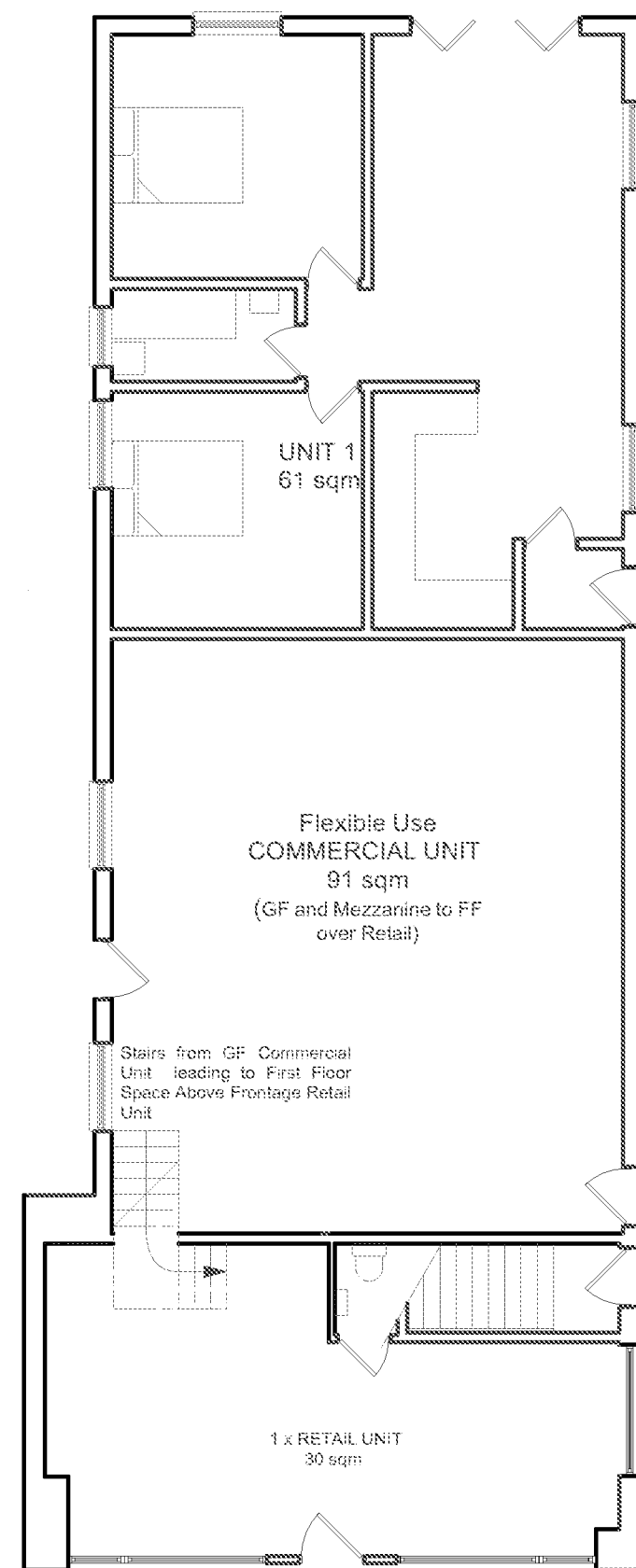
North Elevation Block A - Proposed 1:100



