

Appendix E

HIGHWAYS (RESPONSE TO QUESTION 24)



Project	St Helens Borough Local Plan 2020 – 2035 Examination
Title	Land at Florida Farm, Haydock (2HA) - Matters, Issues and Questions for the Examination and Hearing Sessions – Question 24
Revision	1st Issue v2

	Author
Name	Mike Smith
Date	20.05.2021

1.0 Introduction

1.1 This technical note has been prepared on behalf of Barratt Homes to respond to the Matters, Issues, and Questions for Examination and Hearing Sessions, Matter 4, Issue 3, **Question 24** in relation to the Land at Florida Farm (2HA) Site.

2.0 **Q24 - Would the adverse impacts of developing Sites 4EA, 5EA and 6EA and Site 2HA (Green Belt impacts, landscape impacts, highway safety, flood risk, agricultural land, air quality) outweigh the benefits?**

2.1 From a highway perspective, it is our view that the impacts of developing the site for residential development would not outweigh the significant benefits.

2.2 The National Planning Policy Framework (NPPF) clearly sets out that the planning system should aim to create sustainable and healthy communities. The NPPF in paragraph 108 sets out a number of key tests for considering development, namely, that plans for development should ensure that:

- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
- Safe and suitable access to the site can be achieved for all users; and
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

2.3 Furthermore, the NPPF at paragraph 109 states that:

- Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

2.4 Taking each of the three factors above in turn, the following sets out why we consider that the development of Site 2HA will not have an adverse impact that would preclude its development for residential based on the provisions of the NPPF.

Promoting Sustainable Transport

Site Location

- 2.5 The Florida Farm South site (Site 2HA) is located within the northern part of the existing Haydock urban area and is surrounded by existing residential settlements to the south, west, and east and the East Lancashire Road (A580) to the north. The development of the site for residential uses is therefore in keeping with the existing residential nature of the area.
- 2.6 Although the East Lancashire Road (A580) forms a boundary to the north, the recently approved industrial development of Florida Farm North (P/2016/0608/HYBR), located on land to the immediate north of the A580, together with the existing Haydock Lane Industrial Estate, means that the urban area of Haydock is already expanding further to the north of the site. The site is therefore not an extension of the Haydock urban area, but rather fills a gap in the already expanded urban area. Being adjacent to the A580, the site is well connected to the local and strategic road network with the A580 connecting to the M6 to the east and the M57 to the west, thereby providing good transport linkages to Manchester and Liverpool, and the wider area, as well as directly to the immediate local area via connections with Vicarage Road and Slag Lane.

Sustainable Accessibility

- 2.7 Haydock itself is already a sustainable settlement with an extensive range of everyday amenities and facilities with good access to cycle and public transport facilities. Site 2HA benefits from its location close to these facilities, many of which are within comfortable walking distance of the site.
- 2.8 The Transport Impact Assessment Report (TRA003) prepared for the St Helens Local Plan by WSP together with the accompanying St Helens Sustainable Transport Impact Assessment Report (TRA004), both set out the sustainable transport credentials of the emerging local plan allocation sites, including Site 2HA.
- 2.9 In terms of Site 2HA (referenced as Site HA3 in the WSP reports), both reports indicate that the site has a high degree of sustainable accessibility. This is summarised in the 'Site Accessibility Matrix' contained within the reports, which considered the relative proximity of each proposed local plan allocation site against 10 key accessibility indicators.
- 2.10 The 'Site Accessibility Matrix' for Site 2HA contained within WSP's reports has been replicated in the table below.

Table 24.1 – Site 2HE 'Accessibility Matrix'

Site No	Rail Station		Bus Routes	Cycle Routes		Major Food Store	School		Health Care	Town or local Centre
	On Foot	By Cycle		Existing	Committed		Primary	Secondary		
HA 3	Lack	Good	Good	Excellent	Lack	Excellent	Good	Excellent	Excellent	Good

- 2.11 Out of the 10 indicators scored by WSP, the table shows that the site has 'Excellent' accessibility in four indicators and 'Good' in four others. The site only 'lacks'

accessibility in two indicators (accessibility to a rail station on foot; and to cycle routes committed as part of the Council's STEP programme). Of the 'lack' of accessibility to the Council's STEP cycle programme, this is likely to be because the site already has an 'Excellent' accessibility to existing cycle routes.

2.12 It should be emphasised that Site 2HA did not score 'limited' in relation to any of the accessibility indicators. Indeed, of the 16 housing sites assessed within the WSP TIAs, Site 2HA was one of only two sites which did not receive a 'limited' scoring against any of the key accessibility indicators.

2.13 In summary, Site 2HA has the following sustainability credentials:

Walking

2.14 It is generally accepted that walking is the most important mode of travel at a local level and that 2km is a distance that people are prepared to walk to access an amenity/facility. Reference to the 2km walk distance was made in the now superseded Planning Policy Guidance (PPG) Note 13 which advised that '*walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2km*'.

