ARDENT
CONSULTING ENGINEERS

TAYLOR WIMPEY LONDON

LAND AT TURPINS FARM, FRINTON-ON-SEA

HIGHWAYS NOTE

REPORT REF.
2101470-01

September 2021

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[redacted]

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REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
-	Draft for Review	SAF	DV	KM	17/09/2021
-	Submission	SAF	DV	KM	20/09/2021

Distribution

1. INTRODUCTION

1.1. Ardent Consulting Engineers (ACE) has been appointed by Taylor Wimpey London (TWL) to provide transport and infrastructure support on the reserved matters application and variation of condition application relating to residential development at Turpins Farm, Frinton-on-Sea.

1.2. Outline planning permission has been granted for development under application reference no. 16/00031/OUT. This is for: *The erection of up to 210 dwellings with access from Elm Tree Avenue, including green infrastructure, children's play areas, school drop off and parking facility and other related infrastructure.*

1.3. The planning application was supported by a Transport Assessment (TA) and TA Addendum (TAA), both prepared by WSP in 2016.

1.4. Condition 16 attached to the outline consent reads as follows:

No development shall commence within any phase of the development identified within the approved Layout and Phasing/Programme until such time as the following have been provided entirely at the applicant/developer's expense and in accordance with details which shall have first been submitted to and approved in writing by the Local Planning Authority:

a) A priority junction with right turn lane (with 2 pedestrian refuge islands) in Elm Tree Avenue to provide access to the proposal site. The priority junction shall be at 90 degrees to Elm Tree Avenue with minimum 6 metre kerbed radii with dropped kerbs/tactile paving crossing points, a minimum 5.5 metre access road carriageway with two 2 metre footways and a minimum 120 metre x 2.4 metre x 120 metre clear to ground visibility splay.

b) Provision of two new bus stops in Walton Road and Elm Tree Avenue.

c) *A minimum 2 metre wide footway along the proposal site's Walton Road and Elm Tree Avenue frontage with dropped kerbs/tactile paving crossing points.*

1.5. This Highways Note accompanies an application to vary the above highways planning condition under Section 73 of the Town & Country Planning Act (TCPA) 1990 as follows:

16(a) to change the form of junction specified in the Condition from a priority junction with right turn lane to a simple priority junction.

16(c) to re-word the Condition to specify footway provision and dropped kerb / tactile crossing points on Walton Road and Elm Tree Avenue in accordance with an amended drawing.

1.6. The Section 73 application is submitted to Tendring District Council (TDC) as local planning authority. Essex County Council (ECC) is the local highway authority.

1.7. The proposed variation of Condition has been subject to pre-application discussions with officers from ECC leading up to submission of the application.

1.8. Following this introduction, the remainder of this report is structured as follows:

- **Section 2** provides details of the proposed amended site access junction arrangement and considers its operational capacity;
- **Section 3** sets out details of proposed pedestrian connectivity and footway improvements on Walton Road and Elm Tree Avenue; and
- **Section 4** provides a summary and sets out conclusions.

2. SITE ACCESS

2.1. As above, Condition 16(a) of the outline consent identifies the approved site access junction arrangement as being a priority junction with right turn lane.

2.2. The TAA submitted in support of the outline planning application shows the proposed arrangement, with this replicated in **Figure 2.1**.

