8 Traffic Flows

8.1 **STUDY NETWORK**

The study network of junctions for the TA comprises:

REF	JUNCTION	CONTROL
SJ1	Site Access/White Post Road	priority
SJ2	Bankside/ Oxford Rd N'bound Slips/White Post Rd/Sycamore Drive	roundabout
SJ2A	Oxford Road/Northbound Slips	priority
SJ3	Oxford Road On & Off Slips/Bankside	priority/r'bout
SJ3A	Oxford Road/Southbound Slips	priority
SJ4	Broad Gap/Oxford Road/Canal Road	priority
SJ5	Weeping Cross/Oxford Road	traffic signals
SJ6	Broad Gap/High Street	priority
SJ7	Wykham Lane/White Post Road/High Street	priority
SJ8	Hightown Road/Oxford Road/Horton View	traffic signals
SJ9	Upper Windsor Street/Oxford Road	traffic signals
SJ10	Bloxham Road/South Bar Street/Oxford Road	traffic signals
SJ11	High Street/South Bar Street/ West Bar Street/Horse Fair	roundabout
SJ12	Castle Street/North Bar Street/Warwick Road/Southam Road	traffic signals
SJ13	Swan Close Road/Upper Windsor Street	traffic signals
SJ14	Bridge Street/Windsor Street/Cherwell Street	traffic signals
SJ15	Cherwell Street/Hennef Way	roundabout.

8.2 **PEAK PERIODS**

The times when the combination is greatest, of traffic generated by the proposed residential development and the existing highway network traffic, are the weekday AM & PM peak hours. The TA includes quantitative analysis of the traffic impact of the proposed development for these periods.

8.3 **TRAFFIC COUNTS**

8.3.1 Traffic count surveys at the TA Study Junctions were undertaken as follows:

- SJ2 & SJ3 11 September 2013,
- SJ4-8 & SJ13-15: 21 May 2015,
- SJ9 – SJ12 11 July 2013.

8.3.2 Analysis of the traffic count data identifies the peak hours for traffic flows at the study junctions as:

- AM 0800-0900,
- PM 1645-1745.

Quantative analysis is undertaken for these peak hours.

8.3.3 Figure B1, Appendix B, presents the 2013 & 2015 AM & PM peak hour traffic count flows at the study junctions. The flows are presented in pcus.

8.4 **ANALYSIS YEARS**

8.4.1 The proposed development comprises 280 dwellings. The assumed development Year of Opening (ie completion) is 2024.

8.4.2 For the purposes of this TA report, modelling of the TA study network of junctions is undertaken for year **2025**, this being 10 years after application submission.

8.4.3 **Growth Factors**

8.4.3.1 The National Transport Model (NTM) TEMPRO Version 6.2 (AF09 dataset) is used as a basis for deriving local growth factors. The model assumes that new houses will be built in the Banbury area between 2013/2015 and 2025. However, the TA also includes estimates of traffic generated by a number of residential schemes near to the application Site. The permitted schemes will deliver nearly 2000 new homes. Without adjustment to TEMPRO assumptions on household growth, there would be a double counting effect and the estimates of future traffic flows on the local highway network are likely to be significantly overestimated. Consequently, local adjustments are made to TEMPRO assumptions on household growth and the resultant traffic growth factors are set out in Technical Filenote 1C, Appendix C.

8.4.3.2 The combination of background growth (estimated using NTM/TEMPRO) and traffic generated by committed developments at each of the study junctions is summarised below:

REF	2013/2015 COUNT (pcu)		2025 BASE (pcu)		TOTAL GROWTH (%)	
	AM	PM	AM	PM	AM	PM
SJ2	1033	921	1332	1169	28.9	26.9
SJ2A	993	969	1351	1283	36.1	32.4
SJ3	1002	888	1471	1336	46.8	50.0
SJ3A	961	1024	1301	1414	35.4	38.1
SJ4	1900	1940	2448	2524	28.8	30.1
SJ5	1882	2000	2483	2642	31.9	32.1
SJ6	350	289	423	357	20.9	23.5
SJ7	540	400	632	480	17.0	20.0
SJ8	2238	2153	2789	2709	24.6	25.8
SJ9	1845	1938	2357	2457	27.8	26.8
SJ10	1855	1954	2193	2373	18.2	21.4
SJ11	2165	2257	2527	2705	16.7	19.8
SJ12	2109	2447	2528	2959	19.9	20.1
SJ13	1881	1870	2404	2412	27.8	29.0
SJ14	2612	2678	3185	3269	21.9	22.1
SJ15	4770	4684	5807	5714	21.7	22.0.

Review of the 2013/2015-2025 total growth figures set out above shows that virtually all of the TA study junctions are estimated to receive an increase in traffic of in excess of 20%. At a number of the TA study junctions the estimated increase in traffic is more than 30%. It is demonstrated that the TA adopts extremely robust future traffic flows assumptions.

8.4.5 **Factored Counts**

The factored AM & PM peak hour traffic flows at the TA study network junctions are presented on Figure B2, Appendix B.

8.6 **COMMITTED DEVELOPMENT**

8.6.1 AHA is aware of the following consented developments within Banbury and the surrounding area:

- 05/01337/OUT Land at College Fields: 1070 dwellings, employment, local centre and primary school,
- 10/01575/OUT Former Sapa Profiles: B1, B2 and B8 employment,
- 11/01755/OUT Bourne Lane, Hook Norton: 70 dwellings,
- 11/00617/OUT Land South of Blackwood Place: 82 dwellings,
- 11/01870/F Banbury Gateway: Retail, restaurants and cafes,
- 11/01878/OUT Land South of Overthorpe Road: 115,197sm B2/B8 Employment,
- 12/00080/OUT Crouch Farm: 145 dwellings,
- 12/00926/OUT Barford Road, Bloxham: 75 dwellings,
- 12/01139/OUT Milton Road, Bloxham: 85 dwellings,
- 13/00456/OUT Milton Road, Adderbury: 65 dwellings,
- 13/00444/OUT Land West of Bretch Hill: 400 dwellings, 60 extra care units,
- 13/00656/OUT Land West of Warwick Road: 300 dwellings,
- 13/01768/F Aynho Road, Adderbury: 59 dwellings.

8.6.2 AHA has reviewed TAs and related information submitted as part of the planning applications. From the information submitted as part of the successful planning applications/appeals it is concluded that the following do not have a material impact on traffic flows at the AHA TA Study Junction Network:

- 11/01878/OUT Land South of Overthorpe Road,
- 11/01755/OUT Bourne Lane, Hook Norton,
- 12/00926/OUT Barford Road, Bloxham,
- 12/01139/OUT Milton Road, Bloxham,
- 13/00456/OUT Milton Road, Adderbury,
- 13/01768/F Aynho Road, Adderbury.

Therefore the following developments are included as committed development:

- 05/01337/OUT Land at College Fields,
- 10/01575/OUT Former Sapa Profiles: B1, B2 and B8 employment,
- 11/00617/OUT Land South of Blackwood Place,
- 11/01870/F Banbury Gateway,
- 12/00080/OUT Crouch Farm,
- 13/00444/OUT Land West of Bretch Hill,
- 13/00656/OUT Land West of Warwick Road.

8.6.3 AHA Committed Development Report (ref 1361/10) considers the traffic generated by the committed developments at the TA study network of junctions.

8.6.4 **Total Committed Development**

The consequent total committed development traffic is presented on Figure B3, Appendix B.

8.7 **BASE**

8.7.1 The 'Base' situation represents the traffic flows on the TA study network with the full implementation (and occupation) of the consented developments. This provides the proper context in which to assess the traffic impact of the proposed development.

8.7.2 The estimated 2025 Base peak hour traffic flows at the TA study junctions are presented on Figure B4, Appendix B.

8.8 **DISTRIBUTION OF GENERATED TRAFFIC: PROPOSED DEVELOPMENT**

8.8.1 It is necessary to estimate the % distribution of the proposed development generated traffic. A common methodology is to use Journey to Work data from the 2011 Census as a basis for estimating the % distribution of development generated traffic on the study network junctions. This methodology is adopted for the purposes of the TA quantative analysis.

8.8.2 Table 2 provides a summary of the information derived from the 2011 Census Journey to Work data.

8.8.3 Deriving from this, the % distribution of traffic generated at the study junctions by the proposed residential development that is adopted for the purpose of the TA quantative analysis is presented on Figure B5, Appendix F.

8.9 **GENERATED TRAFFIC: PROPOSED DEVELOPMENT**

8.9.1 The TRICS database is interrogated to identify suitable trip generation rates to adopt for estimating the AM and PM peak hour traffic generated by the proposed residential development.

8.9.2 TRICS is interrogated for information about trip generation rates for Houses. Criteria adopted for this interrogation include:

- Houses privately owned,
- Sites between 125-525 units,
- All surveys 2005 or more recent,
- Sites in Greater London, Northern Ireland and the Republic of Ireland excluded on the basis that they may have significantly different travel characteristics,
- Sites near neighbourhood centres excluded,
- If a site has multiple survey date entries, include only the most recent survey used within the identified TRICS sample, (to avoid statistical bias in the trip rates identified for use in the analysis).

8.9.3 On this basis, 12 sites are identified. TRICS explicitly states that the 85%le statistic is not reliable for a database with less than 20 entries. Thus, average trip rates are adopted to estimate the traffic generated by the proposed residential development.

8.9.4 The AM and PM peak hour house trip rates adopted for the quantative analysis are presented in Table 3. The consequent estimate of development generated traffic is presented in Table 4.

8.9.5 Figure B6, Appendix B presents the traffic generated by the proposed development in the AM and PM peak hours at the study junctions, based on the % distribution on Figure B5, Appendix B.

8.10 **TRAFFIC IMPACT**

8.10.1 The March 2007 GTA has recently been withdrawn. However, at the time of preparing this TA report, there is no alternative document that provides clear guidance on traffic impact.

8.10.2 In the absence of alternative guidance, the tests adopted to determine if a more detailed junction assessment is required is if the proposed development is predicted to generate an increase in traffic at a study junction of:

(i) Test 1: **30** vehicles or more, **and**
(ii) Test 2: **2.5%** of the total 2025 Base junction flow.

8.10.3 The net change in peak hour traffic flows at the TA study junctions as a result of implementing the proposed residential development is presented on Figure B6, Appendix B herein.

8.10.4 A review of Figure B4 (2025 Base) and Figure B6 (development generated traffic) is summarised below.

REF	2025 BASE (pcu)		GENERATED TRAFFIC (pcu)		IMPACT (%)		TEST MET (Y/N)
	AM	PM	AM	PM	AM	PM	
SJ2	1332	1169	154	160	11.6	13.7	Y
SJ2A	1351	1283	23	58	1.7	4.5	Y
SJ3	1471	1336	66	100	4.5	7.5	Y
SJ3A	1301	1414	67	46	5.1	3.3	Y
SJ4	2448	2524	16	18	0.7	0.7	N
SJ5	2483	2642	32	36	1.3	1.4	N
SJ6	423	357	16	18	3.8	5.0	N
SJ7	632	480	22	24	3.5	5.0	N
SJ8	2789	2709	86	93	3.1	3.4	Y
SJ9	2357	2457	77	84	3.3	3.4	Y
SJ10	2193	2373	46	49	2.1	2.1	N
SJ11	2527	2705	41	44	1.6	1.6	N
SJ12	2528	2959	25	27	1.0	0.9	N

SJ13	2404	2412	62	70	2.6	2.9	Y
SJ14	3185	3269	62	70	1.9	2.1	N
SJ15	5807	5714	49	54	0.8	0.9	N

8.10.5 Consequently, modelling of the traffic impact of the proposed development is undertaken for:

REF	JUNCTION	CONTROL
SJ1	Site Access/White Post Road	priority
SJ2	Bankside/ Oxford Rd N'bound Slips/White Post Rd/Sycamore Drive	roundabout
SJ2A	Oxford Road/Northbound Slips	priority
SJ3	Oxford Road On & Off Slips/Bankside	roundabout
SJ3A	Oxford Road/Southbound Slips	priority
SJ8	Hightown Road/Oxford Road/Horton View	traffic signals
SJ9	Upper Windsor Street/Oxford Road	traffic signals
SJ13	Swan Close Road/Upper Windsor Street	traffic signals.

