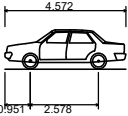


NOTES:  
1. THIS DRAWING IS INDICATIVE AND SUBJECT TO DISCUSSIONS WITH LOCAL & NATIONAL HIGHWAY AUTHORITIES. THIS DESIGN IS ALSO SUBJECT TO CONFIRMATION OF LAND OWNERSHIP, TOPOGRAPHY, LOCATION OF STATUTORY SERVICES, DETAILED DESIGN AND TRAFFIC MODELLING.  
2. THIS DRAWING IS BASED UPON DRAWING NUMBER SCHEME DAPA\_1762\_300\_03\_SCHEME LAYOUT SUPPLIED BY DAP ARCHITECTS AND ICENI PROJECTS LTD. SHALL NOT BE LIABLE FOR ANY INACCURACIES OR DEFICIENCIES.

KEY:  
  
2.4M X 43M JUNCTION VISIBILITY SPLAY  
(BASED ON 30MPH AS PER MfS STANDARDS)

VEHICLE PROFILE:



Skoda Octavia  
Overall Length 4.572m  
Overall Width 1.769m  
Overall Body Height 1.488m  
Min Body Ground Clearance 0.249m  
Max Track Width 1.713m  
Lock to lock time 4.00s  
Kerb to Kerb Turning Radius 5.100m

B	31.05.2022	AMENDED CLIENT NAME	AP	ME	ME
A	20.05.2022	UPDATED SITE LAYOUT	MZ	MG	ME
REV	DATE	AMENDMENTS	DRAWN	CHK	APP

ICENI PROJECTS LIMITED  
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LONDON  
EC1N 8FH