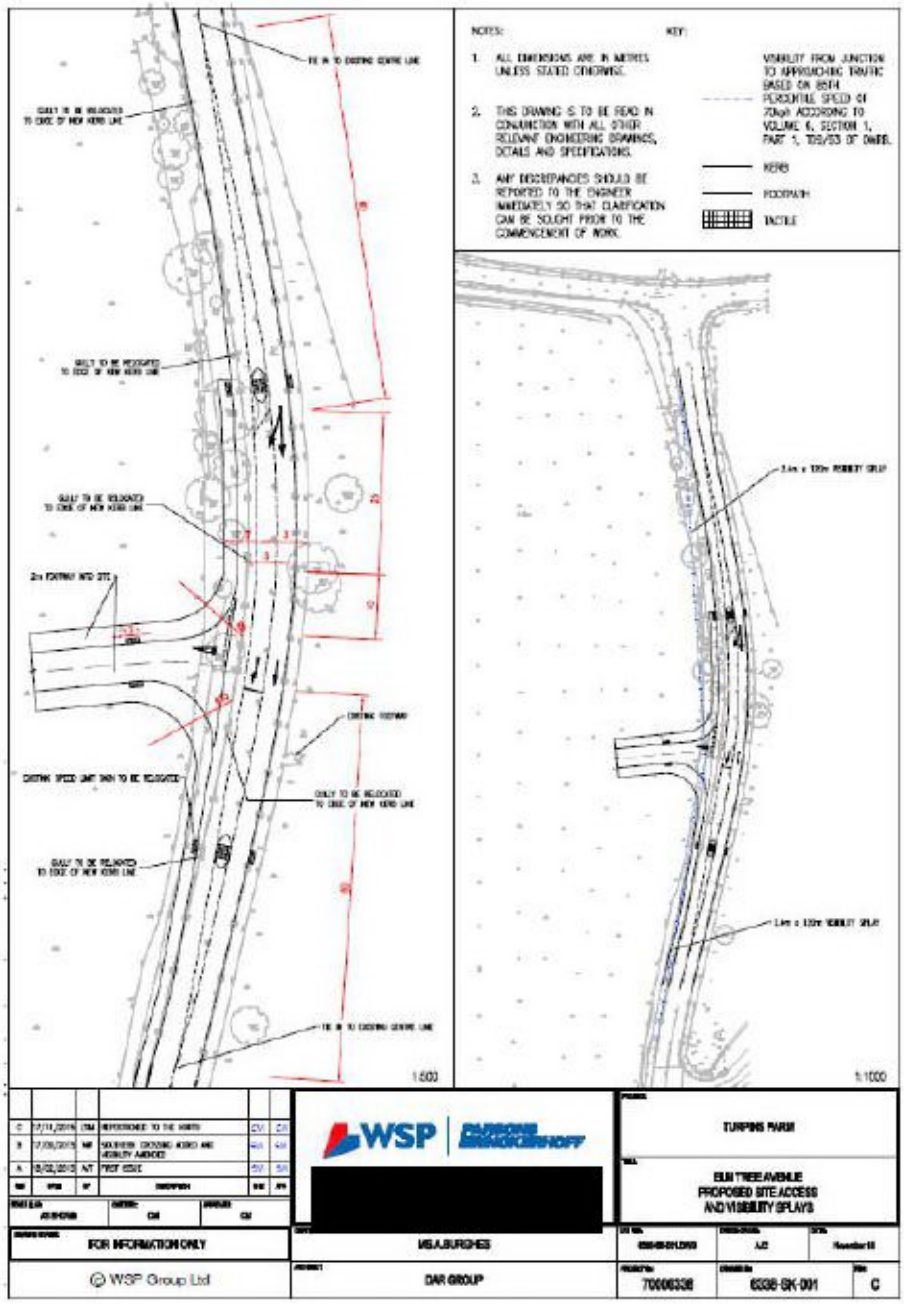


Figure 2.1: Consented Access Arrangement (Source: WSP TA)

2.3. The TA demonstrates that the priority junction with right turn lane would operate with significant levels of spare capacity with the predicted Development Case flows in both weekday peak periods in 2025 assessment scenario adopted. In fact, the 'worst case' Ratio of Flow to Capacity (RFC) value on any one arm was 0.22 on the site access arm in the am peak hour, which is significantly below the 0.85 value taken as indicating that the approach is operating at practical capacity, as well as having predicted queues of less than 1 vehicle during the peak hours (see **Figure 2.2**).

Table 2-2: 2025 modelling results: Elm Tree Avenue site access

JUNCTION ARM	AM PEAK HOUR (8:15 TO 9:15)		PM PEAK HOUR (16:00 TO 17:00)	
	RFC	Queue (vehicles)	RFC	Queue (vehicles)
Elm Tree Avenue	0.03	<1	0.08	<1
Site Access Road	0.22	<1	0.12	<1

Figure 2.2: Modelling Results (Source: WSP TAA)

2.4. Whilst the junction arrangement is suitable to serve the consented development, the access form has been reconsidered in the interests of adopting an approach which is scalable to the consented development, removes the effect of severance caused by widening the carriageway between new and existing residential areas, and creates a lower speed environment.

2.5. Following a review of the access strategy, it is proposed to change the form of access to a simple priority junction.

Design Geometry and Visibility

2.6. The proposed simple priority junction arrangement is shown on **drawing no. 2101470-15**.

2.7. The junction with Elm Tree Avenue is proposed to include 6 / 7m bellmouth radii to safely accommodate the turning movements of all vehicles associated with its residential use.