2.15 The Chartered Institution of Highways and Transportation's (CIHT) document 'Guidelines for Providing Journeys on Foot' states in paragraph 1.12 that 'walking accounts for over a quarter of all journeys and for four fifths of journeys of less than one mile.' The document also identifies a walking distance of 2km as a maximum acceptable distance from a residential development to many important everyday facilities and amenities. The following facilities and amenities are accessible from the site on foot:

- There are four primary schools within a 2km, 24-minute walk of the site, the closest of which is approximately 850m from the centre of the site, equating to a walk time of approximately 10 minutes (assuming a walking speed of 1.3 m/s).
- There is a secondary school within walking distance of the site, located approximately 1km from the centre of the site, equating to a walking time of around 12 minutes.
- There are three nursery and childcare centres within an acceptable 2km walking distance of the site. The closest is located approximately 1.1km from the site, equating to a walk time of around 13 minutes.
- Haydock Medical Centre is located approximately 2km from the site, a GP surgery is located 950m from the site (equating to a walk time of approximately 11 minutes), and a dentist surgery is located approximately 800m from the site, equating to a walk time of approximately 10 minutes.
- There are three post offices located within a 2km walk of the site, with the closest being located approximately 650m from the site, equating to a walk time of around 8 minutes.
- There are 6 food retailers which lie within 2km of the site. The closest of these is

Tesco Express on Vicarage Road which is approximately 500m from the centre of the site and therefore within a short walk for the majority of the site's future residents. Larger supermarkets closest to the site include an Aldi, west of the site on Branch Way, which is located around 1.7km from the site, and a Tesco Superstore on Clipsey Lane which is located approximately 2.0km from the centre of the site.

- The nearest sports and fitness facility, Haydock Community Leisure Centre is located approximately 800m from the site, equating to a walk time of approximately 10 minutes.
- There are numerous employment opportunities located relatively close to the site within Haydock and along the A580. The proposed employment sites EA2 (Land at Florida Farm North), EA7 (Land west of Millfield Lane), and EA6 (Land to the west of Haydock Industrial Estate) are all located within a 2km (24 minute) walk of the site.
- The site is located approximately 2.6km from Garswood railway station, equating to a walk time of approximately 34 minutes.

Cycling

- There is a shared use cycle / footway adjacent to the A580 (separated by a grass verge) along the full stretch of the northern boundary of the site. This extends for a significant distance in both directions and provides a connection to the employment areas to the north-west of the site.
- There are additional primary and secondary schools located within Newton-Le-Willows and Ashton-in-Makerfield that are within an acceptable cycling distance of the site and also a further educational college. It is generally accepted that some journeys of up to 5km can be expected to be made by cycle. 90% of adolescents have identified 2.5 miles (4km) as an acceptable distance for cycle journeys to school.
- Journey times to facilities in Haydock are significantly reduced to within 0-5 minutes cycle ride.
- Garswood railway station is within a 5-10-minute cycling distance.
- St Helens town centre can be reached within a 30-minute cycle ride from the site.

Bus and Rail Accessibility:

- The site is located within a short walk (within a 6 minute walk) of a number of bus stops on Vicarage Road / Clipsey Lane and West End Road, which are served by up to 11 bus services in the AM peak hour and up to 10 services in the PM peak hour periods. The No. 156 and 320 services can be accessed from the stops on Vicarage Road, at a frequency of 6 services during the AM peak hour and 5 services during the PM peak hour. The remaining services (No. 20, 722, 742, 774 and C40) can be accessed from stops on West End Road, with 5 services during both the AM and PM peak hours.

- The services, which all run through Haydock, are provided at regular intervals throughout the day and provide access to St Helens, Wigan, Hindley Green, and Ashton-in-Makerfield.
- St Helens and Wigan both have national rail stations which can be easily reached via public transport from the site. Bus services to the north provide access to Garswood rail station from which local services can be caught to local destinations such as Wigan, Blackpool, and Liverpool.

Sustainability – Summary:

- 2.16 In conclusion, the site is located within walking distance of a full range of local facilities necessary to cater for day to day needs, without relying on trips by car. Much of Haydock village, which contains a wide variety of local services is within walking distance of the site, as are various existing and proposed employment opportunities. There is an established cycle route running along the northern boundary of the site and the site is located within walking distance of bus stops which offer regular bus services operating to a variety of local destinations.
- 2.17 The sustainability of the site is supported by the Council's own sustainability appraisal, which identified that of ten key indicators used to appraise accessibility and sustainability, eight were classified as either 'Good' or 'Excellent', designating the site as one of the highest performing sites in this regard.
- 2.18 Nevertheless, we understand that St Helens Borough Council has recently published an initial draft schedule of modifications to the Local Plan (May 2021). Changes relating to the requirements of Site 2HA include:
- *Measures to secure suitable access to the site by walking, cycling and public transport such as: (a) the provision of segregated walking and cycling routes which must run through the site and link to nearby highways at Haydock Lane (via Slag Lane), Vicarage Road, Brookside Way and the A580 East Lancashire Road (to the north east and north west of the site); and (b) the upgrading of existing bus stops on Vicarage Road and Clipsley Lane close to the site so that they become fully accessible (including for disabled persons)*
- 2.19 As is set out in the section below (Safe and Suitable Access), access into the site is proposed from Vicarage Rd, the A580 East Lancashire Road, with an emergency access onto Slag lane. These access arrangements provide every opportunity to provide segregated walking and cycling routes through the site to these access points. It would not however be possible to provide a link through to Brookside Way given the current land ownership.
- 2.20 In terms of the second draft requirement of upgrading existing bus stops on Vicarage Road and Clipsley Road close to the site, the precise nature of this will be negotiated with the Council as part of any planning application.
- 2.21 The above two draft requirements will enhance the already excellent accessibility of Site 2HA to sustainable modes of transport thereby providing every opportunity to minimise motorised vehicular trips.