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mail@iceniprojects.com



CLIENT

COUNTRYSIDE PARTNERSHIPS

PROJECT

DAWS HEATH ROAD

TITLE

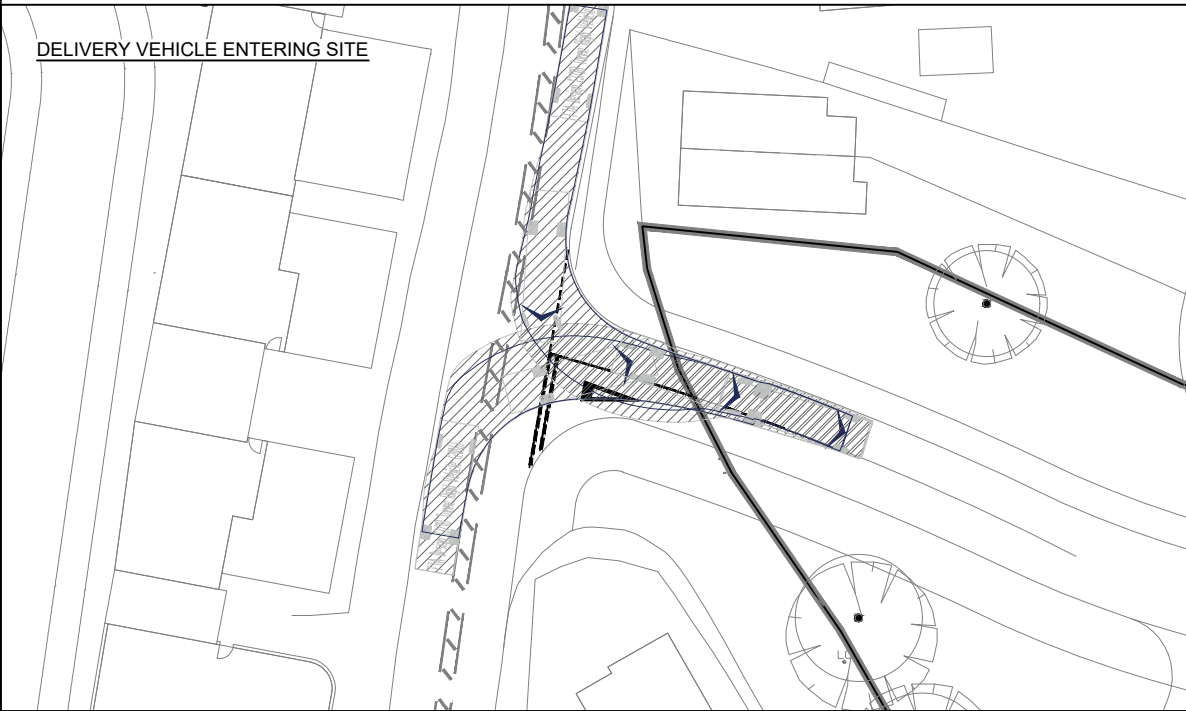
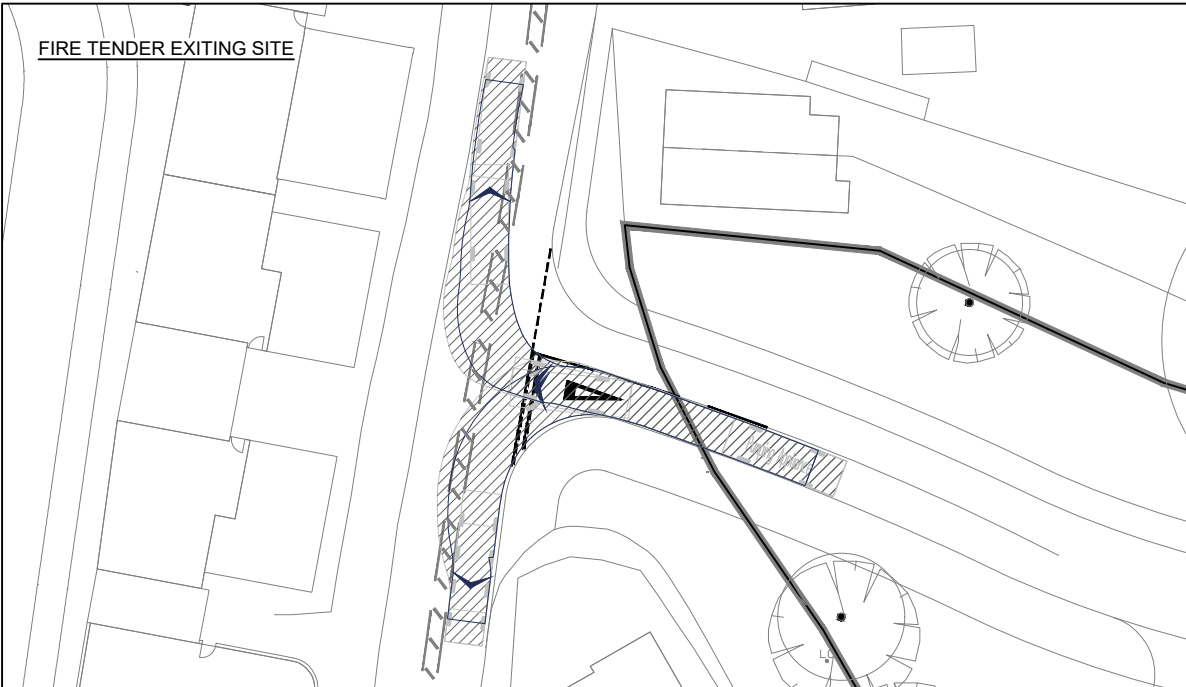
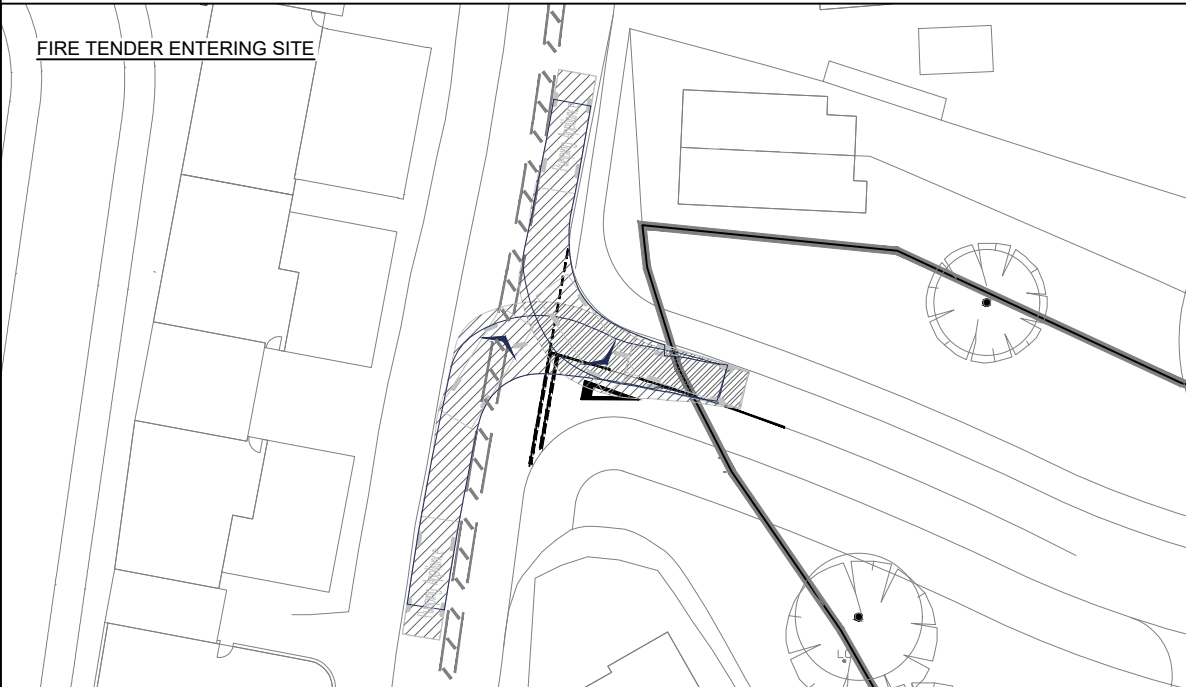
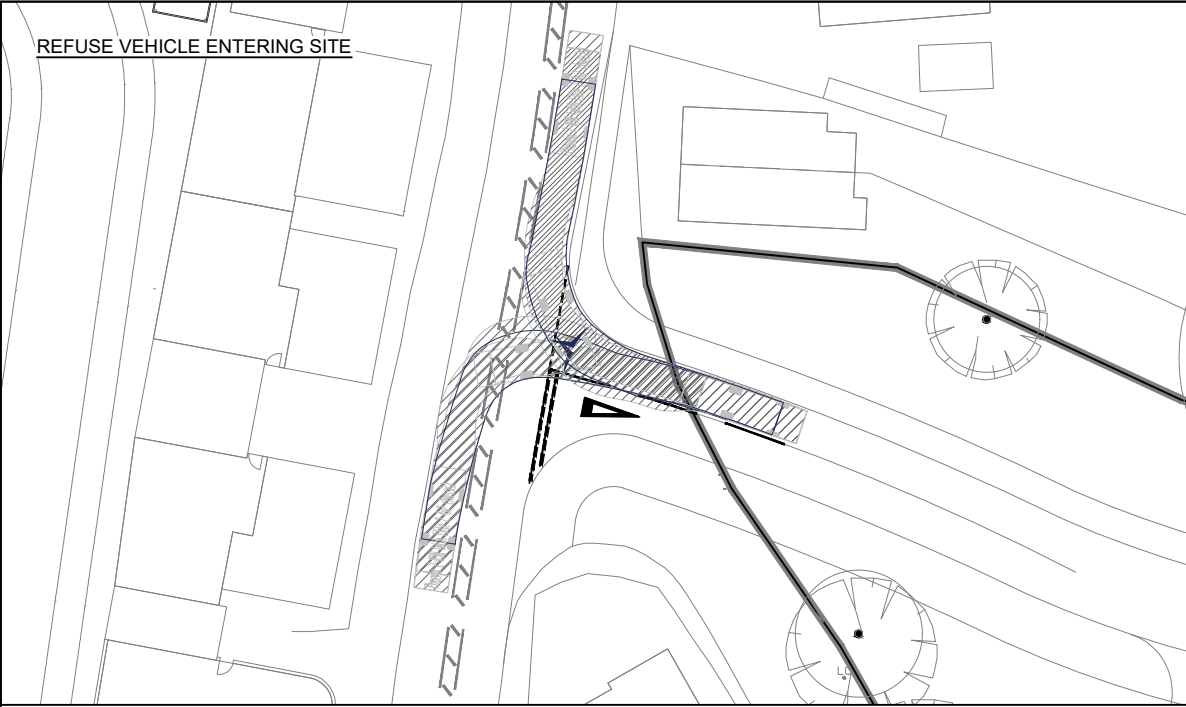
SITE LAYOUT REVIEW

(ACCESS VISIBILITY ASSESSMENT WITH VEHICLE TRACKING)

DRAWN BY	CHECKED BY	APPROVED BY
AP	ME	ME
	30.03.2022	30.03.2022

SCALE @ A3	DATE
1 : 250	30.03.2022

PROJECT NO.	DRAWING NO.	REV.
16-T022	17	B

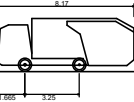


NOTES:

1. THIS DRAWING IS INDICATIVE AND SUBJECT TO DISCUSSIONS WITH LOCAL & NATIONAL HIGHWAY AUTHORITIES. THIS DESIGN IS ALSO SUBJECT TO CONFIRMATION OF LAND OWNERSHIP, TOPOGRAPHY, LOCATION OF STATUTORY SERVICES, DETAILED DESIGN AND TRAFFIC MODELLING.

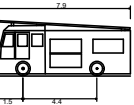
2. THIS DRAWING IS BASED UPON DRAWING NUMBER SCHEME DAPA\_1762\_300\_03\_SCHEME LAYOUT SUPPLIED BY DAP ARCHITECTS AND ICENI PROJECTS LTD. SHALL NOT BE LIABLE FOR ANY INACCURACIES OR DEFICIENCIES.