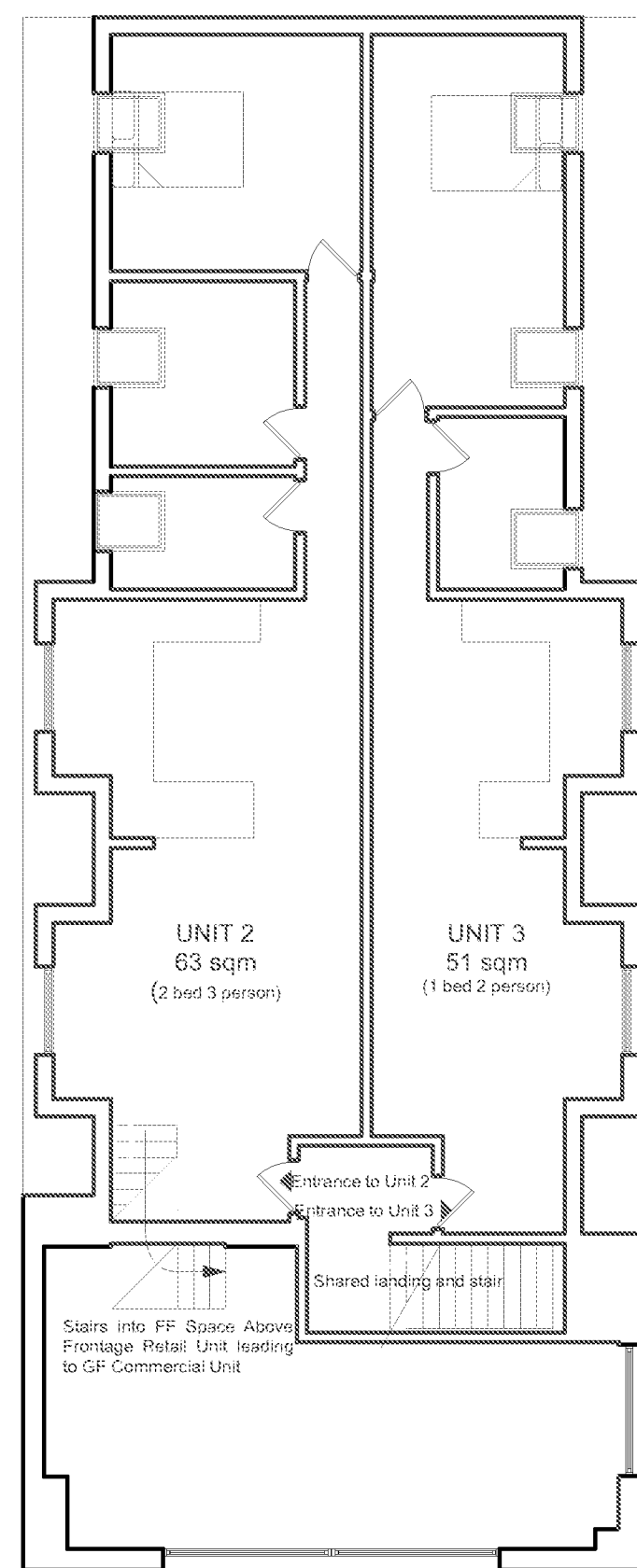
South Elevation Block A - Proposed 1:100



West Elevation Block A - Proposed 1:100



Ground Floor Plan - Proposed 1:100



First Floor Plan - Proposed 1:100

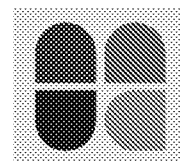
Amendments	by	Date
a	GA Plans	NJH 18.09.19
b	GA Plans	NJH 17.09.19
c	GA Plans	NJH 18.09.19
d	GA Plans	NJH 15.09.19
e	GA Plans	NJH 11.11.19

Job Title	HOP004-SH/FW
Drawing	Planning Proposed
1:100 & Various@A1	
Drg.No.HOP-002-P.	Rev E
Drawn by:	NJH
Issued to:	Client/ConsultLA
Status:	Planning Revision
Date	21.11.2019



HOP
HOP Architects Ltd
Planning Design
Consultancy
Creative
2019

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Planning Design
Consultancy
Creative
2019



Appendix B

Residential Car Parking Provision Tool

WEST SUSSEX COUNTY COUNCIL RESIDENTIAL CAR PARKING PROVISION TOOL

This parking demand tool has been compiled by West Sussex County Council. If you have queries relating to the information provided or require additional information please contact planninghighways@westsussex.gov.uk.

GUIDANCE ON USE

This parking demand calculator has been designed to comply with the West Sussex County Council Revised Guidance for Parking Provision (2018). This calculator supersedes the West Sussex Car Ownership Parking Demand Tool.

This tool has been designed for use by developers as an initial assessment of car parking provision required in residential developments. This tool provides an indication as to the potential overall parking demand that could be associated with specific development quantum. In addition to the information presented within this calculator it is for the developer to justify the appropriateness of the parking levels proposed with other appropriate data and in discussion with the Local Planning Authority and West Sussex County Council as Highway Authority.