2.8. Condition 16 does specify the access road carriageway width, however, this will be 6m to an Essex Design Guide (EDG) Feeder Road standard for the initial section, with

this being suitable to serve in excess of 200 dwellings. This will then transition to a 5.5m wide Access Road within the site where fewer than 200 dwellings are served.

2.9. Junction visibility splays of 2.4m x 120m are achievable from the site access, which accord with Design Manual for Roads and Bridges (DMRB) standards for the existing 40mph speed limit of the road, albeit the speed limit changes to 30mph just 25m south of the proposed access.

2.10. The potential to extend the 30mph speed limit to the junction with Walton Road has been discussed with ECC, and we understand that this would be supported. A change in speed limit to 30mph would improve highway safety along the site frontage and on approach to Hamford Primary Academy, and would reduce any severance effect existing traffic speeds may have. This would be subject to a traffic regulation order (TRO) being approved; however, it is considered that the viability of the proposed site access is not contingent on the approval of the TRO.

2.11. On the basis of approval of a TRO for a 30mph speed limit, we have also shown junction visibility splays of 2.4m x 43m from the site access, which accord with Manual for Streets (MfS) standards for 30mph traffic speeds.

2.12. Discussions with ECC have raised a preference to also extend the 30mph speed limit along Walton Road from its current commencement point, this being 135m west of the Elm Tree Avenue junction, to the western edge of the development site. This would again be subject to a TRO to change the existing 40mph speed limit to 30mph, and TWL are content to contribute to funding this.

2.13. It is proposed to provide uncontrolled pedestrian crossing points either side of the site access, which also have suitable visibility in accordance with standards. As shown in the TAA, Elm Tree Avenue is lightly trafficked, with fewer than 500 two-way vehicle movements in the forecast 2025 development case in both the am and pm peak hour periods. As such there will be ample and frequent gaps in traffic for pedestrians to cross the carriageway, even at peak times.

Junction Capacity

2.14. The assessment work in the approved TAA was based on a development of 210 residential dwellings. The predicted weekday peak hour residential trips are shown in **Figure 2.3** for ease of reference.

Table 2-1: TRICS analysis – vehicle trip generation for AM (8am to 9am) and PM (5pm to 6pm) peak periods and daily (7am to 7pm)

ITEM	AM PEAK		PM PEAK		DAILY
	IN	OUT	IN	OUT	
Trip generation rate (Essex site only)	0.177	0.523	0.439	0.274	5.908
Vehicular trips from 250 dwellings	44	131	110	68	1477
Vehicular trips from 210 dwellings	37	110	92	58	1241
Reduction in trips	7	21	18	10	236

Figure 2.3: Residential Trip Rates and Forecast Trips (Source: WSP TAA)

2.15. We have undertaken assessment work based on the flow scenarios contained within the TAA, namely, the 2025 Development case scenario for the weekday am and pm peak hours.

2.16. Further to discussions with ECC, we have considered a highly robust case where the two-way flow on Elm Tree Avenue is doubled, with this undertaken purely as a theoretical exercise to demonstrate the significant level of spare capacity the simple priority junction arrangement has.

2.17. The operation of the proposed simple priority junction with the future year flows has been modelled using the *One-Hour* option, which considers a 90-minute period (the peak hour itself plus 15 minutes either side) with a synthesised flow profile.

2.18. The table below gives the maximum Ratio of Flow to Capacity (RFC) value predicted in association with each give way manoeuvre during each modelled period, together with the maximum average queue and the overall junction delay. As identified earlier, an RFC value of 0.85 is taken as indicating that the manoeuvre or approach is operating at practical capacity.

2.19. **Table 2.1** summarises the results of the PICADY capacity analysis of the proposed site access junction with the predicted 2025 Development case flows in both weekday peak periods, but with the two-way flow on Elm Tree Avenue doubled to present a highly robust case. The full program output is provided at **Appendix A**.

Table 2.1: Summary of results of PICADY capacity assessment of Proposed Site Access junction on Elm Tree Avenue – Development Case

Manoeuvre	2025 Weekday AM Peak Hour		2025 Weekday PM Peak Hour	
	RFC	Queue (vehs)	RFC	Queue (vehs)
B-AC	0.25	0.3	0.13	0.2
C-AB	0.05	0.1	0.12	0.3
Overall junction delay (min/veh)	1.36		1.02	

2.20. **Table 2.1** shows that the proposed site access junction would operate well within practical capacity even with the highly robust case flows adopted. There is negligible queuing and delay expected.

Summary

2.21. We have demonstrated above that the proposed change in the form of site access junction specified in Condition 16(a) from a priority junction with right turn lane to a simple priority junction is suitable both in terms of geometric design and capacity.