- 2.22 ***Overall, we conclude that the above demonstrates that the site is already in a sustainable location for residential development in terms of paragraph 108 of the NPPF and that appropriate opportunities can be taken up to promote sustainable transport modes.***

Safe and Suitable Access

- 2.23 Given the scale of the potential development on Site 2HA, two access/egress junctions and an Emergency Access are proposed. The primary access junction, which will be constructed for the initial phase of development, will be provided from Vicarage Road. The three points of access proposed are as follows:

- A new priority T-junction with a ghost island right turn facility from Vicarage Road. The access proposals are shown in **Drawing VN40349-200**.
- A left-in left-out vehicular access onto the A580 at the same location as the existing farm access of Slag Lane. Given the high-speed nature of the A580, long deceleration and acceleration lanes are proposed. The access layout is shown in **Drawing VN40349-202**.
- An Emergency Access, with pedestrian and cycle access onto Slag Lane to the east of the site. This is shown in **Drawing VN40349-D203**.

- 2.24 The access/egress junctions shown in the drawings meet relevant standards and can be provided within the site land and adopted highway boundary. The visibility splays that can be provided at the junctions are well in excess of those required (i.e. 2.4m x 43m at the Vicarage Road site access junction and 4.5m x 215m at the left-in left-out junction onto the A580).

- 2.25 Furthermore, a review of the on-line website 'Crashmap' shows that there have been no recorded Personal Injury collisions in the immediate vicinity of the two proposed site access junctions over the last 5 years.

- 2.26 We also understand that the proposed site access junctions shown in the attached drawings have been developed and discussed with the LHA and have been accepted as being suitable to access/egress the development.

- 2.27 ***It is therefore evident that the proposals meet the second criteria of paragraph 108 of the NPPF in that 'safe and suitable access to the site can be achieved for all users'.***

Impact and Mitigation (Traffic Generation and Impacts)

- 2.28 The Transport Impact Assessment Report (TIA) (TRA003) prepared for the St Helens Local Plan by WSP includes junction capacity assessments of a number of key junctions on the local highway network to determine what impact the proposed Local Plan developments and the associated traffic generations would have on the operation of these key junctions.

- 2.29 The TIA concluded that *'the impact [of the traffic from the Local Plan Sites] can be substantially mitigated by a combination of committed and emerging future highway infrastructure projects, modest changes in travel behaviour and lower cost improvements across key junctions'*.
- 2.30 The TIA does not disaggregate the analysis down into the impact of individual proposed allocation sites. However, to provide a high-level view of the potential impact of Site 2HA on the local highway network, we have undertaken a site traffic generation and distribution exercise. For the purpose of this note, a total of 600 dwellings on the site has been assumed.
- 2.31 Using the TRICS database, we have determined that 600 residential units on the site has the potential to generate approximately 300 vehicular trips (two-way) during each of the weekday AM and PM peak-hour periods, and 2585 trips (two-way) between 07:00-19:00 hours. This equates to on average 5 vehicle movements per minute during the peak hours and just over 3.5 vehicle movements per minute throughout the daytime 12-hour period. However, we would note that the trip rates used to inform this estimate may include trip making that for a site in an excellent sustainable location such as this, could otherwise be made by non-car modes and as such these trip rates are likely to be a robust assumption. These trip rates are also for the highest development generating peak and may not necessarily coincide with the highway network peak, therefore adding a further element of robustness.
- 2.32 These trips would be split between the two proposed site access junctions and then further dissipated around the highway network depending on the resulting destination. **Table 24.2** sets out the level of traffic that has been estimated to be generated by 600 dwellings on the Site 2HA development and how these trips would then assign through key junctions on the local highway network. Further details of the determination of the trip generation and traffic distribution can be found in **Appendix A**.

Table 24.2 – Site 2HE 'Traffic Generation'

Jct	Estimated Traffic Flows through Junctions			
	600 dwellings			
	AM Peak		PM Peak	
	Vehs/Hr	Vehs/min	Vehs/Hr	Vehs/min
J1 – Vicarage Rd Site Access	195	Approx 3	209	Approx. 3.5
J2 – A58/Vicarage Rd	183	Approx. 3	184	Approx. 3
J3 – A580/A58	178	Approx. 3	148	Approx. 2.5
J4 – A58/Millfield Ln	65	Just over 1	63	Just over 1
J5 – A58/M6 (J24)	58	<1	58	<1
J6 – A580/Haydock Ln	83	Approx. 1 every 43 sec	94	Approx. 1 every 38 secs
J7 – A580/M6 (J23)	58	<1	58	<1
J8 – Haydock L/Clipsley Ln	41	<1	43	<1
J9 – Penny Ln/Lodge Ln (A49)	5	<1	5	<1
J10 – Millfield Ln/A580	47	<1	29	<1
J11 – A580 Site Access	105	Approx. 1 every 34 sec	92	Approx. 1 every 39 secs
J12 - Park Rd/Parr St/Ashcroft St	87	Approx. 1 every 41 sec	87	Approx. 1 every 41 secs
J13 – Linkway E / Linkway W / St Helens Linkway Rbout	58	<1	59	<1