The following is a step by step process for the calculation of development parking demand, all GREY cells require no user input:

1. Select the Ward in which the development is located;

a. If known select from the drop down in the BLUE box marked "Ward"

b. If unknown use the Ward finder tool by entering the development post code (including the standard space separation e.g. RH6 0AQ, BN11 1DR), then complete a. above.
2. Enter the number of units of each size in the GREEN boxes marked "Number of Units of this Type", with respect to the number of bedrooms or number of habitable rooms in the dwelling type.
3. Your total "Parking Demand if 100% Unallocated" (all parking on site is shared) is shown in the adjacent cells.
4. If known, enter the total number of spaces allocated to each dwelling type across the development in the PINK boxes marked "Enter Total Number of Allocated Spaces".
5. Your development parking demand using your existing allocation design is then displayed in the ORANGE boxes marked "Total Parking Required if Design Allocated Used"
6. The Unallocated Parking Demand is the additional number of unallocated spaces over the design allocated required to meet the total parking demand, and includes visitors parking demand.
7. If your Total Number of Allocated Spaces is greater than the "Parking Demand if 100% Unallocated" then the existing parking design should be reviewed in line with the West Sussex County Council Revised Guidance for Parking Provision (2018).

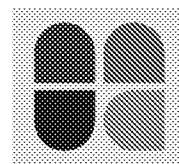


Ward	District	Parking Behaviour Zone
Felpham East	Arun	2

Ward Finder			
Postcode		Ward	Please Enter Postcode

Number of Bedrooms	Number of Habitable Rooms	Number Of Units Of this Type	Parking Demand if 100% Unallocated
1	1 to 3	3	5
2	4		0
3	5 to 6		0
4+	7 or more		0
Total		3	5

PARKING DEMAND INCLUDING ALLOCATED PARKING				
Number of Bedrooms	Number of Habitable Rooms	Enter Total Number of Allocated Spaces	Unallocated Parking Demand	Total Parking Required if Design Allocated Used
1	1 to 3	0	5	5
2	4			
3	5 to 6			
4+	7 or more			
Total			5	



Appendix C

TRICS - Retail

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
 Category : G - OTHER INDIVIDUAL NON-FOOD SUPERSTORE

VEHICLESSelected regions and areas:

05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	HE HEREFORDSHIRE	1 days
08	NORTH WEST	
	LC LANCASHIRE	1 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	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: Gross floor area
 Actual Range: 714 to 4100 (units: sqm)
 Range Selected by User: 50 to 5000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 14/03/19

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

Selected survey days:

Monday	1 days
Tuesday	2 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:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	3

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:

Retail Zone	2
Built-Up Zone	1
No Sub Category	1

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

Secondary Filtering selection:Use Class:

A1	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®.

Population within 1 mile:

15,001 to 20,000	1 days
20,001 to 25,000	2 days
25,001 to 50,000	1 days

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

Population within 5 miles:

50,001 to 75,000	1 days
125,001 to 250,000	3 days

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

Car ownership within 5 miles:

0.5 or Less	2 days
0.6 to 1.0	2 days

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

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	4 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

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.

TRIP RATE for Land Use 01 - RETAIL/G - OTHER INDIVIDUAL NON-FOOD SUPERSTORE

VEHICLES**Calculation factor: 100 sqm****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	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	2	2407	0.083	2	2407	0.000	2	2407	0.083
08:00 - 09:00	4	2329	0.225	4	2329	0.011	4	2329	0.236
09:00 - 10:00	4	2329	0.751	4	2329	0.494	4	2329	1.245
10:00 - 11:00	4	2329	0.966	4	2329	0.644	4	2329	1.610
11:00 - 12:00	4	2329	0.902	4	2329	0.880	4	2329	1.782
12:00 - 13:00	4	2329	0.987	4	2329	0.837	4	2329	1.824
13:00 - 14:00	4	2329	1.073	4	2329	1.181	4	2329	2.254
14:00 - 15:00	4	2329	0.955	4	2329	0.912	4	2329	1.867
15:00 - 16:00	4	2329	0.741	4	2329	0.762	4	2329	1.503
16:00 - 17:00	4	2329	0.902	4	2329	0.859	4	2329	1.761
17:00 - 18:00	4	2329	0.848	4	2329	0.945	4	2329	1.793
18:00 - 19:00	4	2329	0.945	4	2329	1.148	4	2329	2.093
19:00 - 20:00	4	2329	0.601	4	2329	0.848	4	2329	1.449
20:00 - 21:00	4	2329	0.118	4	2329	0.343	4	2329	0.461
21:00 - 22:00	1	2903	0.069	1	2903	0.482	1	2903	0.551
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		10.166			10.346			20.512	

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.