3. FOOTWAY IMPROVEMENTS

3.1. As above, Condition 16(c) of the outline consent identifies a requirement for a 2m wide footway along the site's Walton Road and Elm Tree Avenue frontages along with dropped kerbs / tactile paving crossing points.

Walton Road

3.2. There is an existing footway with street lighting on the north side of the carriageway along the length of the development frontage and this continues east to Walton-on-the-Naze and west to Kirby-le-Soken.

3.3. It is important to note that there is a significant hedgerow along the site frontage and there is a strong preference to retain this. The images at **Figures 3.1 and 3.2** show this.

Figure 3.1: Walton Road, looking west towards Kirby-le-Soken from centre of site frontage (Source: Google Streetview)

Figure 3.2: Walton Road, looking east towards Walton-on-the-Naze from centre of site frontage (Source: Google Streetview)

3.4. The development proposals for the reserved matters (RM) application therefore include a parallel footpath along Walton Road behind and set back from the hedgerow, with this also forming part of a walkable circuit around the site.

3.5. As shown on **drawing no. 2101470-15**, it is proposed to connect the parallel footpath to Walton Road at the eastern and western ends of the site.

3.6. The connection point at the eastern end of the site links to a proposed new section of footway around the west side of the Walton Road / Elm Tree Avenue junction, with this facilitating uncontrolled crossings to the footway on the north side of Walton Road and east side of Elm Tree Avenue.

3.7. The connection point at the western end of the site links to a proposed short section of footway that facilitates an uncontrolled crossing to the footway on the north side of Walton Road.

3.8. Therefore, all residential pedestrian desire lines to the external network of routes are catered for and the need for a footway along the south side of the carriageway is considered to be redundant.

Elm Tree Avenue

3.9. There is an existing footway with street lighting on the east side of the carriageway along the length of the development frontage.

3.10. In a similar vein to Walton Road, there are trees and vegetation along the site frontage and there is a strong preference to retain these features. The image at **Figure 3.3** shows this.

Figure 3.3: Elm Tree Avenue, looking south along the site frontage (Source: Google Streetview)

3.11. Again, the development proposals for the RM application therefore includes a parallel footpath along Elm Tree Avenue behind and set back from the trees and vegetation, with this also forming part of a walkable circuit around the site.

3.12. As shown on **drawing no. 2101470-15**, it is proposed to connect the parallel footpath to Elm Tree Avenue at the northern end of the site (as detailed above, at the junction with Walton Road), and at three additional locations as follows:

- a connection to a new short section of footway along Elm Tree Avenue circa 60m south of Walton Road to facilitate an uncontrolled crossing to the southbound bus stop on the east side of the road;

- connections to new, short sections of footway along Elm Tree Avenue either side of the vehicular site access junction, again to facilitate uncontrolled crossings; and

- a connection to new, short section of footway at the southern end of the site that extends to meet the existing footway, which links the development and new school parking area to the Hamford Primary Academy.

3.13. Therefore, again all residential pedestrian desire lines to the external network of routes are catered for and the need for a footway along west side of the carriageway is considered to be redundant.

Summary

3.14. We have shown that all key pedestrian desire lines are catered for within, through and around the development site, with appropriate connections made to new short sections of footway along both Walton Road and Elm Tree Avenue to facilitate crossings to the existing local network of routes. As such, it is proposed that Condition 16(c) be re-worded accordingly to specify footway provision and dropped kerb / tactile crossing points on Walton Road and Elm Tree Avenue in accordance with **drawing no. 2101470-15**.

4. SUMMARY AND CONCLUSIONS

4.1. Taylor Wimpey London has submitted a Section 73 application to vary Condition 16 attached to Outline planning consent ref. no. 16/00031/OUT for: *The erection of up to 210 dwellings with access from Elm Tree Avenue, including green infrastructure, children's play areas, school drop off and parking facility and other related infrastructure.*

Condition 16(a)