The results of this TA junction modelling are reported in Chapter 9.

8.11 **WITH DEVELOPMENT**

The estimated 2025 AM and PM peak hour With Development traffic flows are presented on Figure B7, Appendix B.

9 Operational Performance of Highway Network

9.1 The computer program PICADY is used to model the performance of a priority (give-way) control junction. PICADY predicts the ratio of flow to capacity (RFC) and associated queue for the minor (give-way) entry to the junction and for the major road. PICADY is used to model the operational performance of:

REF	JUNCTION
SJ1	Site Access/White Post Road
SJ2A	Oxford Road/Northbound Slips
SJ3A	Oxford Road/Southbound Slips.

9.2 The computer program ARCADY is used to model the performance of a roundabout junction. ARCADY predicts the ratio of flow to capacity (RFC) and associated queue for each entry to the roundabout. ARCADY is used to model the operational performance of:

REF	JUNCTION
SJ2	Bankside/ Oxford Rd N'bound Slips/White Post Rd/Sycamore Drive
SJ3	Oxford Road On & Off Slips/Bankside

9.3 The computer program LINSIG is used to analyse and predict the performance of a traffic signal control junction. This predicts the degree of saturation (%) and associated queues and delay for the junction entry arms. LINSIG is used to model the performance of:

REF	JUNCTION
SJ8	Hightown Road/Oxford Road/Horton View
SJ9	Upper Windsor Street/Oxford Road
SJ13	Swan Close Road/Upper Windsor Street.

9.4 **SJ1: SITE ACCESS/WHITE POST ROAD (Drg No 1361/21)**

Table 5 presents the results of the PICADY modelling for SJ1. A review of Table 5 shows that SJ1 is predicted to operate with a high level of spare capacity and negligible queues/delays in the 2025 AM & PM peak hour With Development situations.

ashleyhelme

9.5 **SJ2: BANKSIDE/OXFORD ROAD N'BOUND SLIPS/WHITE POST ROAD/SYCAMORE DRIVE**

Table 6 presents the results of the ARCADY modelling for SJ2. A review of Table 6 shows that SJ2 is predicted to operate with a high level of spare capacity and negligible queues/delays in the 2025 AM & PM peak hour Base situations and continues to do so if the proposed development is implemented.

9.6 **SJ2A: OXFORD ROAD/NORTHBOUND SLIPS**

Table 7 presents the results of the PICADY modelling for SJ2A. A review of Table 7 shows that SJ2A is predicted to operate with spare capacity the 2025 AM & PM peak hour Base situations and continues to do so if the proposed development is implemented.

9.7 **SJ3: COLLEGE FIELDS ACCESS/OXFORD ROAD SOUTHBOUND SLIPS/BANKSIDE**

9.7.1 SJ3 is presently a 'triangle' of priority controlled junctions. SJ3 will be converted to a 4-arm roundabout junction to provide access to part of the College Fields development. A drawing of the College Fields access junction included as part of the College Fields TA is shown on Colin Buchanan Figure 59, Appendix F.

9.7.2 Table 8 presents the results of the ARCADY modelling for the SJ3 College Fields Access/Bankside roundabout junction. A review of Table 8 shows that the roundabout junction is predicted to operate with spare capacity and negligible queues/delays in the 2025 AM & PM peak hour Base situations, and continues to do so if the proposed development is implemented.

9.8 **SJ3A OXFORD ROAD/SOUTHBOUND SLIPS**

Table 9 presents the results of the PICADY modelling for SJ3A. A review of Table 9 shows that SJ2A is predicted to operate with spare capacity the 2025 AM & PM peak hour Base situations and continues to do so if the proposed development is implemented.

9.9 **SJ8 HIGHTOWN ROAD/OXFORD ROAD/HORTON VIEW**

9.9.1 AHA commissioned queue surveys to provide insight into how the existing junction layout operates with 2015 traffic. In order to achieve more meaningful and robust model results, the approach adopted was to:

- Undertake AM & PM peak period queue surveys at SJ8,
- Construct LINSIG model for the 2015 Count situation,
- Compare the model outputs to the queue survey results, and where necessary calibrate LINSIG model so that model output results provide as good a 'match' as possible to the recorded queue surveys by making adjustments to model junction geometry.

9.9.2 Table 10 presents the results of the 2015 Count LINSIG modelling for SJ8. The LINSIG model queue results for the 2015 Count situation compare reasonably well to those recorded by the queue surveys. Consequently, the validated LINSIG model is used test junction performance in the 2025 Base and With Development situations and these results are presented in Table 11.

9.9.3 Table 11 presents the results of the LINSIG modelling for SJ8.

9.9.4 A review of Table 11 shows that SJ8 is predicted to operate in an acceptable manner in both the 2025 AM & PM peak hour Base situations and continues to do so in the corresponding With Development situations.

9.10 **SJ9: UPPER WINDSOR STREET/OXFORD ROAD**

9.10.1 AHA commissioned queue surveys to provide insight into how the existing junction layout operates with 2013 traffic. In order to achieve more meaningful and robust model results, the approach adopted was to:

- Undertake AM & PM peak period queue surveys at SJ9,
- Construct LINSIG model for the 2013 Count situation,
- Compare the model outputs to the queue survey results, and where necessary calibrate LINSIG model so that model output results provide as good a 'match' as possible to the recorded queue surveys by making adjustments to model junction geometry.

9.10.2 Table 12 presents the results of the 2013 Count LINSIG modelling for SJ9. The LINSIG model queue results for the 2013 Count situation compare well to those recorded by the queue surveys. Consequently, the validated LINSIG model is used test junction performance in the 2025 Base and With Development situations and these results are presented in Table 13.

9.10.3 Table 13 presents the results of the LINSIG modelling for SJ9.

9.10.4 A review of Table 13 shows that SJ9 is predicted to operate in an acceptable manner in both the 2025 AM & PM peak hour Base situations and continues to do so in the corresponding With Development situations.

9.11 **SJ13 SWAN CLOSE ROAD/UPPER WINDSOR STREET**

9.11.1 AHA commissioned queue surveys to provide insight into how the existing junction layout operates with 2015 traffic. In order to achieve more meaningful and robust model results, the approach adopted was to:

- Undertake AM & PM peak period queue surveys at SJ13,
- Construct LINSIG model for the 2015 Count situation,
- Compare the model outputs to the queue survey results, and where necessary calibrate LINSIG model so that model output results provide as good a 'match' as possible to the recorded queue surveys by making adjustments to model junction geometry.

9.11.2 Table 14 presents the results of the 2015 Count LINSIG modelling for SJ13. The LINSIG model queue results for the 2015 Count situation compare reasonably well to those recorded by the queue surveys. Consequently, the validated LINSIG model is used test junction performance in the 2025 Base and With Development situations and these results are presented in Table 15.

9.11.3 Table 15 presents the results of the LINSIG modelling for SJ13.

9.11.4 A review of Table 15 shows that SJ13 is predicted to operate in an acceptable manner in both the 2025 AM & PM peak hour Base situations and continues to do so in the corresponding With Development situations.

9.12 **SUMMARY**

Comprehensive testing of the TA study network of junctions has been undertaken. It is demonstrated that the proposed development will have **no severe** impact on the performance of the TA study junctions.

10 Banbury 17 Allocation

10.1 **INTRODUCTION**

10.1.1 The application Site forms part of wider area that is allocated for residential development in the Council's Submission Local Plan. The application Site, together with other sites to the west, are known collectively as the Banbury 17 Allocation sites. There are 3no sites within the Banbury 17 allocation that are centred on Bloxham Road. These are:

- Wykham Park Farm,
- Land to the east of Bloxham Road, and
- Land to the west of Bloxham Road.

10.1.2 **Wykham Park Farm**

10.1.2.1 The main site within the Banbury 17 area is known as Wykham Park Farm (WPF). A planning application for a predominantly residential scheme was submitted to CDC. The scheme comprises:

- Circa 1000 dwellings,
- Primary School,
- Local centre.

10.1.2.2 AHA has obtained a copy of the TA report (ref W14129 TAR01_A) prepared by Jubb that accompanied the WPF application.

10.1.3 **Land to the East of Bloxham Road (12/00080/OUT)**

10.1.3.1 Planning permission has been granted for a residential scheme on land to the east of Bloxham Road. This scheme, known as Crouch Farm Phase 1, comprises 145 dwellings.

10.1.3.2 AHA has obtained a copy of the TA report (ref 25936/006) prepared by Peter Brett Associates that accompanied the application.

10.1.4.1 **Land to the West of Bloxham Road**

This scheme, referred to as Crouch Farm Phase 2, comprises 400 dwellings. A Screening Opinion was submitted to CDC in May 2014. AHA has available the TA report (ref 30369) prepared by Peter Brett Associates that accompanied the application.

10.2 **JUNCTION ARRANGEMENTS: WHITE POST ROAD**

10.2.1 In the event that the internal road network within the proposed scheme is linked with the road network within the Wykham Park Farm scheme then this would form a road connection between Bloxham Road and White Post Road. In such a situation, traffic generated by the Banbury 17 sites to the west of the application scheme with origins/destinations to the east, may elect to use the Site Access/White Post Road junction. AHA has investigated the feasibility of introducing a roundabout junction on White Post Road to serve the proposed development and other Banbury 17 sites. Drg 1361/12/A presents an indicative roundabout junction.

10.2.2 A roundabout junction is considered the most suitable form of access junction for the following reasons:

- A priority controlled junction will not have sufficient capacity to cope with estimated traffic demands if a link road is provided,
- A roundabout provides a consistent approach across the local area. There is an existing roundabout junction at TA SJ2 circa100m north of the proposed Site access, and proposed roundabout junctions at the access to the WPF development and the College Fields development,
- The OCC Banbury highway model forecasting report assumes the link road/White Post Road junction will be a roundabout junction, suggesting this is the preferred option of OCC.

10.3 **WALK & CYCLE**

The adjacent WPF scheme includes a primary school and local centre. If there is a link road connection between the proposed development and the WPF scheme then the primary school and local centre will be within a convenient walk or cycle ride for residents of the proposed development.

10.4 **PUBLIC TRANSPORT**

10.4.1 OCC in their 1 April 2015 pre-application consultation response set out that:

"It's envisaged that a new bus route will be introduced along the new spine road, and this is currently conceived as a two-way loop from the Town centre to the Town Centre via Bloxham Road, the Spine Road, Bankside and a new link along Tramway Road to the Rail Station and thence to the Town Centre. It is possible that this route could be cross-linked with other bus services, to provide direct access to workplaces to the north or east of the Town Centre. This new bus service would be procured on a pump-priming basis, to ensure that it became fully commercially viable after a few years. Bus stop infrastructure will be required and it is recommended the location of the stops is identified at an early stage.

It is imperative the spine road is provided in a manner able to accommodate the bus service efficiently. Therefore due consideration must be given to its width and alignment."

10.4.2 The internal road network within the proposed development and the adjoining WPF scheme is to be subject to reserved matters applications. However, it is proposed that the main access road serving the proposed development comprises a 6.75m wide carriageway. This would satisfy bus operator requirements. The access arrangements shown on Drg No 1361/21 (priority junction) and Drg No 1361/12/A (roundabout) both show Site access roads with a width of 6.75m.

10.5 **TRAFFIC FLOWS**

10.5.1 Oxfordshire County Council (OCC) highways officers have requested that testing be undertaken for the situation in which there is a link road connection between White Post Road and Bloxham Road and all of the Banbury 17 allocation sites come forward. This test is referred to herein as the OCC Sensitivity Test.

10.5.2 **Proposed Development**

10.5.2.1 The proposed development is predicted to generate limited traffic movements to/from Bloxham Road. Figure B6, Appendix B shows that these movements are assigned to Wykham Lane.

10.5.2.2 In the event of a vehicular connection between the proposed development and WPF scheme then these movements would more than likely take place along the link road. Figure D1, Appendix D shows the effect of the link road and the removal of Site generated traffic movements to/from Wykham Lane.

10.5.3 **Wykham Park Farm**

10.5.3.1 AHA has reviewed the TA for the Wykham Park Farm (WPF) development, prepared by Jubb, dated October 2014.

10.5.3.2 The distribution of development generated traffic in the WPF TA is based on a combination of turning movements at junctions, and a 'zonal approach'. However, the details of how the distribution is derived are not set out in the WPF TA.