VEHICLE PROFILE:



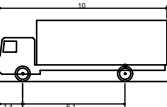
Phoenix 2-09N (with Elite 2 4x2 chassis)

Overall Length	8.170m
Overall Width	2.250m
Overall Body Height	3.162m
Min Body Ground Clearance	0.367m
Track Width	2.250m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.550m



Pumping Appliance

Overall Length	7.900m
Overall Width	2.500m
Overall Body Height	3.300m
Min Body Ground Clearance	0.140m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.750m



FTA Design 13/18 Tonne Rigid Vehicle (2016)

Overall Length	10.000m
Overall Width	2.550m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	11.000m

B	31.05.2022	AMENDED CLIENT NAME	AP	ME	ME
A	20.05.2022	UPDATED SITE LAYOUT	MZ	MG	ME
REV	DATE	AMENDMENTS	DRAWN	CHK	APP

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CLIENT

COUNTRYSIDE PARTNERSHIPS

PROJECT

DAWS HEATH ROAD

TITLE

SITE LAYOUT REVIEW

(ACCESS VEHICLE TRACKING)

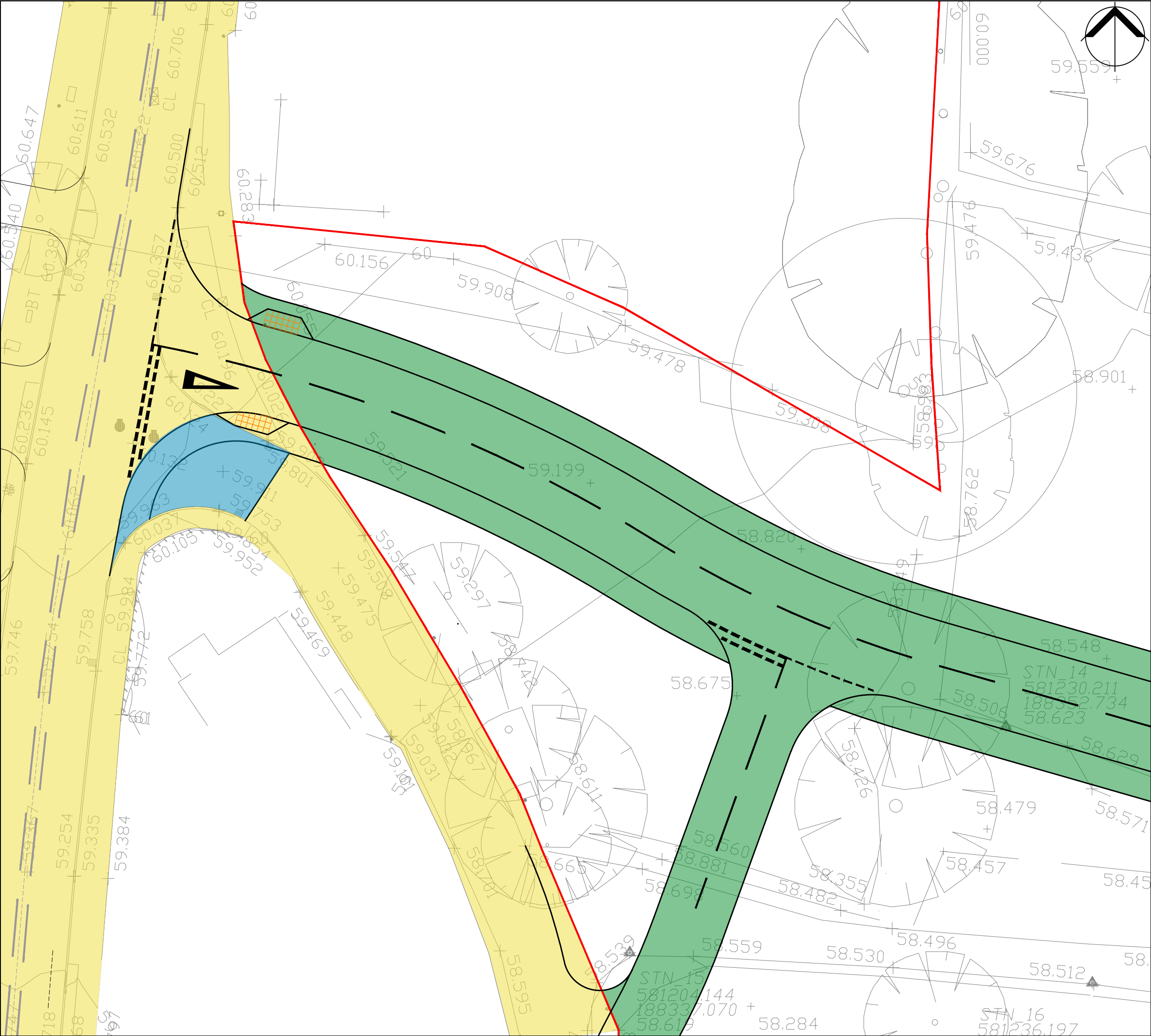
DRAWN BY	CHECKED BY	APPROVED BY
AP	ME	ME
	30.03.2022	30.03.2022

SCALE @ A3	DATE
1 : 500	30.03.2022

PROJECT NO.	DRAWING NO.	REV.
16-T022	18	B

iceni Projects accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions are to be worked to.





NOTES:

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2. THIS DRAWING IS BASED UPON DRAWING NUMBER SURV1826 SUPPLIED BY COUNTRYSIDE PROPERTIES AND ICENI PROJECTS LTD. SHALL NOT BE LIABLE FOR ANY INACCURACIES OR DEFICIENCIES.

3. HIGHWAY BOUNDARY INFORMATION HAS BEEN PROVIDED BY ESSEX COUNTY COUNCIL ON 14/05/2014 AND HAS BEEN TRANSCRIBED BY ICENI PROJECTS LTD ONTO A TOPOGRAPHICAL SURVEY BASE. ICENI PROJECTS LTD ACCEPTS NO LIABILITY FOR THE ACCURACY OF THE DATA PROVIDED AND THE HIGHWAY BOUNDARY INFORMATION SHOWN IS SUBJECT TO CHECKS BY A LICENSED CONVEYANCER.

KEY:

EXISTING ADOPTED HIGHWAY

PROPOSED ROAD TO BE ADOPTED

VEHICLE RIGHTS TO BE REMOVED, BUT LAND TO REMAIN ADOPTED HIGHWAY

SITE BOUNDARY

**ICENI PROJECTS LIMITED**  
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mail@iceniprojects.com



CLIENT

COUNTRYSIDE PARTNERSHIPS

PROJECT

DAWS HEATH ROAD

TITLE

PROPOSED HIGHWAYS PLAN

DRAWN BY	CHECKED BY	MG	APPROVED BY	ME
AP	31.05.2022		31.05.2022	
SCALE @ A3	1:250	DATE	31.05.2022	
PROJECT NO.	16-T022	DRAWING NO.	22	REV.
				-

iceni Projects accept no responsibility for any unauthorised amendments to this drawing. Only figured dimensions are to be worked to.