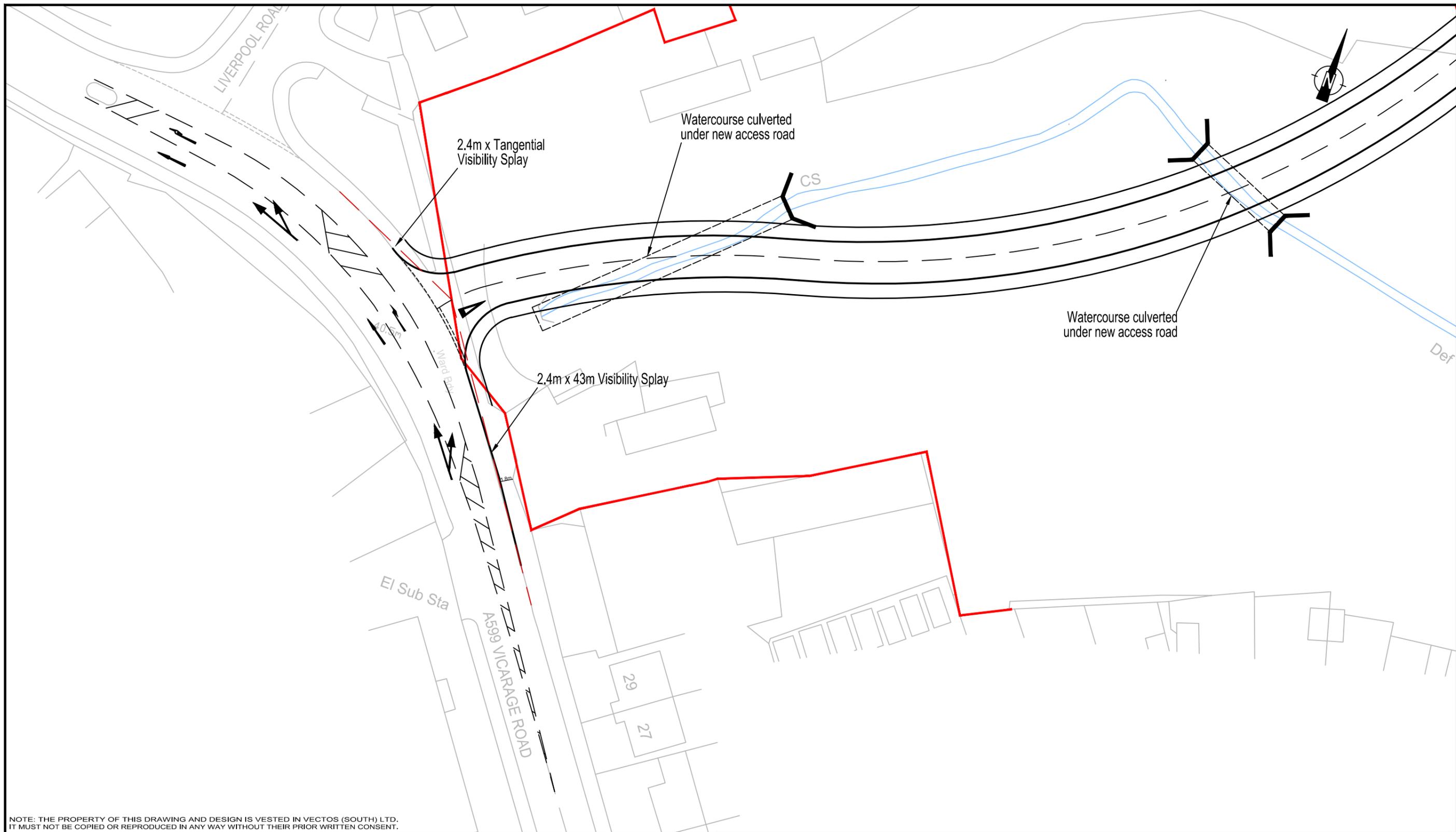
- 2.33 **Table 24.2** demonstrates that the level of traffic estimated to be generated by 600 dwellings at a specific junction level, is expected to be relatively low when dissipated around the network. This includes at junction 23 and 24 of the M6 where less than one new vehicle movement per minute would travel through either motorway junction from this site during the peak hour.
- 2.34 Along the A580 adjacent to the site, when all 600 units have been built out, a total of 104 additional vehicle movements (2-way) have been forecast to travel along this section of the A580 during the AM peak period and 66 additional movements during the PM peak. With reference to the permanent DfT count site that is located along this section of the A580, the increase in traffic due to 600 units on Site 2HA would be just 4.6% and 3.1% during the AM and PM peak periods respectively. This is based on 2019 count data and therefore the percentage impact of the site will be considerably less in the future.
- 2.35 Of the seven junctions where it has been estimated that more than one vehicle movement per minute is generated by the Site 2HA development during peak hours, two of these are the proposed site access junctions. These will be designed to accommodate the level of traffic estimated to be generated by the proposed development and would be detailed in any subsequent Transport Assessment, undertaken as part of any future application.
- 2.36 A further junction, the A58/Millfield Ln junction, traffic generated by Site 2HA is forecast to be only just above one vehicle movement per minute.
- 2.37 Of the four other junctions where development generated traffic levels of over one additional vehicle movement per minute during peak hours have been estimated, the WSP TIA analysis referred to the following, where:
- Do Minimum - the likely future network operation incorporating sites with extant planning permissions, SHLAA sites, and planned infrastructure schemes on the local road network.
 - Do Something 1 (DS1) includes all do minimum developments and planned infrastructure schemes, and in addition also includes the Local Plan preferred site allocations. No further highway improvements have been assumed under DS1.
- 2.38 **A58/Vicarage Road** – This junction has not been assessed in the WSP TIA. However, for the 2033 DS1 scenario, the TIA states that the *'forecast junction operation along the A58 corridor is generally similar to that for the Do Minimum scenario at the majority of junctions, with the highest v/c values increasing by up to around 5 percentage points'*.
- 2.39 **A580/A58** – The WSP assessment of this junction pre-dates the current layout. However, this junction has been subject to a significant improvement scheme (2020).
- 2.40 **A580/Haydock Ln** – This scheme has again been the subject to a significant improvement scheme recently in 2019.