10.5.3.3 AHA has analysed the WPF TA estimated distribution of generated traffic. The WPF TA assumes the AM and PM peak hour trips are assigned via:

	AM PEAK HOUR	PM PEAK HOUR
Bloxham Road South	19.7%	16.1%
Wykham Lane	4.2%	2.6%
Queens Way	25.7%	24.8%
South Bar Street	22.3%	29.1%
Upper Windsor Street	12.8%	14.0%

Hightown Road	1.2%	1.0%
Sainsbury	2.5%	3.1%
Hospital	0.8%	0.1%
Oxford Road South	5.1%	4.8%.

10.5.3.4 AHA has considered how much of the traffic generated by the WPF site would use a link road through the proposed development. It is estimated that the traffic assigned to the following routes would use the link road through the application Site.

	AM PEAK HOUR	PM PEAK HOUR
Wykham Lane	4.2%	2.6%
Hightown Road	1.2%	1.0%
Sainsbury	2.5%	3.1%
Hospital	0.8%	0.1%
Oxford Road South	5.1%	4.8%
TOTAL	**13.8%**	**11.6%.**

10.5.3.5 In addition to the above, it is considered that some of the WPF traffic assigned to South Bar Street and Upper Windsor Street may divert through the proposed development, if a link road is provided. It is assumed, for the purposes of this TA, that 50% of traffic assigned to these routes in the WPF distribution would be diverted through the Site. The percentage of WPF traffic diverting through the proposed development may comprise:

	AM PEAK HOUR	PM PEAK HOUR
South Bar Street	11.2%	14.6%
Upper Windsor Street	6.4%	7.0%
TOTAL	**17.6%**	**21.6%.**

10.5.3.6 Based on a combination of the above, it is estimated that circa **one third** of traffic generated by the WPF Site may pass through the proposed development, if a link road is provided.

10.5.3.7 Figure D2, Appendix D shows the effect of the link road on WPF generated traffic movements.

10.5.4 **Land to the East of Bloxham Road (Crouch Farm Phase 1)**

10.5.4.1 For the purposes of the OCC Sensitivity Test, it is assumed that traffic generated by the permitted Crouch Farm Phase 1 development of 145 dwellings uses the link road in an identical manner to that assumed for the WPF scheme. Thus, it is it is assumed that **one third** of traffic generated by the Crouch Farm Phase 1 Site may pass through the proposed development, if a link road is provided.

10.5.4.2 Figure D3, Appendix D shows the effect of the link road on Crouch Farm Phase 1 generated traffic movements.

10.5.5 **Land to the West of Bloxham Road (Crouch Farm Phase 2)**

10.5.5.1 For the purposes of the OCC Sensitivity Test, it is assumed that traffic generated by the proposed Crouch Farm Phase 2 development of 400 dwellings uses the link road in an identical manner to that assumed for the WPF scheme. Thus, it is it is assumed that **one third** of traffic generated by the Crouch Farm Phase 2 Site may pass through the proposed development, if a link road is provided.

10.5.5.2 Figure D4, Appendix D shows the effect of the link road on Crouch Farm Phase 2 generated traffic movements.

10.5.6 **Wykham Lane**

10.5.6.1 OCC in their 1 April 2015 pre-application consultation response set out that:

"The spine road will i) help with the management of traffic across the network (including deterring use of Wykham Lane as a though route)…"

Thus, it is clear that an aspiration of the highway authority is to reduce traffic movements along Wykham Lane and a new link road between White Post Road and Bloxham Road can facilitate that change.

10.5.6.2 For the purposes of the OCC Sensitivity Test, it is assumed that **all** 'Base' traffic movements between White Post Road/High Street and Wykham Lane are reassigned

to the Site/White Post Road junction. This is a robust assumption. In effect, this would represent the situation in Wykham Lane is closed to traffic.

10.5.6.3 Figure D5, Appendix D shows the effect of the link road on Wykham Lane traffic movements.

10.5.7 **Total Effect of Link Road**

Figure D6, Appendix D shows the total effect of the link road on existing and development generated traffic movements.

10.5.8 **With Development: OCC Sensitivity Test**

Figure D7, Appendix D presents the 2025 AM & PM peak hour OCC Sensitivity Test flows for the study network.

10.6 **JUNCTION MODELLING**

At the request of OCC highway officers, AHA has undertaken additional modelling of TA study junctions using the OCC Sensitivity Test flows presented in Figure D7, Appendix D. Modelling is undertaken for the junctions in the immediate vicinity of the application Site. These are:

REF	JUNCTION	CONTROL
SJ1	Site Access/White Post Road	roundabout
SJ2	Bankside/ Oxford Rd N'bound Slips/White Post Rd/Sycamore Drive	roundabout
SJ2A	Oxford Road/Northbound Slips	priority
SJ3	College Fields Access/Oxford Road On & Off Slips/Bankside	roundabout
SJ3A	Oxford Road/Southbound Slips	priority.

10.6.1 **SJ1: Site Access/White Post Road (AHA Drg No 1361/12/A)**

10.6.1.1 If the Site access road eventually forms a connection with the internal road network within the Wykham Park Farm scheme then this will have the effect of creating a 'link' road between White Post Road and Bloxham Road. In this situation the simple priority controlled 'T' junction shown on Drg No 1361/21 is unlikely to have the

capacity to accommodate predicted traffic flows and a roundabout junction is likely. An indicative roundabout junction is presented on Drg No 1361/12/A.

10.6.1.2 Table 16 presents the results of the ARCADY modelling of the Site/White Post Road roundabout (Drg 1361/12/A). A review of Table 16 shows that the junction is predicted to operate with spare capacity and with small queues/delays in the 2025 AM & PM peak hour OCC Sensitivity Test situation.

10.6.2 **SJ2: Bankside/Oxford Road N'Bound Slips/White Post Road/Sycamore Drive**

10.6.2.1 Review of Figure D6, Appendix D shows that the formation of the link road and traffic generated by the proposed Western Banbury 17 sites are estimated to increase traffic at SJ2 by:

- AM: 211 pcu,
- PM: 198 pcu.

10.6.2.2 Table 17 presents the results of the ARCADY modelling of SJ2 for the OCC Sensitivity Test situation. Review of Table 17 shows that the existing roundabout junction is predicted to operate with a high degree of spare capacity and with small queues/delays in the 2025 AM & PM peak hour OCC Sensitivity Test situations.

10.6.3 **SJ2A: Oxford Road/Northbound Slips**

10.6.3.1 Review of Figure D6, Appendix D shows that the formation of the link road and traffic generated by the proposed Western Banbury 17 sites are estimated to increase traffic at SJ2A by:

- AM: 138 pcu,
- PM: 59 pcu.

10.6.3.2 Table 18 presents the results of the PICADY modelling of SJ2A for the OCC Sensitivity Test situation. Review of Table 18 shows that the priority controlled junction is predicted to operate within capacity and with modest queues in the 2025 AM & PM peak hour OCC Sensitivity Test situations.

10.6.4 **SJ3: Oxford Road Southbound Slips/Bankside**

10.6.4.1 SJ3 will be converted to a 4-arm roundabout junction to provide access to part of the College Fields development. A drawing of the College Fields access junction included as part of the College Fields TA is shown on Colin Buchanan Figure 59, Appendix F. For the purposes of the OCC Sensitivity Test, it is assumed that the proposed roundabout scheme has been implemented.

10.6.4.2 Review of Figure D6, Appendix D shows that the formation of the link road and traffic generated by the proposed Western Banbury 17 sites are estimated to increase traffic at SJ3 by:

- AM: 73 pcu,
- PM: 139 pcu.

10.6.4.3 Table 19 presents the results of the ARCADY modelling of SJ3 for the OCC Sensitivity Test situation. Review of Table 19 shows that the permitted roundabout junction is predicted to operate with a high degree of spare capacity and with small queues/delays in the 2025 AM & PM peak hour OCC Sensitivity Test situations.

10.6.5 **SJ3A Oxford Road/Southbound Slips**

10.6.5.1 Review of Figure D6, Appendix D shows that the formation of the link road and traffic generated by the proposed Western Banbury 17 sites are estimated to increase traffic at SJ3A by:

- AM: 73 pcu,
- PM: 139 pcu.

10.6.5.2 Table 20 presents the results of the PICADY modelling of SJ3A for the OCC Sensitivity Test situation. Review of Table 20 shows that the priority controlled junction is predicted to operate within capacity and with modest queues in the 2025 AM & PM peak hour OCC Sensitivity Test situations.

10.6.6 **Summary**

It is demonstrated that the existing/proposed geometry of junctions near to the application Site can accommodate the predicted traffic flows of the Western Banbury 17 sites.

11 Summary & Conclusions

11.1 Ashley Helme Associates Limited (AHA) are appointed by Gladman Developments Ltd to prepare a Transport Assessment (TA) report to support the planning application for the residential development on land off White Post Road, Banbury. The proposed development comprises the construction of up to 280 houses.

11.2 **Site Access Arrangements**

The proposed Site access is a priority controlled junction on White Post Road. The proposed access arrangements are presented on Drg No 1361/21.

11.3 **Walk & Cycle**

An accessibility appraisal of the Site is undertaken, to assess the transport sustainability of the development proposal. Encouraging walk and cycle journeys is an essential component of the development access strategy. The location of the Site provides a good context for journeys of residents to be undertaken on foot and by cycle, for a variety of purposes, including employment, leisure, shopping, school, etc.

11.4 **Public Transport**

11.4.1 There are existing bus services that operate near to the Site. These are identified on Figure 7.

11.4.2 The applicant proposes to upgrade/introduce the following bus stop infrastructure:

- Upgrade the existing northbound and southbound stops on White Post Road, in the vicinity of the Site, to provide shelters,
- Introduce a bus stop(s) within the Site, with details to be agreed as part of a future reserved matters application.

11.4.3 Banbury Rail Station is circa 2.5km from the Site. This provides opportunity for residents to travel by rail, with the journey between the rail station and the Site on foot or by cycle or bus.

11.4.4 Typically, there are circa 10-11 services per hour calling at Banbury Station. Services calling at Banbury provide frequent direct trains to a wide range of destinations including, among others, London, Birmingham, Manchester, Leeds, Sheffield, Newcastle, Southampton, Bournemouth, Coventry, Stoke-on-Trent, Derby, Doncaster and York.

11.5 **Travel Plan**

The AHA Travel Plan is submitted in support of the outline application, and is complementary to this TA report. The TP target is set as: **maximum peak hour 2-way vehicle trip rate of 0.537 vehicles/hour/dwelling**, to be achieved within 5 years of first occupation of the fully consented development.

11.6 **Traffic Flows**

Traffic generated by the Site will pass through the following junctions that comprise the TA study network of junctions:

REF	JUNCTION	CONTROL
SJ1	Site Access/White Post Road	priority
SJ2	Bankside/ Oxford Rd N'bound Slips/White Post Rd/Sycamore Drive	roundabout
SJ2A	Oxford Road/Northbound Slips	priority
SJ3	Oxford Road On & Off Slips/Bankside	priority/r'bout
SJ3A	Oxford Road/Southbound Slips	priority
SJ4	Broad Gap/Oxford Road/Canal Road	priority
SJ5	Weeping Cross/Oxford Road	traffic signals
SJ6	Broad Gap/High Street	priority
SJ7	Wykham Lane/White Post Road/High Street	priority
SJ8	Hightown Road/Oxford Road/Horton View	traffic signals
SJ9	Upper Windsor Street/Oxford Road	traffic signals
SJ10	Bloxham Road/South Bar Street/Oxford Road	traffic signals
SJ11	High Street/South Bar Street/ West Bar Street/Horse Fair	roundabout
SJ12	Castle Street/North Bar Street/Warwick Road/Southam Road	traffic signals

SJ13	Swan Close Road/Upper Windsor Street	traffic signals
SJ14	Bridge Street/Windsor Street/Cherwell Street	traffic signals
SJ15	Cherwell Street/Hennef Way	roundabout.