## **A9. STAGE ONE ROAD SAFETY AUDIT**



**Allen Transport Consultancy Ltd**

**Daws Heath Road, Benfleet**

**Proposed S278 Highway Works – Priority Junction Amendments**

**Stage 1 Road Safety Audit**

**Date: May 2022**

**Report produced for: Icen Project Ltd**

**Report produced by: Allen Transport Consultancy Ltd**



Allen Transport Consultancy Ltd  
Minerva House  
139 Chatham Road  
Maidstone  
Kent ME14 2NB

Tel: 07770 403637

## CONTENTS

	Document Control Sheet	3
1	Introduction	4
2	Items raised at Previous Road Safety Audits	6
3	Items raised at this Stage 1 Road Safety Audit	7
4	Audit Team Statement	10
Appendix A	List of drawings and documents	
Appendix B	Problem location plan	

## DOCUMENT CONTROL SHEET

This report was produced by Allen Transport Consultancy in accordance with the instructions from Icen Projects Ltd, for the specific purpose of undertaking the Stage 1 Road Safety Audit. Allen Transport Consultancy shall not be liable for the use of any information contained herein for any purpose other than the sole and specific use for which it was prepared.

### Project Details:

<b>Report title</b>	Daws Heath Road, Benfleet Proposed S278 Highway Works – Priority Junction Amendments Stage 1 Road Safety Audit
<b>Date</b>	18 <sup>th</sup> May 2022
<b>Document reference and revision</b>	ATC/740/IPL/1 Rev 1
<b>Prepared by</b>	Allen Transport Consultancy Ltd
<b>On behalf of</b>	Icen Projects Ltd

### Record of Issue:

Issue	Status	Author	Date	Checked	Date	Authorised	Date
1	Final	LA	13/05/22	JB	17/05/22	LA	18/05/22

### Distribution:

Organisation	Contact	Copies
Icen Projects Ltd	Milan Zakula	-
Icen Projects Ltd	Mike England	-

## **1 INTRODUCTION**

- 1.1 This report has been produced as a result of a Stage 1 Road Safety Audit carried out on the proposed S278 highway works in relation to land off Daws Heath Road, Benfleet in Essex. The works are in association with a proposed residential development, comprising up to 175 units.
- 1.2 The Road Safety Audit was undertaken at the request of the Overseeing Organisation, Essex County Council. The Design Organisation is Da Vinci House, 44 Saffron Hill, London, EC1N 6FH. The Third Party Organisation is Countryside Properties Ltd.
- 1.3 In summary, the works considered as part of this Stage 1 Road Safety Audit are as follows:
- Provision of a priority junction on the eastern side of Daws Heath Road;
  - Re-alignment of the existing carriageway to the east of Daws Heath Road;
  - Provision of carriageway markings.
- 1.4 The Audit Team membership was as follows:
- Lisa Allen - BEng (Hons), MSc, MCIHT, MSoRSA, HA RSA Cert Comp - Audit Team Leader
  - John Bowman - MCIHT, MSoRSA - Audit Team Member
- 1.5 The Audit was undertaken in accordance with the instruction from Icen Projects Ltd dated 3<sup>rd</sup> May 2022. The Road Safety Audit comprised an examination of the drawings and documents provided, as listed in Appendix A.
- 1.6 The Audit took place at the Maidstone office of Allen Transport Consultancy during May 2022. The Audit Team members visited the site together, on 4<sup>th</sup> May 2022, between 12:05 and 12:55 hours. During the site visit, the weather was mild, overcast and the existing road surface was dry. Vehicular traffic conditions at the time of the site visit were observed to be moderate on the main road of Daws Heath Road and very low in the cul-de-sac area of Daws Heath Road. Four pedestrians, 3 pedal cyclists and 1 equestrian were observed during the site visit.
- 1.7 The terms of reference of the Audit are as described in DMRB GG 119 Road Safety Audit. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria. However, to explain clearly a safety problem or the recommendation made to resolve the identified problem, the Audit Team may, on occasion, have referred to a Design Standard without touching on technical audit.
- 1.8 No Departures from Design Standards have been reported by the Design Organisation.
- 1.9 A plan showing the locations of the Problems raised in this report is included in Appendix B.



- 1.10 Issues identified and observations made during this Stage 1 Road Safety Audit and site inspection which the Terms of Reference exclude from this report, but which the Audit Team wishes to draw to the attention of the Overseeing Organisation, Essex County Council, will be set out in a separate letter. These issues could include maintenance items and operational issues. The Audit Team has not identified any issues during this Stage 1 Road Safety Audit and site inspection that are considered to be outside the Terms of Reference.

## **2 ITEMS RAISED AT PREVIOUS ROAD SAFETY AUDITS**

- 2.1 The safety aspects of the S278 highway works associated with the mini-roundabout arrangement on Daws Heath Road, Benfleet were the subject of comment in two Stage 1 Road Safety Audits undertaken by JB Road Safety Consultancy Ltd in October 2016 and Allen Transport Consultancy Ltd in June 2020. This design option has been superseded, therefore, issues raised in these reports will not be raised in this Stage 1 Road Safety Audit.
- 2.2 The safety aspects of the S278 highway works associated with priority junction arrangement on Daws Heath Road, Benfleet were the subject of comment in a Stage 1 Road Safety Audit undertaken by JB Road Safety Consultancy Ltd in March 2017.
- 2.3 Item 2.1 of the March 2017 Stage 1 Road Safety Audit undertaken by JB Road Safety Consultancy Ltd related to detailed design issues, which would be addressed at any subsequent Stage 2 Road Safety Audit
- 2.4 Items 2.2 (in part), 2.4 and 2.5 of the March 2017 Stage 1 Road Safety Audit undertaken by JB Road Safety Consultancy Ltd remain a concern and are raised again within this Stage 1 Road Safety Audit Report under Items 3.3.1, 3.3.2 and 3.4.1.

### **3 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT**

#### **3.1 LOCAL ALIGNMENT**

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

#### **3.2 GENERAL**

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

#### **3.3 JUNCTIONS**

##### **3.3.1 PROBLEM**

**Location:** A – Priority junction, Daws Heath Road (Drawing No: 16-T-22-09 Rev A).

**Summary:** Restricted visibility for vehicles seeking to emerge from the development site priority junction could result in a potential increased risk of side impact, head on or side swipe type collisions occurring, whereby vehicle occupants could sustain personal injury.

The scheme drawing indicates the provision of a priority junction on the eastern side of Daws Heath Road, which is to be relocated further north of its current location. The scheme drawing also indicates a visibility splay of 2.4m x 43m to the north and south of the proposed priority junction.

The site visit has established that the boundary to the property to the immediate south of the proposed priority junction was bounded by a columned wall with metal railings and vegetation located between the brick columns, which impacted upon the southern visibility splay. The site visit also established a vehicle parked on the grass verge to the immediate north of the existing priority junction

Concern arises that the boundary wall, fencing and vegetation to the south and parked vehicles on the grass verge to the north restricts the visibility splays for motorists emerging from the priority junction onto Daws Heath Road. As a result, restricted visibility could lead to a potential increased risk of side impact collisions occurring, between vehicles emerging from the priority junction and vehicular traffic on Daws Heath Road, whereby vehicle occupants could sustain personal injury.

Additionally, concern arises that restricted visibility could lead to a potential increased risk of head on or side swipe type collisions occurring, between a northbound vehicle attempting to overtake a slower left turning vehicle entering the junction on the western side of Daws Heath Road, south of the proposed priority junction and left turning vehicular traffic emerging from the proposed development site onto Daws Heath Road. As a result, this situation could result in vehicle occupants sustaining personal injury.