- 2.41 **Park Rd/Parr St/Ashcroft St**, - The WSP TIA identified that the forecast junction operation in the 2033 DS1 scenario would be comparable to that identified in the Do-Minimum scenario.
- 2.42 In addition to junction capacity, a review of the on-line Crashmap website has been undertaken to determine the safety record of the four junctions where the development of Site 2HA has been forecast to generate more than one vehicle movement per minute through the junction during peak periods. This shows that there has only been one recorded 'slight' personal injury accident (PIA) in the immediate vicinity of the A58/Vicarage Road roundabout over the last 5 years, 2 'slight' injury and 3 'serious' PIAs in the immediate vicinity of the A580/A548 junction, and one 'slight' PIA in the immediate vicinity of the A580/Haydock Lane junction.
- 2.43 The Crashmap website also showed that there has been no recorded PIAs in the immediate vicinity of the Park Rd/Parr St/Ashcroft St junction over the last five years.
- 2.44 Whilst the occurrence of any collision is regrettable, this level of accident occurrence is not considered to be uncommon or significant for the nature of the road network.
- 2.45 Given the level of traffic expected to be generated by Site 2HA and the results of the assessments contained within the WSP TIA, ***it is considered that the proposals would meet the third criteria of paragraph 108 of the NPPF in that***
- ***Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.***

Conclusion

- 2.46 ***Based on the above, we do not consider that there are any adverse (highway and transport) impacts of developing Site 2HA which would outweigh the benefits.***

Site Access Drawings



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REV.	DETAILS	DRAWN	CHECKED	DATE

Notes:
1.
2.

KEY
 SITE BOUNDARY

Florida Farm, Haydock

Potential Access on Vicarage Road

DRAWN: DB	CHECKED: DL	DATE: Nov 2015	SCALES: 1:500 at A3
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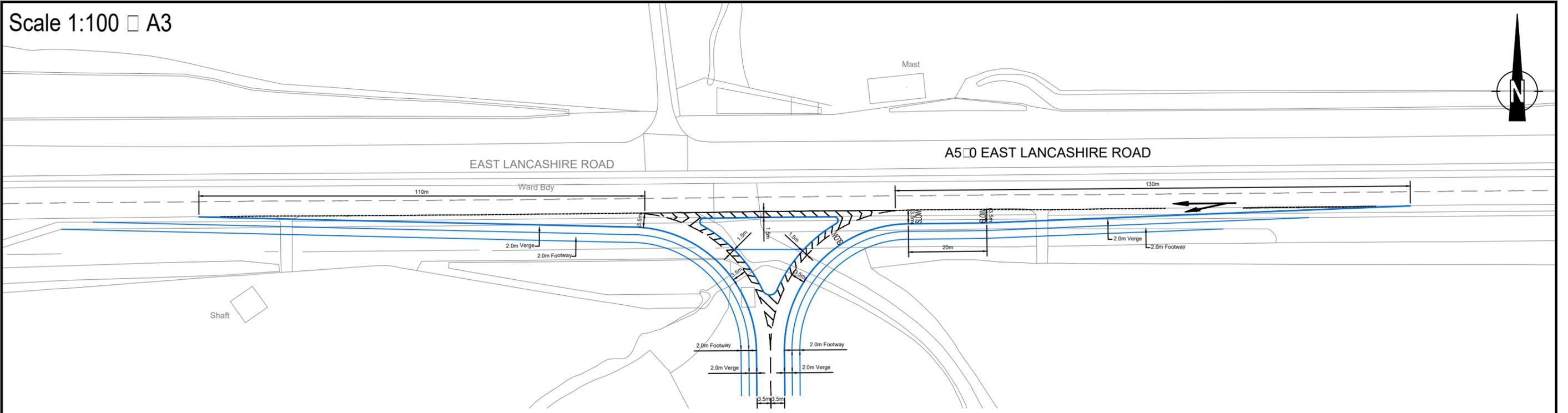
Barratt Homes



Oxford Place, 61 Oxford Street, Manchester M1 6EQ
t: 0161 228 1008 e: manchester@vectos.co.uk

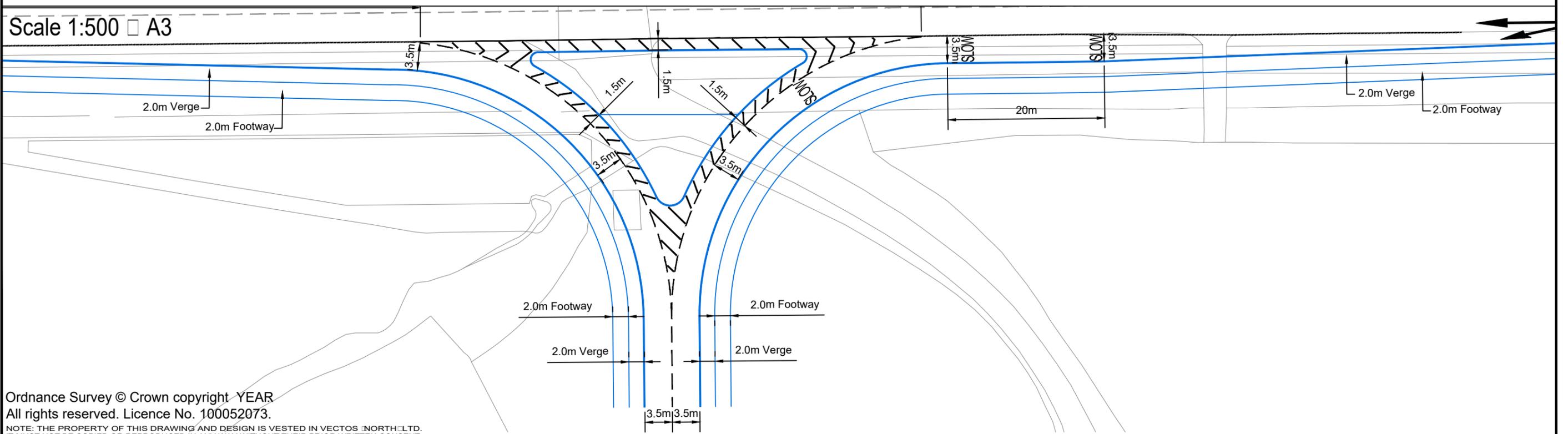
DRAWING NUMBER: VN40349-200	REVISION:
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Scale 1:100 □ A3