11.7 **Traffic Impact**

Comprehensive testing of the TA study network of junctions has been undertaken. It is demonstrated that the proposed development will have **no severe** impact on the performance of the TA study junctions.

11.8 **Western Banbury 17 Sites**

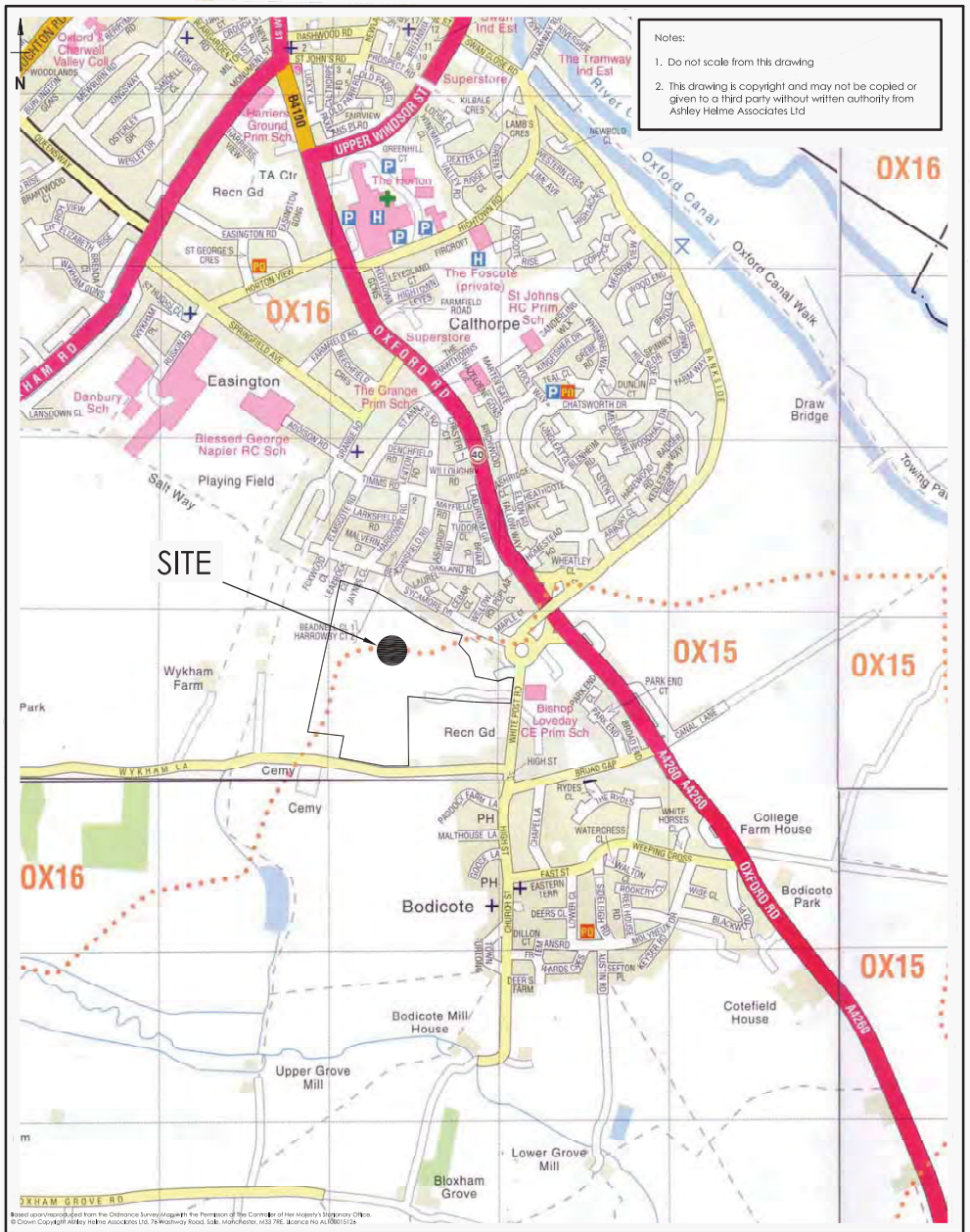
11.8.1 The application Site forms part of a wider allocation for residential development in the Council's Submission Local Plan, which is currently awaiting the outcome of its examination. The application site and other residential schemes along Bloxham Road are known collectively as the Banbury 17 sites. OCC highways officers have requested that the TA considers the traffic implications of the development proposal coming forward in conjunction with the other Banbury 17 residential sites. This is set out in Chapter 10.

11.8.2 It is demonstrated that the existing/proposed geometry of junctions near to the application Site can accommodate the predicted traffic flows of the Western Banbury 17 sites.

11.9 **Conclusions**

It is concluded that the proposed residential development is in accordance with national and local transport policies, and that there are no transport/highways reasons for refusal of planning permission.