## **RECOMMENDATION**

It is recommended that the eastern kerb line should be amended in order to improve visibility to the south when emerging from the proposed development site onto Daws Heath Road, in order to mitigate the above described potential collision scenarios.

If for whatever reasons the above recommendation cannot be adopted, then it is recommended that approval for the proposed layout should be sought and agreed with the Overseeing Organisation, Essex County Council, via the Road Safety Audit Response Report and Decision Log as contained within DMRB GG 119.

Additionally, it is recommended that enforcement should be undertaken to prevent vehicles from parking within the visibility splay to the right hand side of the priority junction (i.e. grass verge area).

### **3.3.2 PROBLEM**

**Location: B** – Priority junction, Daws Heath Road (Drawing No: 16-T-22-18).

**Summary:** Swept path requirements of a 10m Rigid Vehicle could result in a potential increased risk of head on or side swipe type collisions occurring, whereby vehicle occupants could sustain personal injury.

The scheme drawing indicates the provision of a priority junction on the eastern side of Daws Heath Road, which is to be relocated further north of its current location.

It is evident from the scheme drawing that 10m Rigid Vehicles cross the centre lines within the development site access road and central hatching on Daws Heath Road when manoeuvring into and out of the proposed development site.

Concern arises that encroachment of the centre line within the proposed development site access road and hatching on Daws Heath Road by the above mentioned vehicle type, could lead to a potential increased risk of head on or side swipe type collisions occurring with opposing flows of vehicular traffic, whereby vehicle occupants could sustain personal injury.

## **RECOMMENDATION**

It is recommended that the junction geometry should be modified in order to mitigate the above described potential collision scenarios.

### **3.4 WALKING, CYCLING AND HORSE RIDING**

#### **3.4.1 PROBLEM**

**Locations: C and D** – Priority junction, Daws Heath Road (Drawing No: 16-T-22-09 Rev A).

**Summary:** Lack of dropped kerbs and tactile paving across the relocated priority junction could result in a potential increased risk of pedestrian trips and falls occurring on the full height kerb upstand, whereby pedestrians, especially those who are blind, visually or mobility impaired, could sustain personal injury.

The scheme drawing indicates the provision of a priority junction on the eastern side of Daws Heath Road, which is to be relocated further north of its current location.

Concern arises that a lack of dropped kerb provision and tactile paving across the relocated priority junction could lead to a potential increased risk of pedestrian trips and falls occurring, especially for those pedestrians who are blind, visually or mobility impaired, on the full height kerb upstand, whereby pedestrians could sustain personal injury.

#### **RECOMMENDATION**

It is recommended that dropped kerbs and tactile paving should be provided across the relocated priority junction, in order to mitigate the above described potential injury scenario.

### **3.5 TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING**

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

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

### 3     **AUDIT TEAM STATEMENT**

We certify that this audit has been carried out in accordance with DMRB GG 119.

#### **Road Safety Audit Team Leader**

Lisa Allen, BEng (Hons), MSc, MCIHT, MSoRSA, HA RSA Cert Comp

**Signed:** 

Director  
Allen Transport Consultancy Ltd  
Minerva House  
139 Chatham Road  
Maidstone  
Kent ME14 2NB

**Date:** 18<sup>th</sup> May 2022

#### **Road Safety Audit Team Member**

John Bowman, MCIHT, MSoRSA

**Signed:** 

Road Safety Consultant  
Allen Transport Consultancy Ltd  
Minerva House  
139 Chatham Road  
Maidstone  
Kent ME14 2NB

**Date:** 18<sup>th</sup> May 2022



## **APPENDIX A**

List of drawings and documentation submitted for auditing:

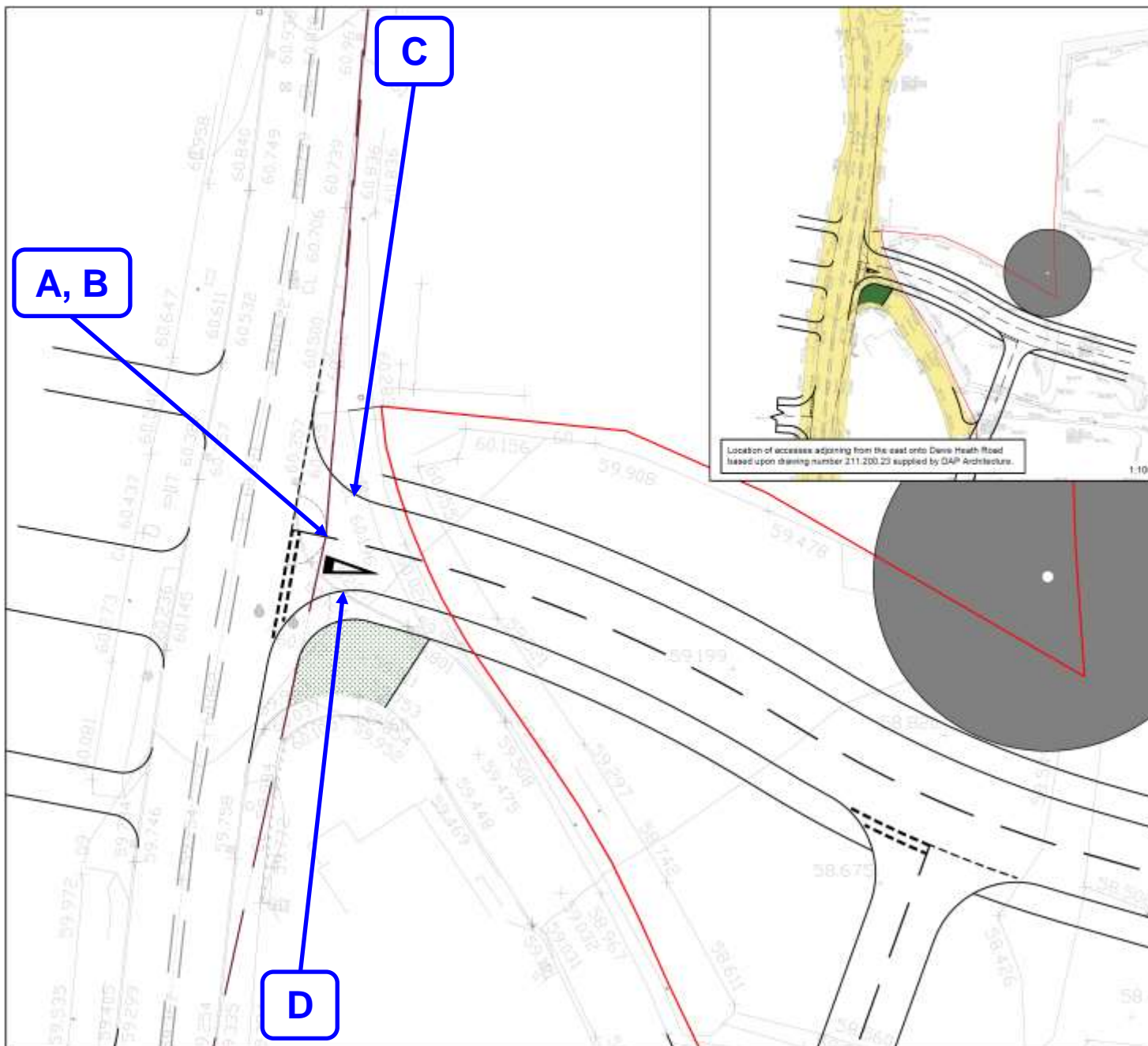
<b>Drawing Number</b>	<b>Title</b>
16-T022-09 Rev A	Proposed Priority Junction
16-T022-17 Rev -	Site Layout Review (Access Visibility with Vehicle Tracking)
16-T022-18 Rev -	Site Layout Review (Access Vehicle Tracking)