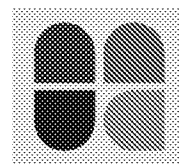
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Parameter summary

Trip rate parameter range selected:	714 - 4100 (units: sqm)
Survey date range:	01/01/11 - 14/03/19
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



Appendix D

TRICS - Residential

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

VEHICLESSelected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	3 days
	EX ESSEX	1 days
	HC HAMPSHIRE	3 days
	HF HERTFORDSHIRE	1 days
	KC KENT	6 days
	SC SURREY	1 days
	WS WEST SUSSEX	7 days
03	SOUTH WEST	
	DC DORSET	1 days
	DV DEVON	3 days
	SM SOMERSET	3 days
	WL WILTSHIRE	1 days
04	EAST ANGLIA	
	CA CAMBRIDGESHIRE	3 days
	NF NORFOLK	3 days
	SF SUFFOLK	4 days
05	EAST MIDLANDS	
	DS DERBYSHIRE	1 days
	LE LEICESTERSHIRE	1 days
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	2 days
	ST STAFFORDSHIRE	2 days
	WK WARWICKSHIRE	2 days
	WM WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	7 days
	SY SOUTH YORKSHIRE	1 days
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	4 days
	LC LANCASHIRE	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	DH DURHAM	3 days
	TW TYNE & WEAR	2 days
10	WALES	
	PS POWYS	1 days
	VG VALE OF GLAMORGAN	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: 6 to 918 (units:)
Range Selected by User: 6 to 4334 (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: 01/01/11 to 08/07/19

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

Selected survey days:

Monday	16 days
Tuesday	16 days
Wednesday	14 days
Thursday	14 days
Friday	13 days

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

Selected survey types:

Manual count	73 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)	27
Edge of Town	34
Neighbourhood Centre (PPS6 Local Centre)	12

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	61
Village	9
No Sub Category	3

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	73 days
----	---------

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

Population within 1 mile:

1,000 or Less	2 days
1,001 to 5,000	13 days
5,001 to 10,000	15 days
10,001 to 15,000	19 days
15,001 to 20,000	9 days
20,001 to 25,000	7 days
25,001 to 50,000	8 days

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

Secondary Filtering selection (Cont.):Population within 5 miles:

5,001 to 25,000	9 days
25,001 to 50,000	6 days
50,001 to 75,000	11 days
75,001 to 100,000	16 days
100,001 to 125,000	2 days
125,001 to 250,000	21 days
250,001 to 500,000	8 days

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

Car ownership within 5 miles:

0.6 to 1.0	20 days
1.1 to 1.5	50 days
1.6 to 2.0	3 days

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

Travel Plan:

Yes	14 days
No	59 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	72 days
2 Poor	1 days

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

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	73	90	0.067	73	90	0.285	73	90	0.352
08:00 - 09:00	73	90	0.127	73	90	0.366	73	90	0.493
09:00 - 10:00	73	90	0.139	73	90	0.165	73	90	0.304
10:00 - 11:00	73	90	0.122	73	90	0.151	73	90	0.273
11:00 - 12:00	73	90	0.130	73	90	0.144	73	90	0.274
12:00 - 13:00	73	90	0.151	73	90	0.141	73	90	0.292
13:00 - 14:00	73	90	0.153	73	90	0.148	73	90	0.301
14:00 - 15:00	73	90	0.160	73	90	0.178	73	90	0.338
15:00 - 16:00	73	90	0.247	73	90	0.170	73	90	0.417
16:00 - 17:00	73	90	0.267	73	90	0.158	73	90	0.425
17:00 - 18:00	73	90	0.329	73	90	0.147	73	90	0.476
18:00 - 19:00	73	90	0.274	73	90	0.158	73	90	0.432
19:00 - 20:00	1	97	0.062	1	97	0.052	1	97	0.114
20:00 - 21:00	1	97	0.031	1	97	0.021	1	97	0.052
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.259			2.284			4.543

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: 6 - 918 (units:)
 Survey date range: 01/01/11 - 08/07/19
 Number of weekdays (Monday-Friday): 73
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 4
 Surveys manually removed from selection: 0

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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.