432

Scale 1:500 □ A3



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REV.	DETAILS	DRAWN	CHECKED	DATE

Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

Florida Farm, Haydoc □

Proposed Left in - Left Out Arrangement

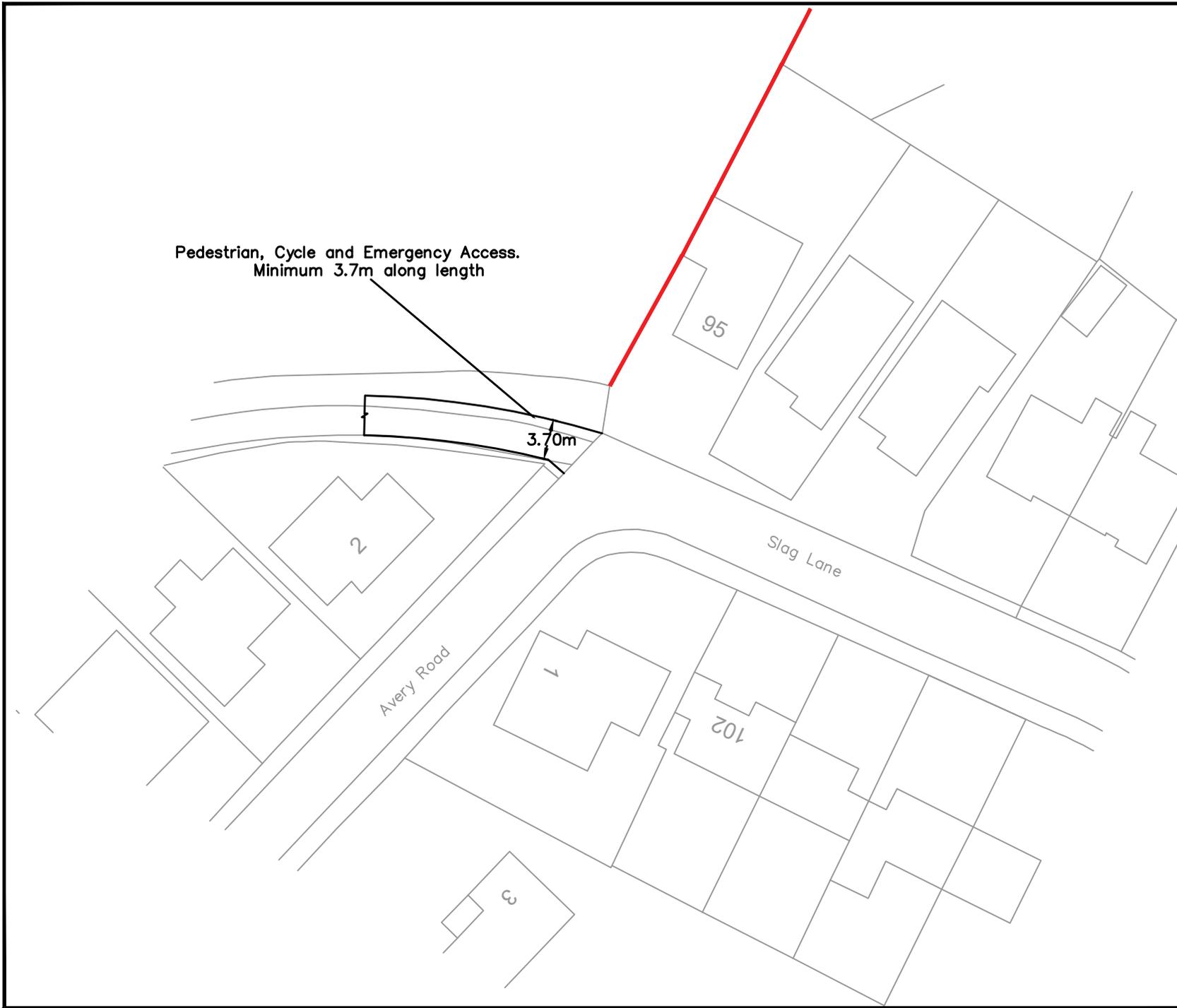
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Oxford Place, 61 Oxford Street, Manchester M1 6EQ
t: 0161 228 1008 e: manchester@vectos.co.uk

DRAWING NUMBER: VN40349-D202	REVISION: .
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Pedestrian, Cycle and Emergency Access.
Minimum 3.7m along length

3.70m

95

2

1

102

3

Slag Lane

Avery Road

Notes:
1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.