### **Supporting Documentation:**

- Stage 1 Road Safety Brief, Icení Project Ltd – 3<sup>rd</sup> May 2022
- Stage 1 Road Safety Audit Designers Response, Icení Projects Ltd – March 2017
- Stage 1 Road Safety Audit, JB Road Safety Consultancy – March 2017
- ATC Data – April 2016
- Collision Data – 60 months to 31/10/2015
- Traffic Flows

## **APPENDIX B**

Problem location plan showing the location of the problems identified as part of this audit (location letters refer to paragraphs in the report).



Location of accesses adjoining from the east onto Daws Heath Road based upon drawing number 211.200.23 supplied by DAP Architecture.

**Notes:**  
 1. This drawing is based upon drawing number SURV1826 supplied by Countryside Properties and Icen Projects Ltd. shall not be liable for any inaccuracies or deficiencies.  
 2. Highway boundary information transcribed from data provided by Essex Highways on 14/05/2014.

**Key:**  
 Extent of Highway Boundary  
 2.4m x 43m (35mph) Visibility Splay  
 Site Boundary



A		Daws Heath Road East		MG	ME	ME
Rev	Date	Amendments	Drawn	Chk	App	

**Icen Projects**  
 Fitzroft House  
 114-116 Charing Cross Road  
 London, WC2H 0JR  
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 F 020 3435 4228  
 mail@icenprojects.com



Countrywide Properties					
Project					
Daws Heath Road					
Title					
Proposed Priority Junction					
Drawn By	Checked By	RA	Approved By	ME	
TG		21/02/2017		21/02/2017	
Scale & A3	Date				
1:250	21/02/2017				
Project No	Drawing No	09	Rev	A	
16-T022					

---

# Road Safety Audit Response Report

## Project details

<b>Report title:</b>	RSA Designers Response Stage 1
<b>Date:</b>	18/05/2022
<b>Document reference and revision:</b>	2022.05.27_RSA Designers Response_Daws_Heath_Road
<b>Prepared by:</b>	Iceni Projects
<b>On behalf of:</b>	Countryside Properties

## Authorisation sheet

<b>Project:</b>	Daws Heath Road
<b>Report title:</b>	RSA Designers Response
<b>Prepared by:</b>	
Name:	Mitchell Gregory
Position:	Senior Engineer
Signed:	M Gregory
Organisation:	Iceni Projects Ltd
Date:	27/05/2022
<b>Approved by:</b>	
Name:	Mike England
Position:	Director
Signed:	M England
Organisation:	Iceni Projects Ltd
Date:	27/05/2022

## Introduction

Include a summary of the scheme, the stage of the RSA and the date or reference of the RSA report it relates to.

Provide details of the representatives from the design organisation who prepared the RSA response report.

## Key personnel

Provide:

### Key personnel

<b>Overseeing Organisation:</b>	Essex County Council
<b>RSA team:</b>	Allen Transport Consultancy Ltd
<b>Design organisation:</b>	Iceni Projects

## Road safety audit decision log

### Road safety audit decision log

RSA problem	RSA recommendation	Design organisation response	Overseeing Organisation response	Agreed RSA action
3.3.1 Restricted visibility for vehicles seeking to emerge from the development site priority junction could result in a potential increased risk of side impact, head on or side swipe type collisions occurring, whereby vehicle occupants could sustain personal injury.	It is recommended that the eastern kerb line should be amended in order to improve visibility to the south when emerging from the proposed development site onto Daws Heath Road, in order to mitigate the above described potential collision scenarios. If for whatever reasons the above recommendation cannot be adopted, then it is recommended that approval for the proposed layout should be sought and agreed with the Overseeing Organisation, Essex County Council, via the Road Safety Audit Response Report and Decision Log as contained within DMRB GG 119. Additionally, it is recommended that enforcement should be undertaken to prevent vehicles from parking within the visibility splay to the right-hand side of the priority junction (i.e. grass verge area).	<p>Noted – the proposed Visibility splays accord with those set out with Manual for Streets and as agreed with ECC.</p> <p>Whilst it is agreed that vehicles do currently park on the verge next to the existing layout, this verge area is almost completely removed as part of the proposals. Should ECC require bollards or planting, this can be requested as part of the Stage 2 detailed design drawings.</p>		

3.3.2 Swept path requirements of larger vehicles could result in a potential increased risk of head on or side swipe type collisions occurring, whereby vehicle occupants could sustain personal injury.	It is recommended that the junction geometry should be modified accordingly in order to mitigate the above-described potential collision scenarios.	<p>Noted – The design has previously been agreed in principle with ECC but this will be brought to their attention, however, we have increased the entry radii to 8m in this instance to provide a slightly wider entry. This is shown in drawing <b>16-T022_09B</b>.</p> <p>That said, swept path analysis for larger vehicles, in this case 10m rigid and refuse vehicles, encroach the opposite side of the carriageway (minor road) across the country, including the adjacent development access. Should this ad-hoc manoeuvre be accommodated in this way, it will lead to large, overdesigned junction when compared against its residential use.</p>		
3.4.1 Lack of dropped kerbs and tactile paving across the relocated priority junction could result in a potential increased risk of pedestrian trips and falls occurring on the full height kerb upstand, whereby pedestrians, especially those who are blind, visually or mobility impaired, could sustain personal injury.	It is recommended that dropped kerbs and tactile paving should be provided across the relocated priority junction, in order to mitigate the described potential injury scenario.	Noted – The proposed priority junction drawing has been updated to show the provision of dropped kerbs and tactile paving. This is shown in drawing <b>16-T022_09B</b> .		



## Design organisation and Overseeing Organisation statements

Include the following statements to be signed by the design organisation and the Overseeing Organisation.