This page has been left intentionally blank



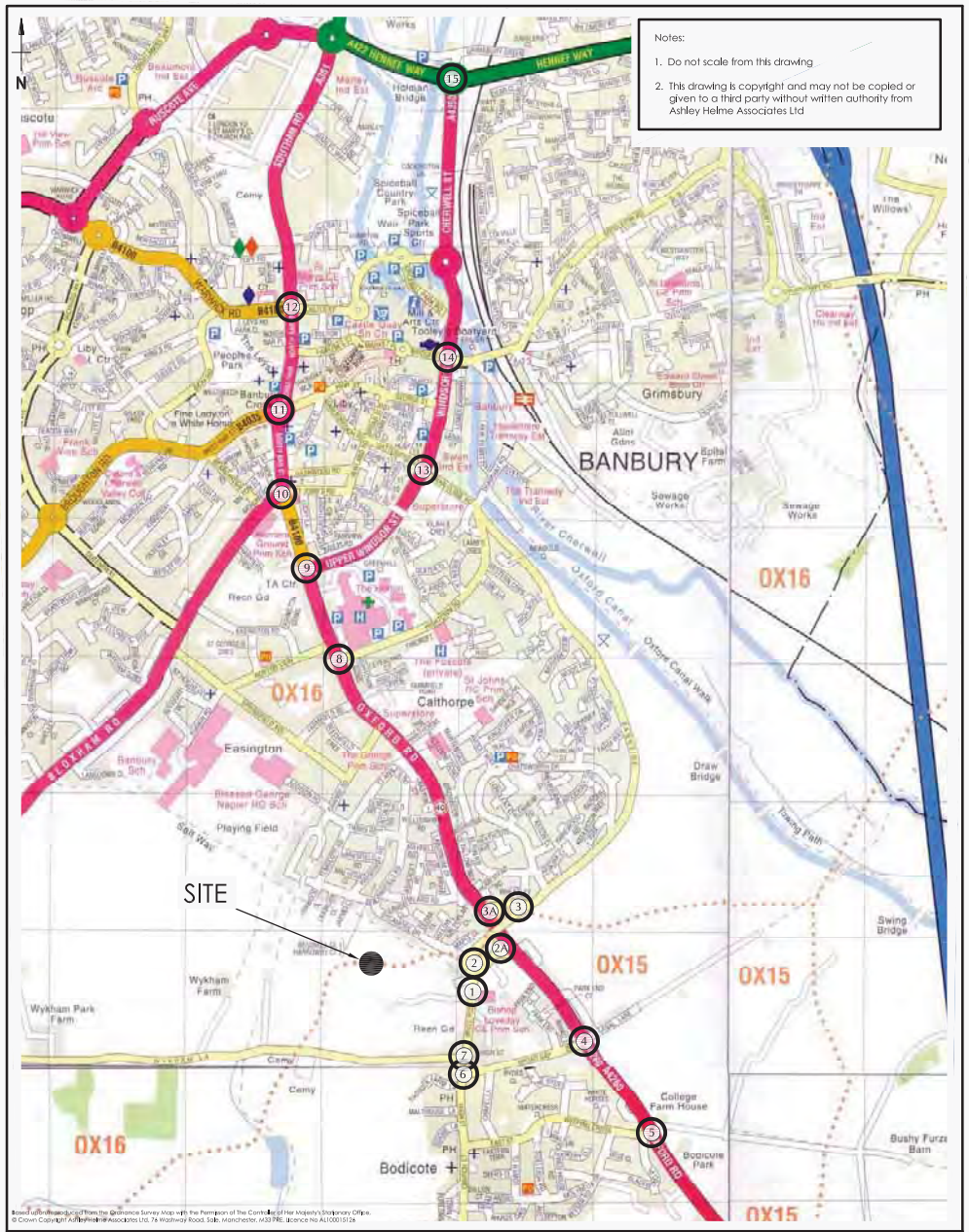
LOCATION PLAN

FIGURE 1

ashleyhelme
associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_1

This page has been left intentionally blank



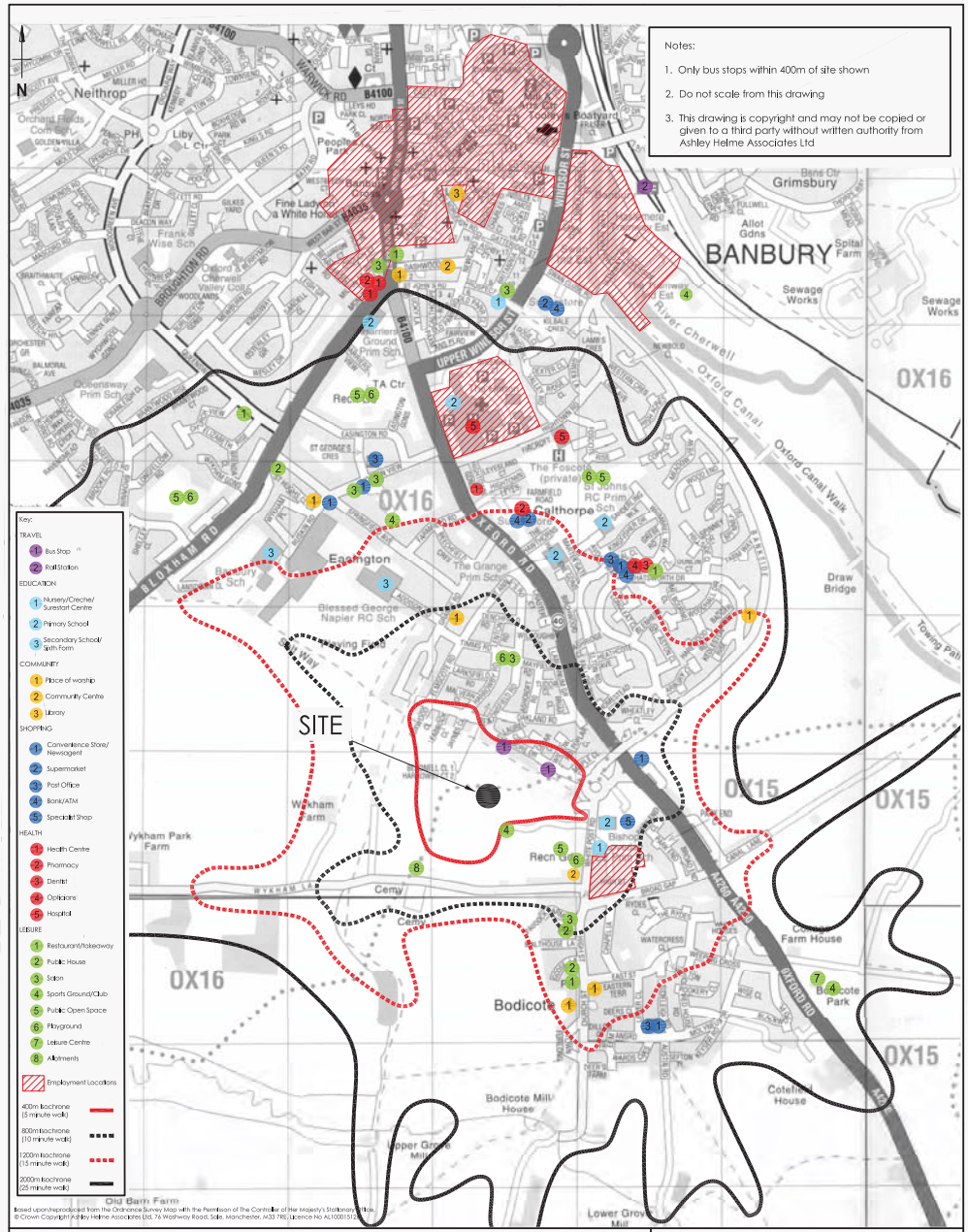
STUDY JUNCTIONS

FIGURE 2

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_2

This page has been left intentionally blank



WALK ISOCHRONES & LOCAL AMENITIES

FIGURE 3

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_3

This page has been left intentionally blank

This page has been left intentionally blank

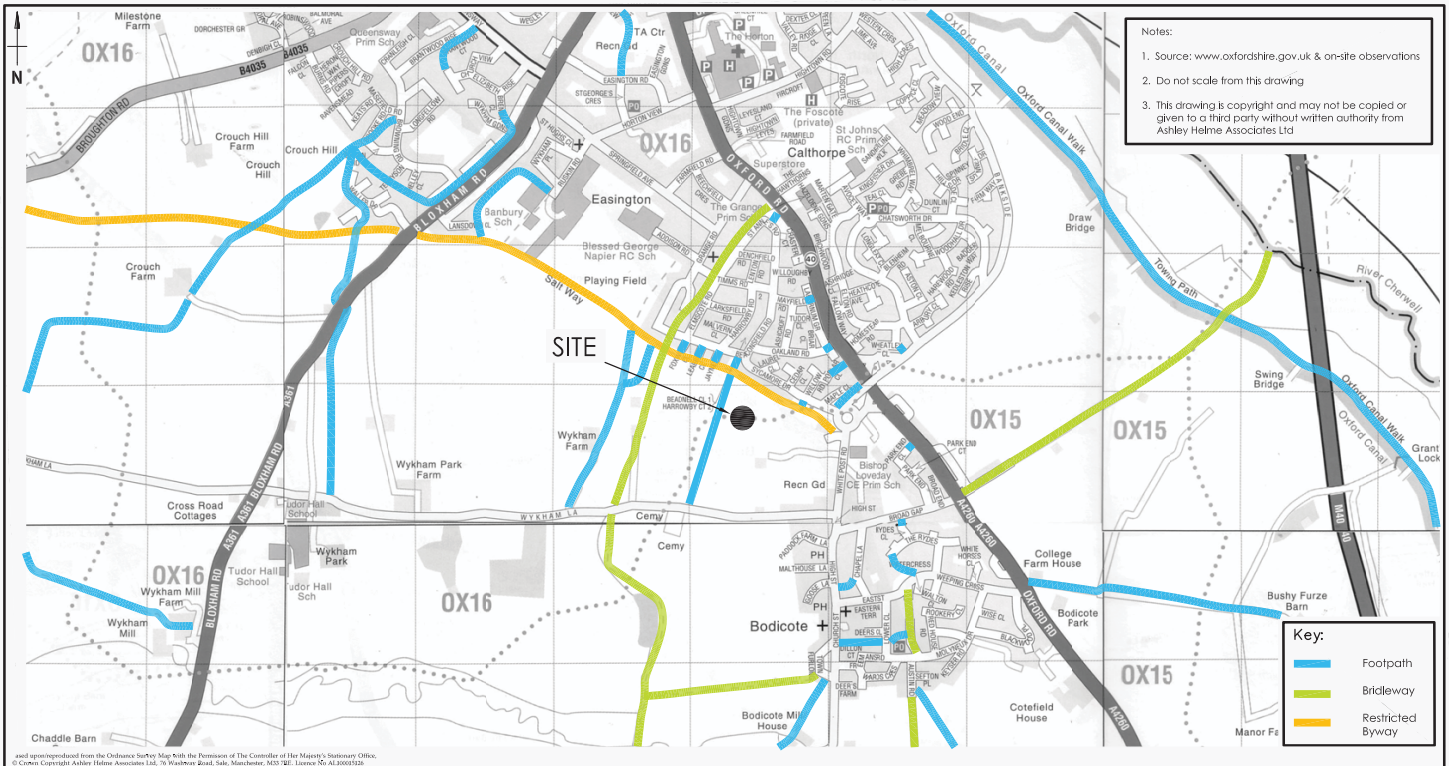
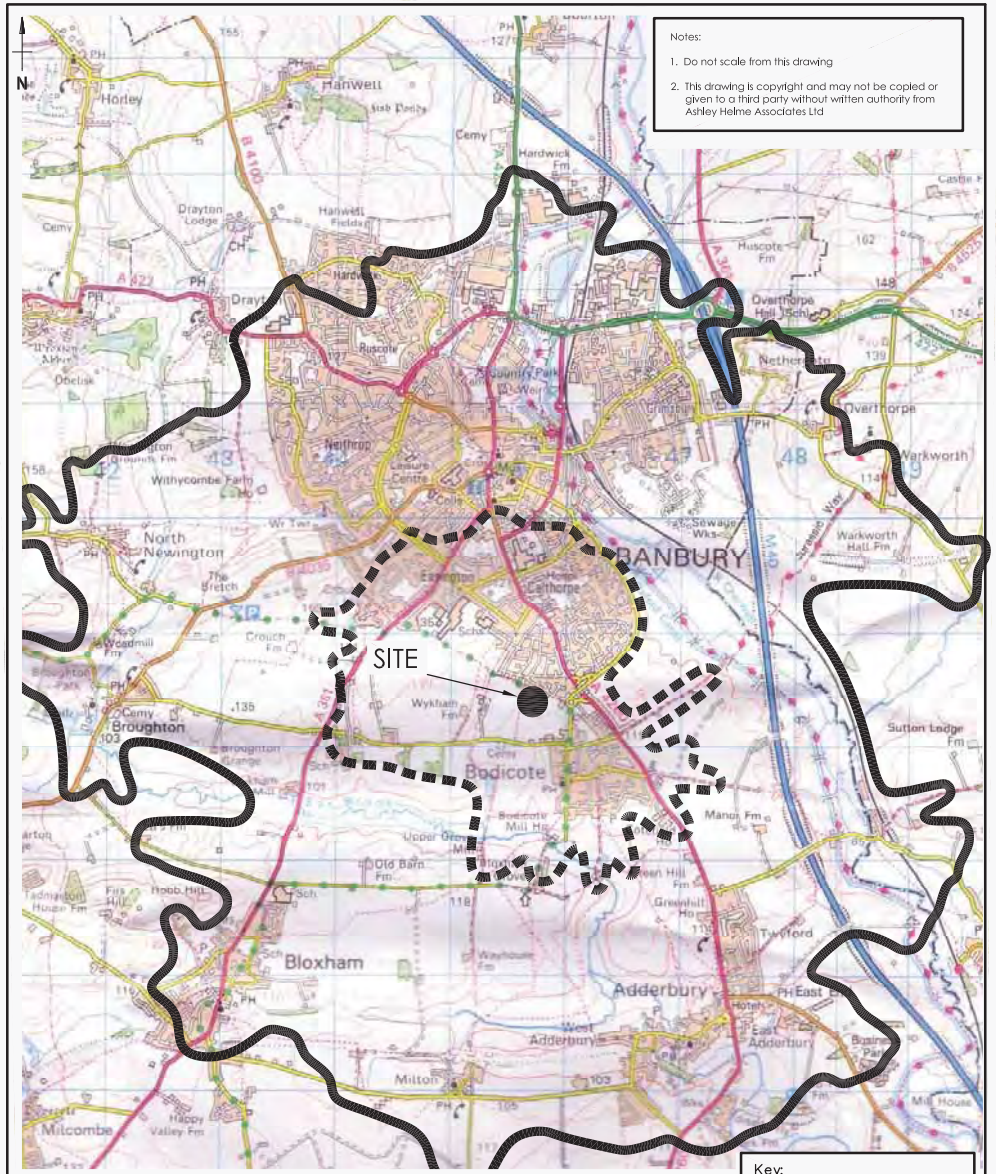


FIGURE 4 PUBLIC RIGHTS OF WAY (PROW)

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_4



CYCLE ISOCHRONES

FIGURE 5

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_5

This page has been left intentionally blank

This page has been left intentionally blank

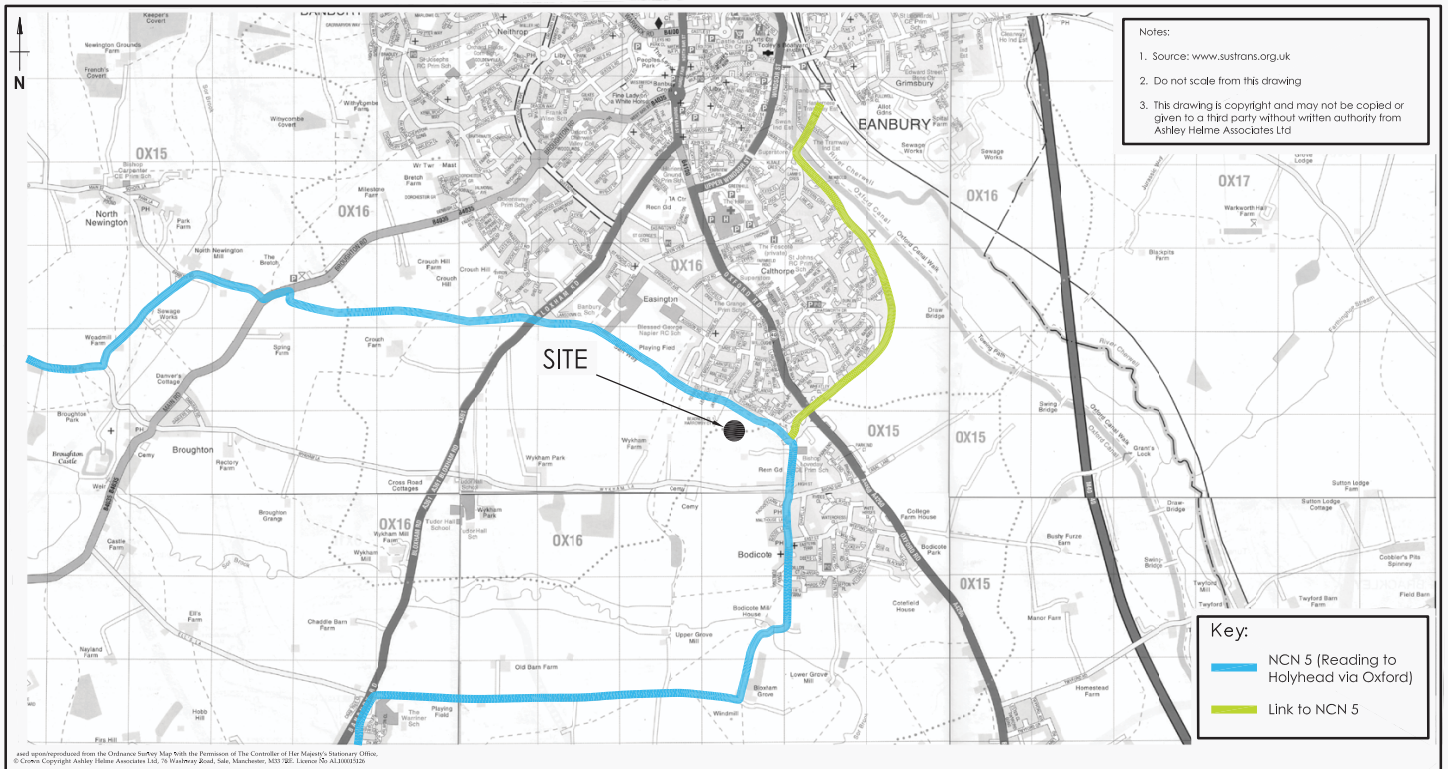
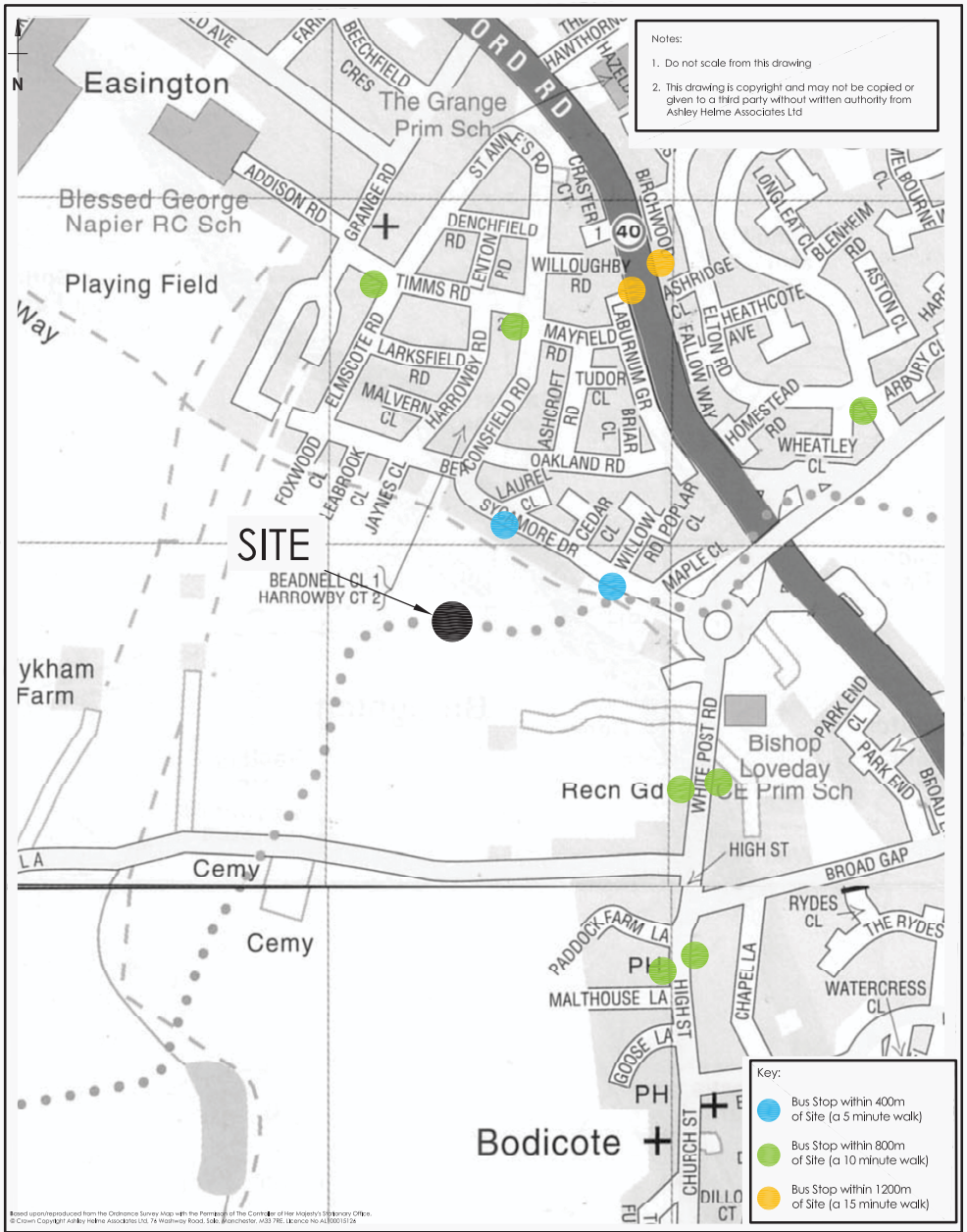