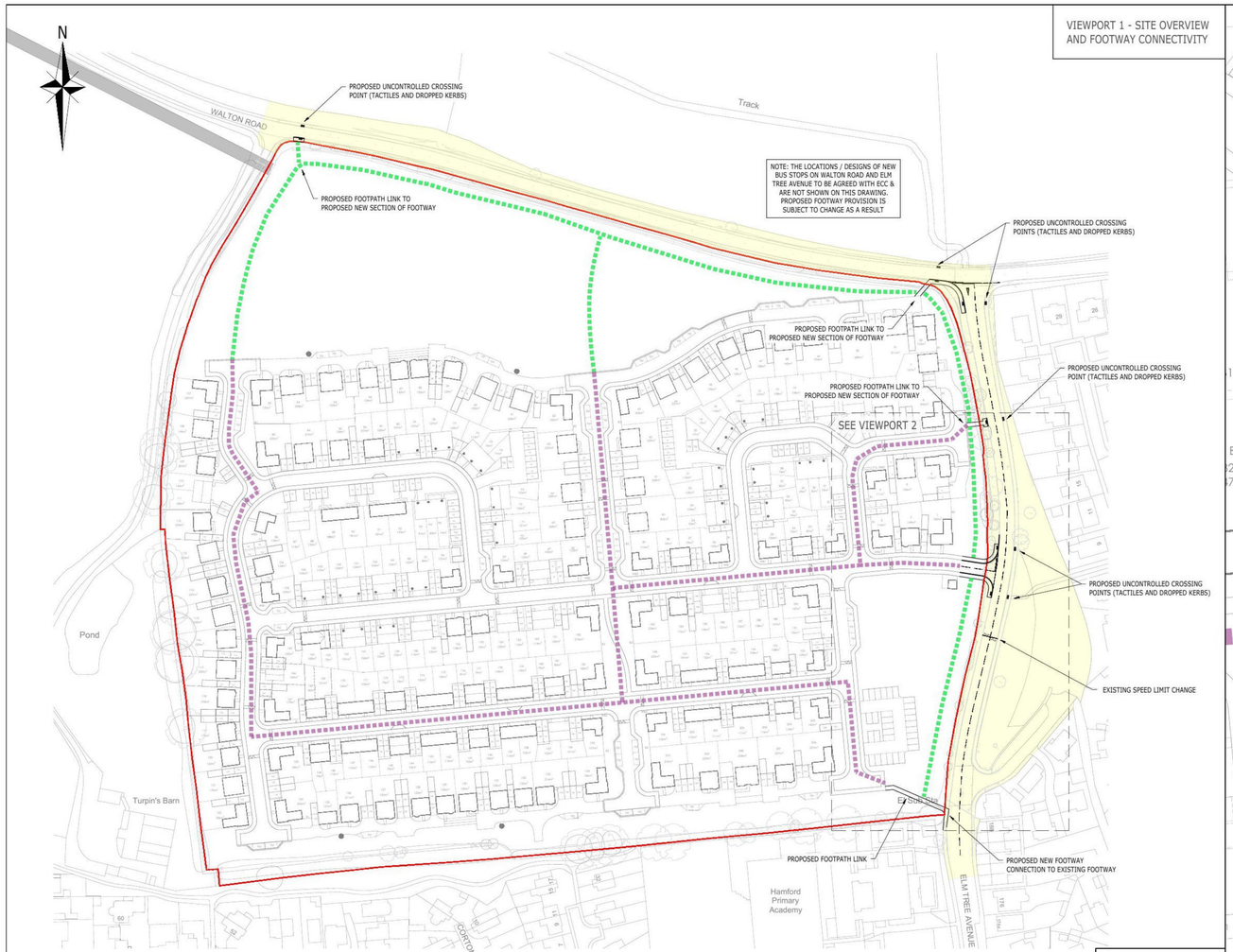
4.2. It has been demonstrated that the proposed change in the form of site access junction specified in the condition from a priority junction with right turn lane to a simple priority junction, is suitable both in terms of geometric design and capacity. It is proposed that the condition is re-worded accordingly.

Condition 16(c)

4.3. It has been shown that all key pedestrian desire lines are catered for within, through and around the development site, with appropriate connections made to new short sections of footway along both Walton Road and Elm Tree Avenue to facilitate crossings to the existing local network of routes. As such, it is proposed that Condition 16(c) is re-worded to specify footway provision and dropped kerb / tactile crossing points in accordance with **drawing no. 2101470-15**.