### Design organisation statement

<b>On behalf of the design organisation I certify that:</b>	
<b>1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.</b>	
Name:	Mitchell Gregory
Signed	M Gregory
Position:	Senior Engineer
Organisation:	Iceni Projects Ltd
Date:	27/05/2022

### Overseeing Organisation statement

<b>On behalf of the Overseeing Organisation I certify that:</b>	
<b>1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and</b>	
<b>2) the agreed RSA actions will be progressed.</b>	
Name:	
Signed:	
Position:	
Organisation:	
Date:	

## **A10. TRICS OUTPUT**

16-T022 Daws Haeth Road  
TEMPro growth factors  
Castle Point  
2022-2027  
2022 - 2027 AM: 1.0263  
2022 - 2027 PM: 1.0273  
2022 - 2027 Average Weekday 1.0328  
All Road Types

AM Peak

NTM Traffic Growth Calculations

**1: Select NTM Dataset:**

NTM Dataset Description	From	To
RTF 2018 Scenario 1 - Reference	2015	2050
NTM AF15 Dataset	2010	2040

**2: Select Areas to make up the geographic region:**

☒ Castle Point

**3. Select area type:**

☐ Urban  
☐ Rural  
☒ All

**4. Select road type:**

☐ Motorway  
☐ Trunk  
☐ Principal  
☐ Minor  
☒ All

**5. Select which area it serves:**






☒ Region  
☐ England

**Calculate the adjusted local growth figure**

**Results**

Level	Area	Local Growth Figure
Authority	Castle Point	1.0263

PM Peak



Data selections ^

Select dataset version: 72 v

**Result type**

- ☒ Trip ends by time period
- ☐ Trip ends by car availability
- ☐ Car ownership data
- ☐ Planning data

Set area definition...

Enter base year 2022





Enter future year 2027

Trip end selections v

Trip end by time period selections v

Reset Selections

NTM Traffic Growth Calculations



**1: Select NTM Dataset:**

NTM Dataset Description	From	To
RTF 2018 Scenario 1 - Reference	2015	2050
NTM AF15 Dataset	2010	2040

**2: Select Areas to make up the geographic region:**

☒ Castle Point

**3. Select area type:**

☐ Urban

☐ Rural

☒ All

**4. Select road type:**

☐ Motorway

☐ Trunk

☐ Principal

☐ Minor

☒ All

**5. Select which area it serves**

☒ Region

☐ England

Calculate the adjusted local growth figure

**Results**

Level	Area	Local Growth Figure
Authority	Castle Point	1.0273

Average Weekday

Data selections

^

Select dataset version: 72

Result type

☒ Trip ends by time period

☐ Trip ends by car availability

☐ Car ownership data

☐ Planning data

Set area definition...

Enter base year 2022

Enter future year 2027

Trip end selections

▼

Trip end by time period selections

▼

Reset Selections

NTM Traffic Growth Calculations

1: Select NTM Dataset:

NTM Dataset Description	From	To
▶ RTF 2018 Scenario 1 - Reference	2015	2050
NTM AF15 Dataset	2010	2040

2: Select Areas to make up the geographic region:

☒ Castle Point

3. Select area type:

☐ Urban

☐ Rural

☒ All

4. Select road type:

☐ Motorway

☐ Trunk

☐ Principal

☐ Minor

☒ All

5. Select which area it se

☐ Region

☐ England

Calculate the adjusted local growth figure

Results

Level	Area	Local Growth Figure
Authority	Castle Point	1.0328

erves:



## 6.0 Trip Generation, Distribution and Impact

### Introduction

- 6.1.1 This section assesses the vehicular trip generation, distribution, assignment and impact on the local highway network. Section 5 reviewed the person trip generation by mode and by purpose and makes a comparison with this section with respect to vehicular trip making.
- 6.1.2 The site at present generates vehicular movements to and from the site based on the current equestrian operations and caravan storage, however this assessment has not included any assessment of discounting existing trips and has assessed the new residential trips only.

### Proposed Site Vehicular Trip Generation

- 6.2.1 The TRICS 7.2.1 database has been interrogated to find a representative trip generation for a development of 67 residential dwellings. The TRICS output files are contained in **Appendix E** and summarised in **Table 6.1** below:

Trip Rate	AM		PM		Daily	
	Arr	Dep	Arr	Dep	Arr	Dep
Houses Private	0.166	0.378	0.329	0.186	2.319	2.401
Trips						
Houses Private	11	25	22	12	155	161

**Table 6.1: Proposed Site Trip Rates and Trip Generation.**

- 6.2.2 Average trip rates were derived from the TRICS 7.2.1 database using houses privately owned and are included in **Appendix E**. No deductions or adjustments have been made to take account for Travel Plan influences or potential internalized trip making.
- 6.2.3 The trip rates derived from TRICS indicate that the site could potentially generate 36 trips within the AM peak period with 34 trips generated in the PM peak period. These predicted trips differ to those given in 5.5.9 which were derived from the journey by purpose calculations. It is considered that in order to test a robust case the TRICS derived trips will be used within this assessment.

## 6.3 Traffic Distribution and Assignment

- 6.3.1 The site is located within the Victoria ward and the 2011 Census Data was used to understand different work related trips during the network peak periods. A distribution model was constructed using the Workplace journey data for the Victoria ward as an origin and all areas within England as destinations. This distribution model used the travel to work data from the Victoria ward, which is included within the Castle point 002 Middle Super Output Area, to determine likely destinations for traffic from the site.
- 6.3.2 The distribution model used factors to assign likely traffic to routes to and from the site to the local wards and areas where residents of Victoria ward currently work. The factors applied to the model were mindful of the local constraints on the local highways and the routing options there are from the site to key employment locations. Distributions from

Calculation Reference: AUDIT-243601-150619-0648

## TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	SC SURREY	1 days
03	SOUTH WEST	
	CW CORNWALL	1 days
04	EAST ANGLIA	
	NF NORFOLK	1 days
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	2 days
	WM WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	3 days
	SY SOUTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	1 days
09	NORTH	
	CB CUMBRIA	1 days

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

## Filtering Stage 2 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: 52 to 150 (units: )  
 Range Selected by User: 50 to 150 (units: )

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/07 to 23/01/14

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	3 days
Tuesday	4 days
Wednesday	2 days
Thursday	3 days
Friday	2 days

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

Selected survey types:

Manual count	14 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)	8
Edge of Town	6

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

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

MULTI-MODAL TOTAL PEOPLE

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	14	87	0.102	14	87	0.438	14	87	0.540
08:00 - 09:00	14	87	0.236	14	87	0.743	14	87	0.979
09:00 - 10:00	14	87	0.237	14	87	0.346	14	87	0.583
10:00 - 11:00	14	87	0.213	14	87	0.282	14	87	0.495
11:00 - 12:00	14	87	0.296	14	87	0.240	14	87	0.536
12:00 - 13:00	14	87	0.272	14	87	0.246	14	87	0.518
13:00 - 14:00	14	87	0.253	14	87	0.260	14	87	0.513
14:00 - 15:00	14	87	0.252	14	87	0.275	14	87	0.527
15:00 - 16:00	14	87	0.523	14	87	0.333	14	87	0.856
16:00 - 17:00	14	87	0.495	14	87	0.271	14	87	0.766
17:00 - 18:00	14	87	0.561	14	87	0.284	14	87	0.845
18:00 - 19:00	14	87	0.372	14	87	0.259	14	87	0.631
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.812			3.977			7.789

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

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

#### Parameter summary

Trip rate parameter range selected: 52 - 150 (units: )  
 Survey date range: 01/01/07 - 23/01/14  
 Number of weekdays (Monday-Friday): 14  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys manually removed from selection: 2

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.