FIGURE 6 CYCLE ROUTES

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_6



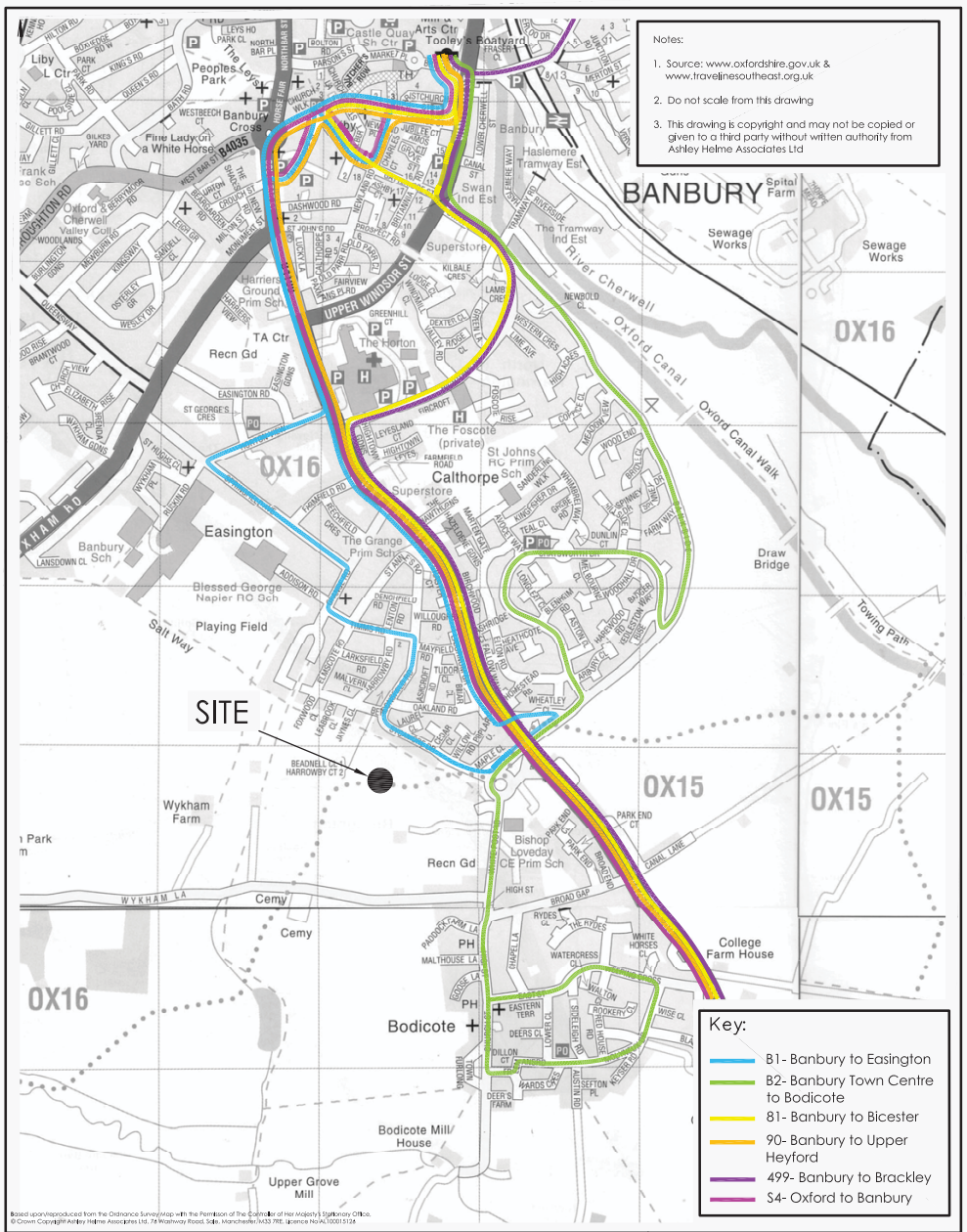
BUS STOPS

FIGURE 7

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_7

This page has been left intentionally blank



BUS ROUTES

FIGURE 8

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

1361_7_8

This page has been left intentionally blank

This page has been left intentionally blank

BUS No	Route	FREQUENCY			OPERATOR
		Mon- Sat		Sun	
		Day	Eve		
Services calling within 400m of site					
B1	Banbury-Easington	30mins[1]	-	-	SIO
Services calling on White Post Road					
B2	Banbury Town Centre- Bodicote	30mins[1]	-	-	SIO
Services calling on A4260 Oxford Road					
81	Bicester-Fritwell-Souldern-Banbury	6 trips[2]	-	-	HT
90	Banbury-Deddington-Upper Heyford	2 trips[3]	-	-	OCC
499	Banbury-Kings Sutton-Aynho-Evenly-Brackley	12 trips[4]	-	-	HT
S4	Oxford-Banbury	30mins	4 trips[5]	8 trips[5]	SIO

Source: www.oxfordshire.gov.uk & www.travelinesoutheast.org.uk

Notes

1. Journey frequency is circa every 30 minutes, some trips vary,
2. During week on Thursday and Friday only, there is 1 trip to Banbury in AM and 1 trip to Bicester in PM. On Saturdays, there are 2 trips to Banbury and 2 return trips to Bicester,
3. 1 trip to Banbury in AM and 1 return trip to Upper Heyford in PM on Thursdays only,
4. 6 trips in each direction. In direction of Brackley, 1 trip terminates at Croughton and in direction of Banbury, 1 trip originates at Charlton,
5. There are 3 trips in direction of Banbury and 1 trip in direction of Deddington in evenings, Monday to Saturday. On Sundays, there are 4 trips in each direction.

Key:

SIO Stagecoach In Oxfordshire
OCC Oxfordshire County Council (Integrated Transport Unit)
HT Heyfordian Travel

TABLE 1 BUS SERVICES AND FREQUENCIES

This page has been left intentionally blank

This page has been left intentionally blank

AREA OF WORKPLACE - RESIDENT POPULATION

LOCAL AUTHORITY/COUNTY/REGION

PLACE OF RESIDENCE / ROUTE ASSIGNMENT	LEICESTER	BLABY	DAVENTRY	NORTHAMPTON	SOUTH NORTHAMPTONSHIRE	WELLINGBOROUGH	EAST STAFFORDSHIRE	RUGBY	STRATFORD-UPON-AVON	WARWICK	BIRMINGHAM	COVENTRY	SOLIHULL	BEDFORD	CENTRAL BEDFORDSHIRE	LUTON	HERTSMERE	HUNTINGDONSHIRE	WATFORD	WESTMINSTER	EALING	HILLINGDON	HOUNSLOW	MILTON KEYNES	SLOUGH	WEST BERKSHIRE	WINDSOR AND MAIDENHEAD	AYLESBURY VALE	WYCOMBE	OXFORD	SOUTH OXFORDSHIRE	VALE OF WHITE HORSE	WEST OXFORDSHIRE	RUNNYMEDE	SURREY HEATH	SOUTH GLOUCESTERSHIRE	SWINDON	CHELTENHAM	COTSWOLD	GLOUCESTER	TEWKESBURY
A361 N			31																																						
A423 N	3	6						12				28																													
M40 N							2			48	8		8																												
A4260 S														2	6	2								14				23		95	13	19	76								
A4260 N																																									
WYKHAM LANE									52																																
B4035 (W)																																									
M40 S																	2		2	2	2	3	3		3	10	7	24	18	94	14	18		2	2						
A422 E				11	238	3												3						15																	
A361 S																																	76			2	7	2	5	3	3
SYCAMORE DRIVE																																									
HIGHTOWN ROAD																																									
B4100 (W)																																									
TOTAL No.	3	6	31	11	238	3	2	12	52	48	8	28	8	2	6	2	2	3	2	2	2	3	3	29	3	10	7	47	18	189	27	37	152	2	2	2	8	2	9	3	3
TOTAL %	0.1	0.2	0.9	0.3	7.1	0.1	0.1	0.4	1.5	1.4	0.2	0.8	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.9	0.1	0.3	0.2	1.4	0.5	5.6	0.8	1.1	4.5	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.1

MIDDLE LAYER OUTPUT AREAS WITHIN CHERWELL

PLACE OF RESIDENCE / ROUTE ASSIGNMENT	CHERWELL 001	CHERWELL 002	CHERWELL 003	CHERWELL 004	CHERWELL 005	CHERWELL 006	CHERWELL 007	CHERWELL 008	CHERWELL 009	CHERWELL 010	CHERWELL 011	CHERWELL 013	CHERWELL 014	CHERWELL 015	CHERWELL 016	CHERWELL 017	CHERWELL 018	CHERWELL 019	TOTAL %
A361 N			321																10.5
A423 N	35																		2.5
M40 N																			2.0
A4260 S								258		61						9	1	66	19.2
A4260 N				858															25.5
WYKHAM LANE									63										3.4
B4035 (W)					25														0.7
M40 S											12	54	8	30	31				10.1
A422 E																			8.0
A361 S																			2.9
SYCAMORE DRIVE						256													7.6
HIGHTOWN ROAD							169												5.0
B4100 (W)	35	51																	2.6
TOTAL No.	70	51	321	858	25	256	169	258	63	61	12	54	8	30	31	9	1	66	100
TOTAL %	2.1	1.5	9.5	25.5	0.7	7.6	5.0	7.7	1.9	1.8	0.4	1.6	0.2	0.9	0.9	0.3	0.0	2.0	

Source: Origin-Destination data for Middle Layer Super Output (SO) Area, extract of table WU03EW 'Location of usual residence and place of work by method of travel to work'

Notes:

1. Car drivers only,
2. Destinations with 1 trip not included.

TABLE 2 **2011 CENSUS DISTRIBUTION**
PLACE OF WORK
RESIDENTS IN CHERWELL 006 & 007 MIDDLE LAYER SO AREAS

PEAK HOUR	ARR	DEP	2-WAY
AM	0.156	0.441	0.597
PM	0.413	0.245	0.658

Notes:
1. Source: TRICS 2013(b).
2. Units = vehicles/hour/dwelling.