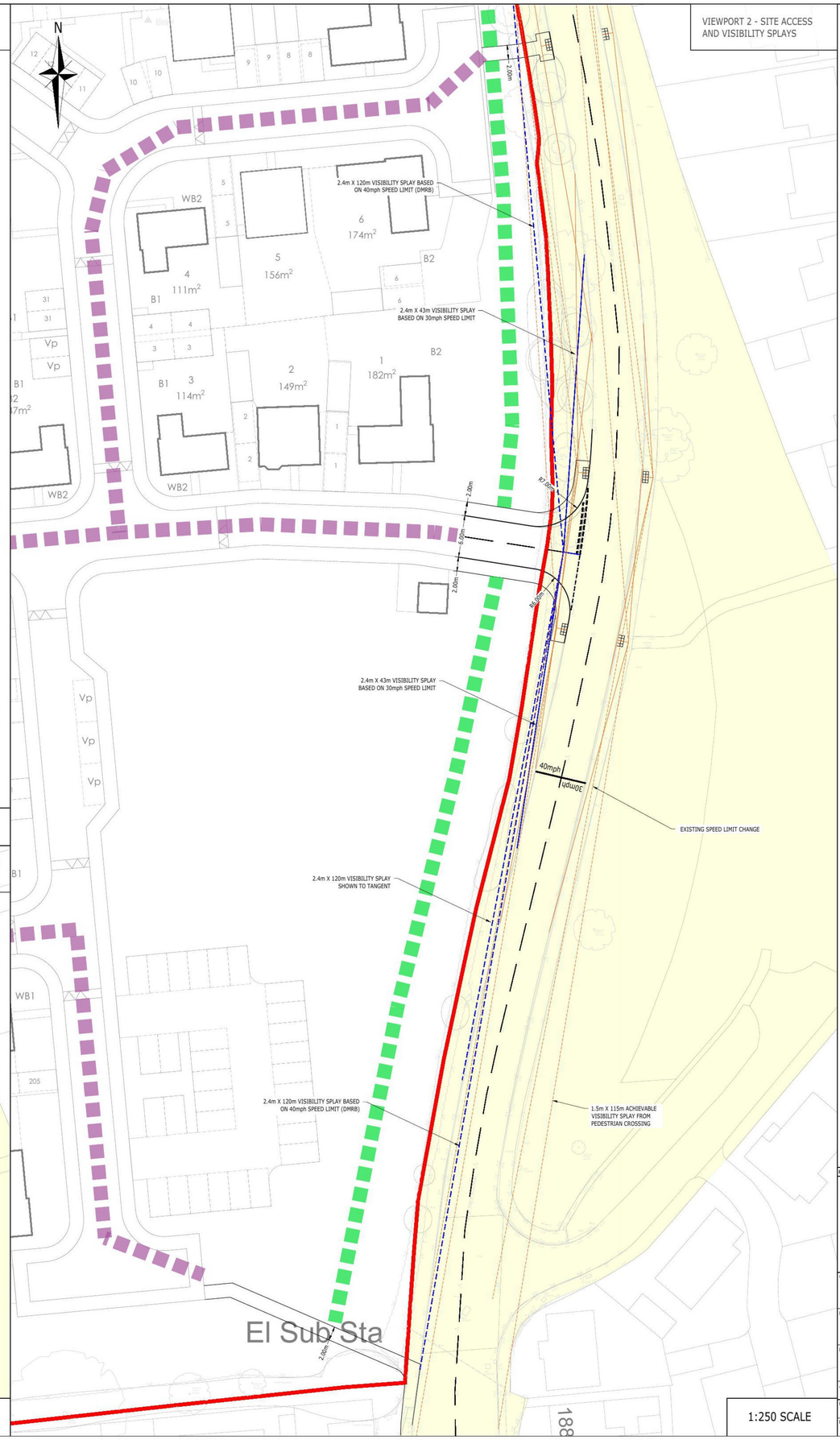
Drawings

VIEWPORT 1 - SITE OVERVIEW AND FOOTWAY CONNECTIVITY



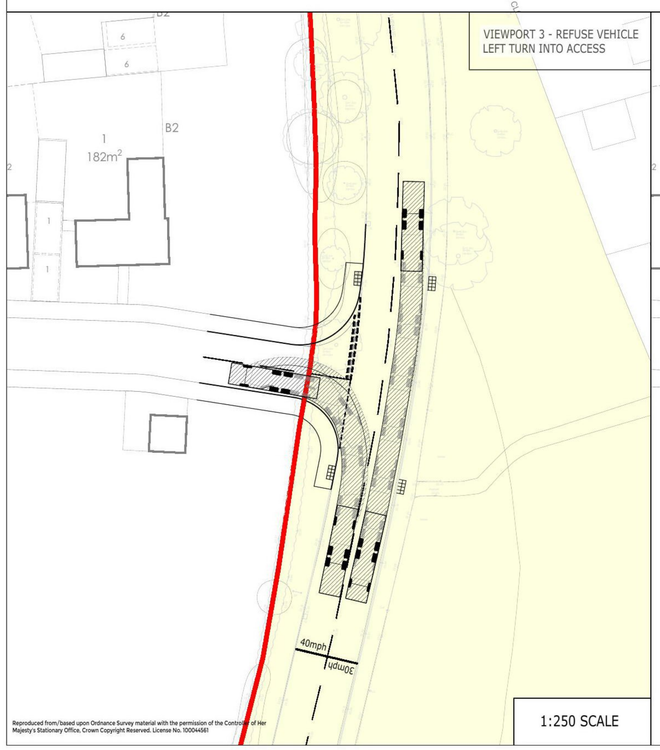
1:1000 SCALE

VIEWPORT 2 - SITE ACCESS AND VISIBILITY SPLAYS



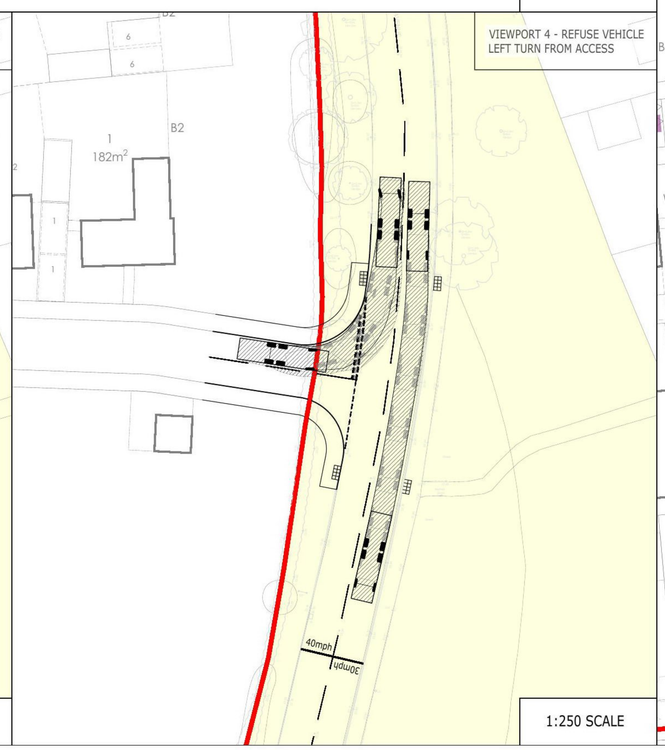
1:250 SCALE

VIEWPORT 3 - REFUSE VEHICLE LEFT TURN INTO ACCESS



1:250 SCALE

VIEWPORT 4 - REFUSE VEHICLE LEFT TURN FROM ACCESS

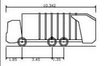


1:250 SCALE

NOTES:

DESIGN SUBJECT TO SPEED LIMIT CHANGE, STAGE 1 ROAD SAFETY AUDIT AND DETAIL DESIGN.

VEHICLE SPECIFICATION:



Essex Large Refuse Vehicle (3 axle)

Overall Length	10.342m
Overall Width	2.414m
Overall Body Height	3.454m
Min Body Ground Clearance	0.366m
Track Width	2.450m
Lock to lock time	4.60s
Kerb to Kerb Turning Radius	9.500m

KEY:

- SITE BOUNDARY