Calculation Reference: AUDIT-751001-160607-0650

## TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	1 days
	WS WEST SUSSEX	1 days
03	SOUTH WEST	
	DV DEVON	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	2 days
11	SCOTLAND	
	FA FALKIRK	1 days
13	MUNSTER	
	WA WATERFORD	1 days
15	GREATER DUBLIN	
	DL DUBLIN	2 days
16	ULSTER (REPUBLIC OF IRELAND)	
	DN DONEGAL	1 days
17	ULSTER (NORTHERN IRELAND)	
	AN ANTRIM	2 days
	AR ARMAGH	1 days

## Filtering Stage 2 selection:

Parameter: Number of dwellings  
 Actual Range: 108 to 280 (units: )  
 Range Selected by User: 100 to 300 (units: )

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/08 to 25/09/15

Selected survey days:

Tuesday	8 days
Wednesday	2 days
Thursday	3 days
Friday	3 days

Selected survey types:

Manual count	16 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	1
Suburban Area (PPS6 Out of Centre)	8
Edge of Town	6
Neighbourhood Centre (PPS6 Local Centre)	1

Selected Location Sub Categories:

Residential Zone	13
No Sub Category	3

## Filtering Stage 3 selection:

Use Class:

C3	16 days
----	---------

Population within 1 mile:

1,001 to 5,000	4 days
5,001 to 10,000	1 days
10,001 to 15,000	4 days
15,001 to 20,000	2 days
20,001 to 25,000	3 days
25,001 to 50,000	2 days

Population within 5 miles:

5,001 to 25,000	4 days
50,001 to 75,000	2 days
75,001 to 100,000	3 days
100,001 to 125,000	3 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	2 days

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	13 days

Travel Plan:

Yes	1 days
No	15 days

## LIST OF SITES relevant to selection parameters

1	AN-03-A-06	SEMI -DET.			ANTRIM
	GLENMOUNT ROAD				
	NEWTOWNABBEY				
	Suburban Area (PPS6 Out of Centre)				
	No Sub Category				
	Total Number of dwellings:		132		
	Survey date:	THURSDAY	10/06/10		Survey Type: MANUAL
2	AN-03-A-08	HOUSES & FLATS			ANTRIM
	BALLINDERRY ROAD				
	LISBURN				
	Suburban Area (PPS6 Out of Centre)				
	Residential Zone				
	Total Number of dwellings:		204		
	Survey date:	TUESDAY	29/10/13		Survey Type: MANUAL
3	AR-03-A-01	MIXED HOUSES			ARMAGH
	BIRCHDALE MANOR				
	LURGAN				
	Edge of Town				
	Residential Zone				
	Total Number of dwellings:		153		
	Survey date:	TUESDAY	15/06/10		Survey Type: MANUAL
4	CH-03-A-02	HOUSES/FLATS			CHESHIRE
	SYDNEY ROAD				
	CREWE				
	Edge of Town				
	Residential Zone				
	Total Number of dwellings:		174		
	Survey date:	TUESDAY	14/10/08		Survey Type: MANUAL
5	CH-03-A-06	SEMI -DET./BUNGALOWS			CHESHIRE
	CREWE ROAD				
	CREWE				
	Suburban Area (PPS6 Out of Centre)				
	No Sub Category				
	Total Number of dwellings:		129		
	Survey date:	TUESDAY	14/10/08		Survey Type: MANUAL
6	DL-03-A-03	TERRACED/SEMI -DET.			DUBLIN
	RAHENY ROAD				
	RAHENY				
	DUBLIN				
	Neighbourhood Centre (PPS6 Local Centre)				
	Residential Zone				
	Total Number of dwellings:		206		
	Survey date:	TUESDAY	20/04/10		Survey Type: MANUAL
7	DL-03-A-06	DETACHED			DUBLIN
	UPPER KILMACUD ROAD				
	DUNDRUM				
	DUBLIN				
	Edge of Town				
	Residential Zone				
	Total Number of dwellings:		147		
	Survey date:	FRIDAY	30/04/10		Survey Type: MANUAL



LIST OF SITES relevant to selection parameters (Cont.)

8	DN-03-A-05 GORTLEE ROAD GORTLEE LETTERKENNY Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 146 Survey date: WEDNESDAY 03/09/14	DETACHED/SEMI-DETACHED	DONEGAL	Survey Type: MANUAL
9	DV-03-A-02 MILLHEAD ROAD  HONITON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 116 Survey date: FRIDAY 25/09/15	HOUSES & BUNGALOWS	DEVON	Survey Type: MANUAL
10	EX-03-A-01 MILTON ROAD CORRINGHAM STANFORD-LE-HOPE Edge of Town Residential Zone Total Number of dwellings: 237 Survey date: TUESDAY 13/05/08	SEMI-DET.	ESSEX	Survey Type: MANUAL
11	FA-03-A-02 ROSEBANK AVENUE & SPRINGFIELD DRIVE  FALKIRK Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 161 Survey date: WEDNESDAY 29/05/13	MIXED HOUSES	FALKIRK	Survey Type: MANUAL
12	NE-03-A-03 STATION ROAD  SCUNTHORPE Edge of Town Centre Residential Zone Total Number of dwellings: 180 Survey date: TUESDAY 20/05/14	PRIVATE HOUSES	NORTH EAST LINCOLNSHIRE	Survey Type: MANUAL
13	NY-03-A-06 HORSEFAIR  BOROUGHBRIDGE Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of dwellings: 115 Survey date: FRIDAY 14/10/11	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE	Survey Type: MANUAL
14	SH-03-A-04 ST MICHAEL'S STREET  SHREWSBURY Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of dwellings: 108 Survey date: THURSDAY 11/06/09	TERRACED	SHROPSHIRE	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

15	WA-03-A-04 MAYPARK LANE	DETACHED		WATERFORD
	WATERFORD			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	280		
	Survey date: TUESDAY	24/06/14		Survey Type: MANUAL
16	WS-03-A-04 HILLS FARM LANE	MIXED HOUSES		WEST SUSSEX
	BROADBRIDGE HEATH			
	HORSHAM			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:	151		
	Survey date: THURSDAY	11/12/14		Survey Type: MANUAL

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	16	165	0.056	16	165	0.231	16	165	0.287
08:00 - 09:00	16	165	0.139	16	165	0.368	16	165	0.507
09:00 - 10:00	16	165	0.147	16	165	0.202	16	165	0.349
10:00 - 11:00	16	165	0.142	16	165	0.175	16	165	0.317
11:00 - 12:00	16	165	0.149	16	165	0.165	16	165	0.314
12:00 - 13:00	16	165	0.207	16	165	0.185	16	165	0.392
13:00 - 14:00	16	165	0.191	16	165	0.180	16	165	0.371
14:00 - 15:00	16	165	0.193	16	165	0.201	16	165	0.394
15:00 - 16:00	16	165	0.276	16	165	0.204	16	165	0.480
16:00 - 17:00	16	165	0.279	16	165	0.176	16	165	0.455
17:00 - 18:00	16	165	0.365	16	165	0.225	16	165	0.590
18:00 - 19:00	16	165	0.254	16	165	0.206	16	165	0.460
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.398			2.518			4.916

#### Parameter summary

Trip rate parameter range selected: 108 - 280 (units: )  
 Survey date range: 01/01/08 - 25/09/15  
 Number of weekdays (Monday-Friday): 16  
 Number of Saturdays: 0  
 Number of Sundays: 0  
 Surveys manually removed from selection: 1