REV.	DETAILS	DRAWN	CHECKED	DATE

CLIENT:
Barratt Homes

PROJECT:
Florida Farm

DRAWING TITLE:
Slag Lane Pedestrian, Cycle and Emergency Access

SCALES:
1:500 at A4

DRAWN: PJ CHECKED: DL DATE: 25.09.17



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0161 228 1008 e: manchester@vectos.co.uk

DRAWING NUMBER: **VN40349-203** REVISION:

Appendix A - Trip Generation and Traffic Distribution

Trip Rate Calculation Summary

	No of Units		
	90 Units	270 Units	600 Units
Regular Units	70	210	467
Affordable Units	20	60	133
Total Units	90	270	600
% Affordable Units	22.2%	22.2%	22.2%

90 Units

		Privately Owned Units			Affordable Units			Total		
AM Peak	08:00-09:00	13	26	39	2	4	6	15	30	45
PM Peak	15:00-16:00	21	14	35	5	5	10	26	19	45
Daily	07:00-19:00	149	158	307	41	40	81	190	197	388

270 Units

		Privately Owned Units			Affordable Units			Total		
AM Peak	08:00-09:00	38	77	116	6	13	19	44	91	135
PM Peak	15:00-16:00	63	42	105	16	14	30	79	57	135
Daily	07:00-19:00	448	474	921	123	119	242	571	592	1163

600 Units

		Privately Owned			Affordable Units			Total		
AM Peak	08:00-09:00	85	172	257	13	30	43	98	202	300
PM Peak	15:00-16:00	139	94	234	35	32	67	175	126	300
Daily	07:00-19:00	996	1054	2049	273	263	536	1268	1316	2585

Trip Generation Calculations - 90 Units

Privately Owned Units 70

Affordable Units 20

Privately Owned Units

Time Range	Trip Rate			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00-08:00	0.066	0.248	0.314	5	17	22
08:00-09:00	0.182	0.368	0.550	13	26	39
09:00-10:00	0.132	0.190	0.322	9	13	23
10:00-11:00	0.120	0.167	0.287	8	12	20
11:00-12:00	0.147	0.174	0.321	10	12	22
12:00-13:00	0.171	0.178	0.349	12	12	24
13:00-14:00	0.186	0.159	0.345	13	11	24
14:00-15:00	0.159	0.202	0.361	11	14	25
15:00-16:00	0.298	0.202	0.500	21	14	35
16:00-17:00	0.190	0.140	0.330	13	10	23
17:00-18:00	0.264	0.112	0.376	18	8	26
18:00-19:00	0.217	0.116	0.333	15	8	23

Affordable Units

Time Range	Trip Rate			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00-08:00	0.036	0.094	0.130	1	2	3
08:00-09:00	0.101	0.223	0.324	2	4	6
09:00-10:00	0.115	0.180	0.295	2	4	6
10:00-11:00	0.187	0.144	0.331	4	3	7
11:00-12:00	0.187	0.151	0.338	4	3	7
12:00-13:00	0.223	0.165	0.388	4	3	8
13:00-14:00	0.173	0.165	0.338	3	3	7
14:00-15:00	0.158	0.194	0.352	3	4	7
15:00-16:00	0.266	0.237	0.503	5	5	10
16:00-17:00	0.245	0.158	0.403	5	3	8
17:00-18:00	0.252	0.187	0.439	5	4	9
18:00-19:00	0.108	0.079	0.187	2	2	4

Trip Generation Calculations - 270 Units

Privately Owned Units 210

Affordable Units 60

Privately Owned Units

Time Range	Trip Rate			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00-08:00	0.066	0.248	0.314	14	52	66
08:00-09:00	0.182	0.368	0.550	38	77	116
09:00-10:00	0.132	0.190	0.322	28	40	68
10:00-11:00	0.120	0.167	0.287	25	35	60
11:00-12:00	0.147	0.174	0.321	31	37	67
12:00-13:00	0.171	0.178	0.349	36	37	73
13:00-14:00	0.186	0.159	0.345	39	33	72
14:00-15:00	0.159	0.202	0.361	33	42	76
15:00-16:00	0.298	0.202	0.500	63	42	105
16:00-17:00	0.190	0.140	0.330	40	29	69
17:00-18:00	0.264	0.112	0.376	55	24	79
18:00-19:00	0.217	0.116	0.333	46	24	70

Affordable Units

Time Range	Trip Rate			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00-08:00	0.036	0.094	0.130	2	6	8
08:00-09:00	0.101	0.223	0.324	6	13	19
09:00-10:00	0.115	0.180	0.295	7	11	18
10:00-11:00	0.187	0.144	0.331	11	9	20
11:00-12:00	0.187	0.151	0.338	11	9	20
12:00-13:00	0.223	0.165	0.388	13	10	23
13:00-14:00	0.173	0.165	0.338	10	10	20
14:00-15:00	0.158	0.194	0.352	9	12	21
15:00-16:00	0.266	0.237	0.503	16	14	30
16:00-17:00	0.245	0.158	0.403	15	9	24
17:00-18:00	0.252	0.187	0.439	15	11	26
18:00-19:00	0.108	0.079	0.187	6	5	11