TABLE 3 **TRIP GENERATION RATES**
RESIDENTIAL
AM & PM PEAK HOURS

PEAK HOUR	ARR	DEP	2-WAY
AM	44	123	167
PM	115	69	184

Notes:

1. Trip rates as Table 3 trip rates
2. Assumes 280 houses.

TABLE 4 **GENERATED TRAFFIC**
PROPOSED DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	SITE ACCESS			WHITE POST ROAD (N)			WHITE POST ROAD (S)		
	RFC	Q	DELAY (min)	RFC	Q	DELAY (min)	RFC	Q	DELAY (min)
AM	0.212	0.27	0.12	0.092	0.18	0.07	0.175	0.21	0.04
PM	0.121	0.14	0.11	0.221	0.40	0.10	0.207	0.26	0.04

Notes:
1. Refer Figure B7, Appendix B, for traffic flows,
2. Refer Drg No 1361/21 for junction geometry,
3. Q = Queue (pcu),
4. Delay = Average vehicle delay (minutes).

TABLE 5 **PICADY ANALYSIS RESULTS**
SJ1: SITE ACCESS/WHITE POST ROAD
2025 WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	DEVT	OXFORD ROAD NORTHBOUND SLIP			WHITE POST ROAD			SYCAMORE DRIVE			BANKSIDE		
		RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)
AM	Base(1)	0.179	0.22	2.629	0.223	0.29	3.365	0.192	0.24	3.186	0.363	0.57	3.453
	With(2)	0.185	0.23	2.691	0.308	0.44	3.781	0.204	0.26	3.407	0.396	0.65	3.750
PM	Base(1)	0.214	0.27	2.553	0.271	0.37	3.790	0.146	0.17	3.148	0.215	0.27	2.781
	With(2)	0.230	0.30	2.712	0.322	0.47	4.074	0.158	0.19	3.290	0.274	0.38	3.066

Notes:
1. Refer Figure B4, Appendix B, for traffic flows,
2. Refer Figure B7, Appendix B, for traffic flows,
3. Refer Drg No 1361/02 for existing junction geometry,
4. Q = Queue (pcu),
5. Delay= Average vehicle delay (seconds)

TABLE 6 **ARCADY ANALYSIS RESULTS**
SJ2: OXFORD ROAD SLIP/WHITE POST ROAD/SYCAMORE DRIVE/BANKSIDE
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	DEVT	NORTHBOUND ON-SLIP		
		RFC	Q	DELAY (min)
AM	Base[1]	0.444	0.79	0.22
	With[2]	0.583	1.37	0.29
PM	Base[1]	0.264	0.36	0.16
	With[2]	0.338	0.51	0.17

Notes:
1. Refer Figure B9, Appendix F, for traffic flows,
2. Refer Figure B7, Appendix F, for traffic flows,
3. Refer Drg No 1361/03 for existing junction geometry,
4. Q = Queue (pcu),
5. Delay = Average vehicle delay (minutes)

TABLE 7 **PICADY ANALYSIS RESULTS**
SJ2A: OXFORD ROAD/NORTHBOUND SLIPS
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

This page has been left intentionally blank

This page has been left intentionally blank

PEAK HOUR	DEVT	BANKSIDE (E)			COLLEGE FIELDS SITE ACCESS			BANKSIDE (W)			OXFORD ROAD SOUTHBOUND SLIPS		
		RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)
AM	Base(1)	0.458	0.84	4.731	0.209	0.26	5.352	0.517	1.06	6.605	0.150	0.18	2.950
	With(2)	0.469	0.88	4.886	0.213	0.27	5.507	0.551	1.22	7.108	0.170	0.20	3.055
PM	Base(1)	0.364	0.57	4.150	0.122	0.14	4.335	0.518	1.07	6.669	0.202	0.25	3.251
	With(2)	0.392	0.64	4.474	0.129	0.15	4.605	0.538	1.15	6.952	0.249	0.33	3.482

Notes:
1. Refer Figure B4, Appendix B, for traffic flows,
2. Refer Figure B7, Appendix B, for traffic flows,
3. Refer Colin Buchanan TA report, Figure 59, Appendix F,
4. Q = Queue (pcu),
5. Delay= Average vehicle delay (seconds).

TABLE 8 **ARCADY ANALYSIS RESULTS**
SJ3: COLLEGE FIELDS ACCESS/OXFORD ROAD SOUTHBOUND SLIPS/BANKSIDE
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	DEVT	SOUTHBOUND ON-SLIP		
		RFC	Q	DELAY (min)
AM	Base[1]	0.751	2.86	0.44
	With[2]	0.775	3.23	0.48
PM	Base[1]	0.681	2.06	0.37
	With[2]	0.696	2.20	0.38

Notes:
1. Refer Figure B4, Appendix B, for traffic flows,
2. Refer Figure B7, Appendix B, for traffic flows,
3. Refer Drg No 1361/05 for junction geometry,
4. Q = Queue (pcu),
5. Delay = Average vehicle delay (minutes)

TABLE 9 **PICADY ANALYSIS RESULTS**
SJ3A: OXFORD ROAD/SOUTHBOUND SLIPS
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	OXFORD ROAD (N)		HIGHTOWN ROAD		A4260 OXFORD ROAD (S)			
					AHEAD		RIGHT	
	O[1]	M[2]	O[1]	M[2]	O[1]	M[2]	O[1]	M[2]
AM	9.17	6.7	11.08	6.3	13.75	10.1	6.67	12.0
PM	9.17	7.0	12.0	7.4	13.5	8.0	4.42	7.9

Notes:
1. O = observed queue. Average observed queue during peak hour,
2. M = Modelled queue,
3. Refer Drg No 1361/17 for junction geometry,
4. Refer Figure B1, Appendix B for traffic flows.

TABLE 10 **LINSIG VALIDATION RESULTS**
SJ8: HIGHTOWN ROAD/OXFORD ROAD/HORTON VIEW
2015 COUNT
AM & PM PEAK HOURS

This page has been left intentionally blank

PEAK HOUR	DEVT	A4260 OXFORD ROAD (S)						HIGHTOWN ROAD			HORTON VIEW			A4260 OXFORD ROAD (N)		
		AHEAD			AHEAD + RIGHT									AHEAD + RIGHT		
		DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]
AM	Base[1]	63.6	13.3	20.8	81.1	17.1	34.7	67.0	9.8	42.8	80.4	11.9	56.1	77.4	8.8	23.5
	With[2]	66.0	14.5	21.2	84.4	19.7	38.3	70.8	9.9	45.3	84.2	12.4	60.0	82.2	9.8	26.2
PM	Base[1]	53.3	11.8	19.2	76.8	16.4	33.0	75.2	10.4	44.7	53.4	6.1	36.8	63.4	11.3	19.1
	With[2]	55.6	10.4	18.9	82.7	15.5	35.5	81.7	12.7	58.5	57.0	7.3	40.6	67.2	10.3	19.0

Notes:
1. Refer Figure B4, Appendix B for traffic flows,
2. Refer Figure B7, Appendix B for traffic flows,
3. Refer Drg No 1361/17 for existing junction geometry,
4. DS= Degree of Saturation,
5. Q= Mean max queue,
6. DEL= Average vehicle delay (seconds).

TABLE 11 LINSIG ANALYSIS RESULTS
SJ8: OXFORD ROAD/HIGHTOWN ROAD/HORTON VIEW
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	OXFORD ROAD (N)				OXFORD ROAD (S)				UPPER WINDSOR STREET			
	LEFT		AHEAD		AHEAD		RIGHT		LEFT		RIGHT	
	O[1]	M[2]	O[1]	M[2]	O[1]	M[2]	O[1]	M[2]	O[1]	M[2]	O[1]	M[2]
AM	4.1	3.1	10.5	9.8	10.5	4.9	6.8	5.8	7.1	4.2	3.5	3.5
PM	4.0	2.8	13.2	11.7	12.1	5.4	7.5	6.3	5.6	3.0	6.8	5.0

Notes:
1. Average observed queue during peak hour,
2. Modelled queue,
3. Refer Drg No 1361/06 for junction geometry,
4. Refer Figure B1, Appendix B for traffic flows.

TABLE 12 **LINSIG VALDIATION RESULTS: SJ9 AM & PM PEAK HOURS**

This page has been left intentionally blank

This page has been left intentionally blank

PEAK HOUR	DEVT	OXFORD ROAD (N)			OXFORD ROAD (S)			UPPER WINDSOR STREET					
		AHEAD + LEFT			AHEAD + RIGHT			LEFT			RIGHT		
		DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]	DS[4]	Q[5]	DEL[6]
AM	Base[1]	82.8	16.1	37.4	81.9	10.2	17.6	35.1	5.1	16.7	73.7	4.8	72.6
	With[2]	84.5	16.8	38.6	85.3	11.3	18.9	36.0	5.2	16.8	82.9	5.6	93.3
PM	Base[1]	85.4	19.3	32.6	86.8	11.4	24.3	41.9	6.0	23.0	81.2	6.7	75.3
	With[2]	88.7	21.3	36.1	84.4	12.1	25.2	44.8	6.4	23.5	89.3	8.0	100.0

Notes:
1. Refer Figure B4, Appendix B for traffic flows,
2. Refer Figure B7, Appendix B for traffic flows,
3. Refer Drg No 1361/06 for existing junction geometry,
4. DS= Degree of Saturation,
5. Q= Mean max queue,
6. DEL= Average vehicle delay (seconds).

TABLE 13 LINSIG ANALYSIS RESULTS
SJ9: UPPER WINDSOR STREET/OXFORD ROAD
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	UPPER WINDSOR STREET (N)		SWAN CLOSE ROAD		UPPER WINDSOR STREET (S)	
	O(1)	M(2)	O(1)	M(2)	O(1)	M(2)
AM	18.58	8.8	17.83	11.9	14.25	10.3
PM	16.67	8.1	15.58	12.1	9.58	8.1

Notes:
1. Average observed queue during peak hour.
2. Modelled queue,
3. Refer Drg No 1361/18 for junction geometry,
4. Refer Figure B1, Appendix F for traffic flows.

TABLE 14 **LINSIG VALDIATION RESULTS: SJ13 AM & PM PEAK HOURS**

This page has been left intentionally blank

This page has been left intentionally blank

PEAK HOUR	DEVT	UPPER WINDSOR STREET (N)			SWAN CLOSE ROAD			UPPER WINDSOR STREET (N)		
		DS[4]	Q[5]	DELAY[6]	DS[4]	Q[5]	DELAY[6]	DS[4]	Q[5]	DELAY[6]
AM	Base[1]	82.7	17.6	41.6	84.6	18.9	37.2	80.4	12.6	22.2
	With[2]	85.8	19.2	44.5	87.5	20.5	40.6	81.9	13.0	23.0
PM	Base[1]	66.3	11.6	34.6	89.0	21.6	40.0	87.7	14.9	27.0
	With[2]	68.0	12.1	35.1	90.6	22.7	42.8	92.1	17.5	32.8

Notes:
1. Refer Figure B4, Appendix B, for traffic flows,
2. Refer Figure B7, Appendix B, for traffic flows,
3. Refer Drg No 1361/18 for junction geometry,
4. DS = Degree of Saturation (%),
5. Delay = Average vehicle delay (seconds)

TABLE 15 **LINSIG ANALYSIS RESULTS**
SJ13: SWAN CLOSE ROAD/UPPER WINDSOR STREET
2025 BASE & WITH DEVELOPMENT
AM & PM PEAK HOURS

PEAK HOUR	SITE ACCESS			WHITE POST ROAD (N)			WHITE POST ROAD (S)		
	RFC	Q	DELAY (secs)	RFC	Q	DELAY (secs)	RFC	Q	DELAY (secs)
AM	0.426	0.74	5.017	0.463	0.86	5.409	0.324	0.48	5.149
PM	0.245	0.32	3.978	0.432	0.76	5.029	0.365	0.58	5.749

Notes:
1. Refer Figure D7, Appendix D, for traffic flows,
2. Refer Drg No 1361/12/A for junction geometry,
3. Q = Queue (pcu),
4. Delay = Average vehicle delay (seconds).