- EXTENT OF HIGHWAY BOUNDARY TRANSCRIBED FROM ECC RECORDS
- PROPOSED KEY FOOTPATH CONNECTIONS
- PROPOSED KEY FOOTWAY CONNECTIONS THROUGH THE SITE (DESIRE LINES)
- 1.5m x 43m VISIBILITY SPLAY ON THE BASIS OF 30MPH SPEED LIMIT (PEDESTRIAN CROSSING)
- 1.5m x 120m VISIBILITY SPLAY ON THE BASIS OF 40MPH SPEED LIMIT (PEDESTRIAN CROSSING)
- 2.4m x 43m JUNCTION VISIBILITY SPLAY ON THE BASIS OF 30MPH SPEED LIMIT (MfS)
- 2.4m x 120m JUNCTION VISIBILITY SPLAY ON THE BASIS OF 40MPH SPEED LIMIT (DMRB)

DRAFT

Rev	Description	Drn	Chk	App	Date

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Client: TAYLOR WIMPEY LONDON

Project Title: TURPINS FARM, FRINTON

Drawing Title: PROPOSED ACCESS ARRANGEMENTS

A0 Scale	Date	Designed by
AS SHOWN	17.09.2021	AA
Drawn by	**Checked by**	**Approved by**
DV	DV	SAF