Trip Generation Calculations - 600 Units

Privately Owned Units 467
 Affordable Units 133

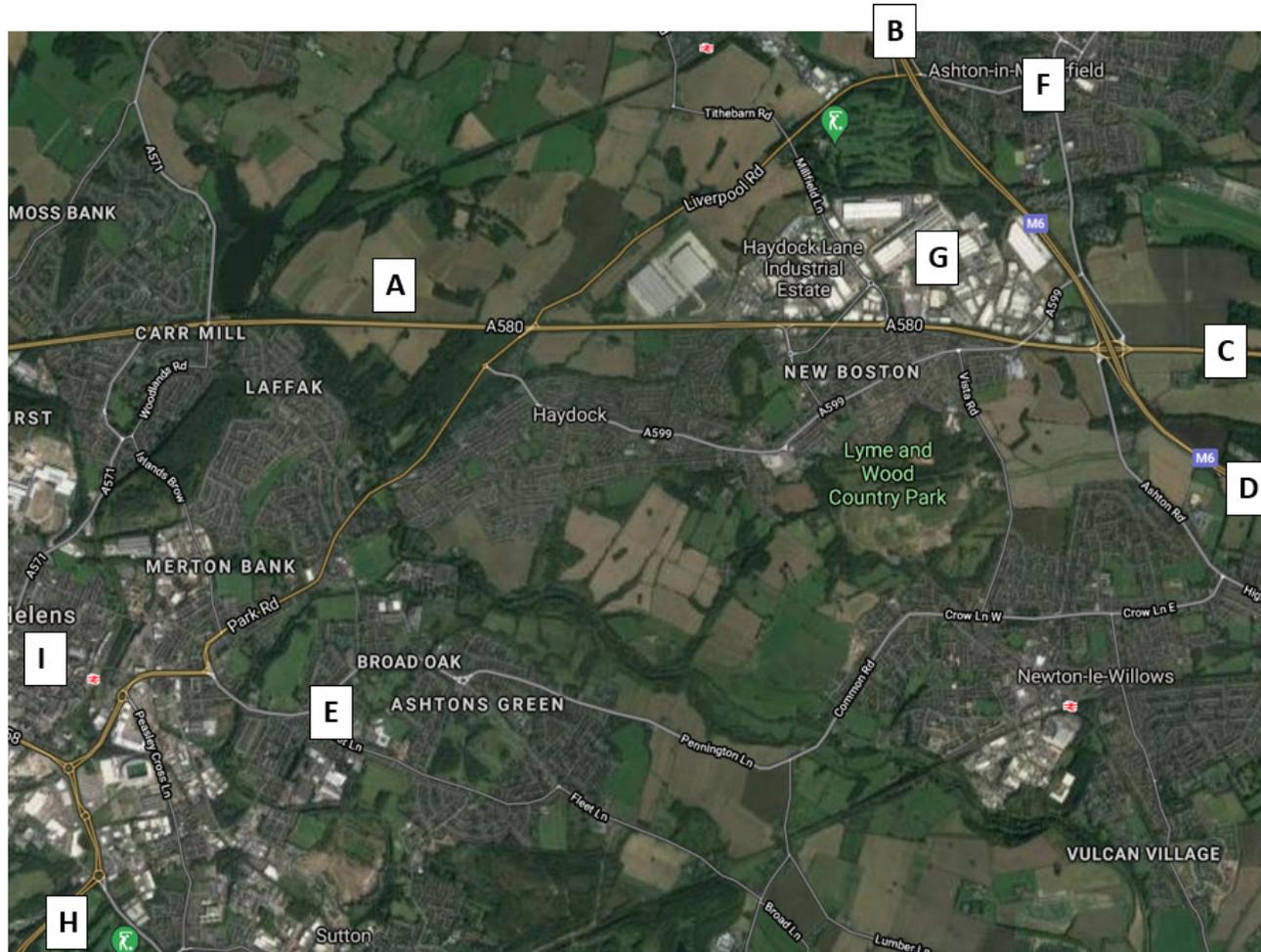
Privately Owned Units

Time Range	Trip Rate			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00-08:00	0.066	0.248	0.314	31	116	147
08:00-09:00	0.182	0.368	0.550	85	172	257
09:00-10:00	0.132	0.190	0.322	62	89	150
10:00-11:00	0.120	0.167	0.287	56	78	134
11:00-12:00	0.147	0.174	0.321	69	81	150
12:00-13:00	0.171	0.178	0.349	80	83	163
13:00-14:00	0.186	0.159	0.345	87	74	161
14:00-15:00	0.159	0.202	0.361	74	94	169
15:00-16:00	0.298	0.202	0.500	139	94	234
16:00-17:00	0.190	0.140	0.330	89	65	154
17:00-18:00	0.264	0.112	0.376	123	52	176
18:00-19:00	0.217	0.116	0.333	101	54	156

Affordable Units

Time Range	Trip Rate			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00-08:00	0.036	0.094	0.130	5	13	17
08:00-09:00	0.101	0.223	0.324	13	30	43
09:00-10:00	0.115	0.180	0.295	15	24	39
10:00-11:00	0.187	0.144	0.331	25	19	44
11:00-12:00	0.187	0.151	0.338	25	20	45
12:00-13:00	0.223	0.165	0.388	30	22	52
13:00-14:00	0.173	0.165	0.338	23	22	45
14:00-15:00	0.158	0.194	0.352	21	26	47
15:00-16:00	0.266	0.237	0.503	35	32	67
16:00-17:00	0.245	0.158	0.403	33	21	54
17:00-18:00	0.252	0.187	0.439	34	25	58
18:00-19:00	0.108	0.079	0.187	14	11	25

Trip Distribution



Trip Distribution

Route	No. of Journeys	% Distribution	Route	No. of Journeys	% Distribution
A	863	23.4%	F	240	6.5%
B	533	14.5%	G	265	7.2%
C	401	10.9%	H	420	11.4%
D	314	8.5%	I	296	8.0%
E	350	9.5%			