Drawing Number: 2101470-015 Rev -

Appendix A
ARCADY Results

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: Site Access Simple Priority T Junction Aug 2021 Uplift.j9
Path: Y:\ARDENT PROJECTS\2101470 - Turpins Farm Frinton\Transport\PICADY
Report generation date: 26/08/2021 18:43:08

Summary of junction performance

	AM Dev					PM Dev				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2021									
Stream B-AC	D1	0.3	9.93	0.25	A	D2	0.2	8.73	0.13	A
Stream C-AB		0.1	4.76	0.05	A		0.3	5.05	0.12	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	20/05/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ARDENTCE\btong
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2021	AM Dev	ONE HOUR	00:00	01:30	15	✓
D2	2021	PM Dev	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2021, AM Dev

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	untitled		Major
B	Site Access		Minor
C	Elm Tree Ave		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.40			150.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	36	185

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	581	0.099	0.251	0.158	0.359
B-C	740	0.107	0.269	-	-
C-B	661	0.240	0.240	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2021	AM Dev	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	413	100.000
B		ONE HOUR	✓	110	100.000
C		ONE HOUR	✓	399	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	19	394
	B	55	0	55
	C	380	19	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.25	9.93	0.3	A	101	151
C-AB	0.05	4.76	0.1	A	31	47
C-A					335	502
A-B					17	26
A-C					362	542

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83	21	538	0.154	82	0.0	0.2	7.899	A
C-AB	23	6	779	0.029	22	0.0	0.0	4.758	A
C-A	278	69			278				
A-B	14	4			14				
A-C	297	74			297				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	99	25	515	0.192	99	0.2	0.2	8.636	A
C-AB	30	7	805	0.037	30	0.0	0.1	4.644	A
C-A	329	82			329				
A-B	17	4			17				
A-C	354	89			354				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	484	0.250	121	0.2	0.3	9.909	A
C-AB	42	10	842	0.050	42	0.1	0.1	4.499	A
C-A	398	99			398				
A-B	21	5			21				
A-C	434	108			434				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	121	30	484	0.250	121	0.3	0.3	9.929	A
C-AB	42	10	842	0.050	42	0.1	0.1	4.502	A
C-A	398	99			398				
A-B	21	5			21				
A-C	434	108			434				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	99	25	515	0.192	99	0.3	0.2	8.661	A
C-AB	30	7	805	0.037	30	0.1	0.1	4.646	A
C-A	329	82			329				
A-B	17	4			17				
A-C	354	89			354				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83	21	538	0.154	83	0.2	0.2	7.921	A
C-AB	23	6	779	0.029	23	0.1	0.0	4.761	A
C-A	278	69			278				
A-B	14	4			14				
A-C	297	74			297				

2021, PM Dev

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2021	PM Dev	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	434	100.000
B		ONE HOUR	✓	58	100.000
C		ONE HOUR	✓	410	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	46	388
	B	29	0	29
	C	364	46	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.13	8.73	0.2	A	53	80
C-AB	0.12	5.05	0.3	A	75	112
C-A					302	452
A-B					42	63
A-C					356	534

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	533	0.082	43	0.0	0.1	7.345	A
C-AB	54	13	768	0.070	53	0.0	0.1	5.038	A
C-A	255	64			255				
A-B	35	9			35				
A-C	292	73			292				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	13	509	0.102	52	0.1	0.1	7.869	A
C-AB	71	18	791	0.089	71	0.1	0.2	4.999	A
C-A	298	74			298				
A-B	41	10			41				
A-C	349	87			349				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	64	16	476	0.134	64	0.1	0.2	8.719	A
C-AB	99	25	825	0.120	99	0.2	0.3	4.958	A
C-A	353	88			353				
A-B	51	13			51				
A-C	427	107			427				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	64	16	476	0.134	64	0.2	0.2	8.730	A
C-AB	99	25	826	0.120	99	0.3	0.3	4.963	A
C-A	352	88			352				
A-B	51	13			51				
A-C	427	107			427				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	13	509	0.102	52	0.2	0.1	7.880	A
C-AB	71	18	792	0.090	71	0.3	0.2	5.004	A
C-A	298	74			298				
A-B	41	10			41				
A-C	349	87			349				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	44	11	533	0.082	44	0.1	0.1	7.362	A
C-AB	54	14	768	0.070	54	0.2	0.1	5.050	A
C-A	255	64			255				
A-B	35	9			35				
A-C	292	73			292				