TABLE 16 **ARCADY ANALYSIS RESULTS**
SJ1: SITE ACCESS/WHITE POST ROAD
2025 WITH DEVELOPMENT: OCC SENSITIVITY TEST
AM & PM PEAK HOURS

PEAK HOUR	OXFORD ROAD NORTHBOUND SLIP			WHITE POST ROAD			SYCAMORE DRIVE			BANKSIDE		
	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)
AM	0.196	0.24	2.785	0.435	0.77	4.628	0.223	0.29	3.815	0.451	0.82	4.386
PM	0.258	0.35	2.995	0.363	0.57	4.333	0.163	0.19	3.396	0.369	0.58	3.592

Notes:
1. Refer Figure D7, Appendix D, for traffic flows,
2. Refer Drg No 1361/02 for junction geometry,
3. Q = Queue (pcu),
4. Delay = Average vehicle delay (seconds).

TABLE 17 **ARCADY ANALYSIS RESULTS**
SJ2: OXFORD ROAD SLIP/WHITE POST ROAD/SYCAMORE DRIVE/BANKSIDE
2025 WITH DEVELOPMENT: OCC SENSITIVITY TEST
AM & PM PEAK HOURS

PEAK HOUR	NORTHBOUND ON-SLIP		
	RFC	Q	DELAY (min)
AM	0.864	5.37	0.80
PM	0.421	0.72	0.20

Notes:
1. Refer Figure D7, Appendix D, for traffic flows,
2. Refer Drg No 1361/03 for existing junction geometry,
3. Q = Queue (pcu),
4. Delay = Average vehicle delay (minutes)

TABLE 18 **PICADY ANALYSIS RESULTS**
SJ2A: OXFORD ROAD/NORTHBOUND SLIPS
2025 WITH DEVELOPMENT: OCC SENSITIVITY TEST
AM & PM PEAK HOURS

This page has been left intentionally blank

PEAK HOUR	BANKSIDE (E)			COLLEGE FIELDS SITE ACCESS			BANKSIDE (W)			OXFORD ROAD SOUTHBOUND SLIPS		
	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)	RFC	Q	DELAY (sec)
AM	0.479	0.91	5.077	0.220	0.28	5.731	0.582	1.38	7.619	0.203	0.25	3.180
PM	0.420	0.72	5.011	0.141	0.16	5.124	0.547	1.20	7.088	0.353	0.54	4.043

Notes:
1. Refer Figure D7, Appendix D, for traffic flows,
2. Refer Colin Buchanan TA report, Figure 59, Appendix H,
3. Q = Queue (pcu),
4. Delay= Average vehicle delay (seconds).

TABLE 19 **ARCADY ANALYSIS RESULTS**
SJ3: COLLEGE FIELDS ACCESS/OXFORD ROAD SOUTHBOUND SLIPS/BANKSIDE
2025 WITH DEVELOPMENT: OCC SENSITIVITY TEST
AM & PM PEAK HOURS

PEAK HOUR	SOUTHBOUND ON-SLIP		
	RFC	Q	DELAY (min)
AM	0.838	4.60	0.64
PM	0.716	2.41	0.41

Notes:
1. Refer Figure D7, Appendix D, for traffic flows,
2. Refer Drg No 1361/05 for existing junction geometry,
3. Q = Queue (pcu),
4. Delay = Average vehicle delay (minutes)

TABLE 20 **PICADY ANALYSIS RESULTS**
SJ3A: OXFORD ROAD/SOUTHBOUND SLIPS
2025 WITH DEVELOPMENT: OCC SENSITIVITY TEST
AM & PM PEAK HOURS

This page has been left intentionally blank

This page has been left intentionally blank

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Friday 06/01/2012 Time 1100 Slight at A361 NORTH BAR AT BANBURY CROSS RBT J/W B4035 & HIGH ST BANBURY

E: 445338 N: 240418 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight:street lights present

Vehicle Reference 1 Car Moving from N to S Going ahead but held up On main carriageway

Vehicle Reference 2 Car Moving from N to S Going ahead but held up On main carriageway

Casualty Reference: 1 Age: 19 Male Driver/rider Severity: Slight Injured by vehicle: 2

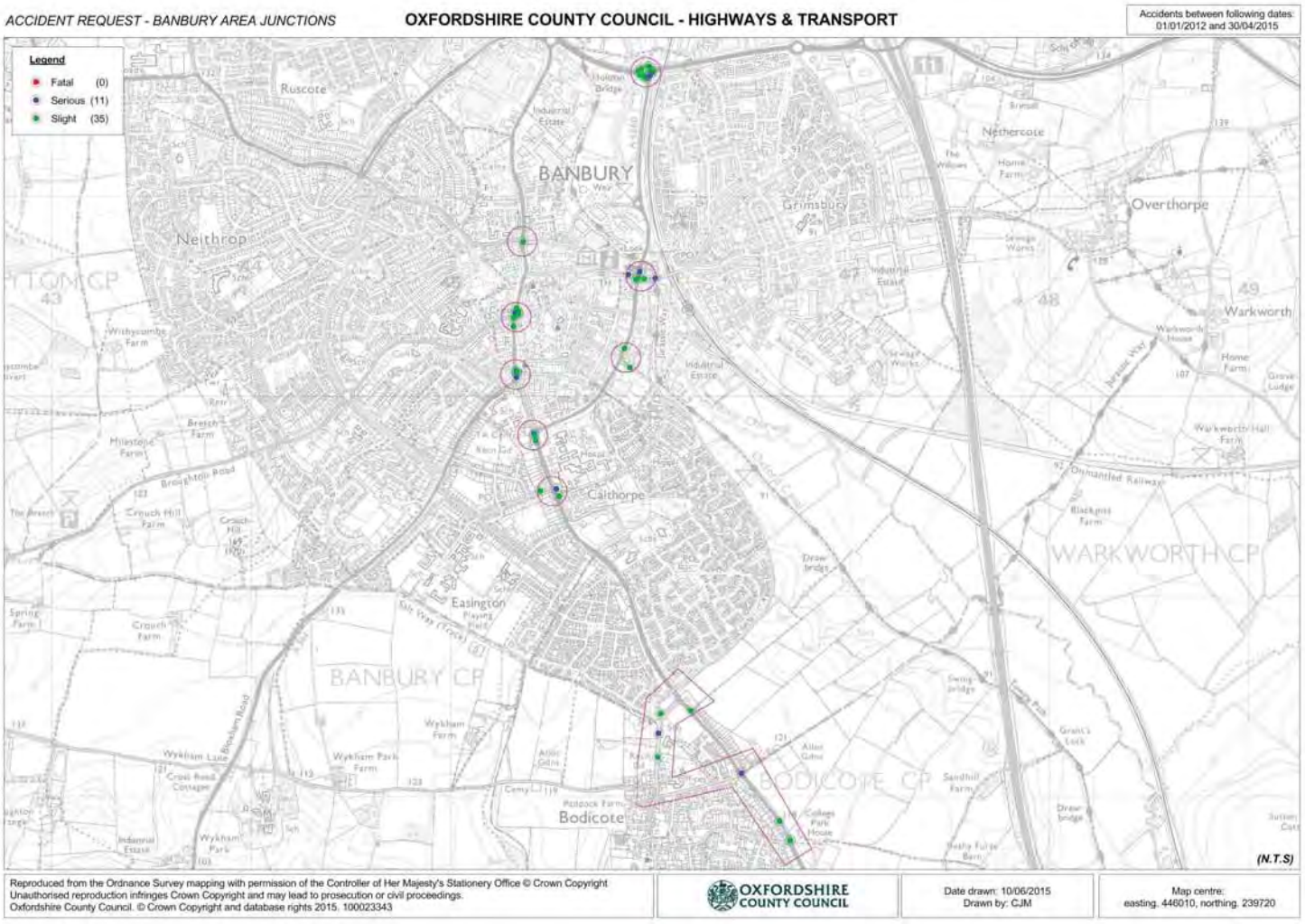
Friday 13/01/2012 Time 0933 Slight at A4260 OXFORD RD J/W WEEPING CROSS RD BANBURY

E: 446700 N: 237778 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Wet/Damp Daylight:street lights present

Vehicle Reference 1 Car Moving from N to SE Going ahead other On main carriageway

Vehicle Reference 2 Car Moving from N to W Waiting to turn right On main carriageway

Casualty Reference: 1 Age: 57 Male Driver/rider Severity: Slight Injured by vehicle: 2



TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Tuesday 15/05/2012 Time 1711 Serious at A4260 CONCORD AVE APPROX 20M N OF J/W BRIDGE ST BANBURY

E: 445946 N: 240624 Junction Detail: Crossroads Control: Automatic traffic sign
Fine without high winds Road surface Wet/Damp Daylight:street lights present

Vehicle Reference 1	Car			Moving from	N	to	S	Going ahead other		On main carriageway	
Casualty Reference:	1	Age:	62		Male			Driver/rider	Severity:	Serious	Injured by vehicle: 1
Vehicle Reference 2	Car			Moving from	N	to	S	Going ahead but held up		On main carriageway	
Casualty Reference:	2	Age:	13		Female			Passenger	Severity:	Slight	Injured by vehicle: 2
Casualty Reference:	3	Age:	13		Female			Passenger	Severity:	Slight	Injured by vehicle: 2
Casualty Reference:	4	Age:	13		Female			Passenger	Severity:	Slight	Injured by vehicle: 2
Casualty Reference:	5	Age:	38		Female			Driver/rider	Severity:	Slight	Injured by vehicle: 2
Vehicle Reference 3	Van or Goods 3.5 to			Moving from	N	to	S	Going ahead but held up		On main carriageway	
Vehicle Reference 4	Van or Goods 3.5 to			Moving from	N	to	S	Going ahead but held up		On main carriageway	
Vehicle Reference 5	Car			Moving from	N	to	S	Going ahead but held up		On main carriageway	
Vehicle Reference 6	Car			Moving from	N	to	S	Going ahead but held up		On main carriageway	
Casualty Reference:	6	Age:	35		Female			Driver/rider	Severity:	Slight	Injured by vehicle: 6
Vehicle Reference 7	Car			Moving from	N	to	S	Going ahead but held up		On main carriageway	
Vehicle Reference 8	Car			Moving from	N	to	S	Going ahead but held up		On main carriageway	

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Wednesday 28/03/2012 Time 2105 Serious at A361 NORTH BAR JUST N OF J/W BANBURY CROSS RBT B4035 & HIGH ST BANBURY

E: 445323 N: 240419 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Darkness: street lights present and lit

Vehicle Reference 1	Car			Moving from	S	to	N	Going ahead other		On main carriageway	
Casualty Reference:	1	Age:	18		Male			Driver/rider	Severity:	Slight	Injured by vehicle: 1
Casualty Reference:	2	Age:	16		Female			Passenger	Severity:	Serious	Injured by vehicle: 1
Casualty Reference:	3	Age:	16		Female			Passenger	Severity:	Slight	Injured by vehicle: 1
Vehicle Reference 2	Car			Moving from	S	to	N	Going ahead but held up		On main carriageway	
Vehicle Reference 3	Car			Moving from	S	to	N	Going ahead but held up		On main carriageway	
Vehicle Reference 4	Car			Moving from	S	to	N	Going ahead but held up		On main carriageway	

Tuesday 17/04/2012 Time 1904 Serious at A361 SOUTH BAR ATS J/W B4100 OXFORD RD & A361 BLOXHAM RD BANBURY

E: 445328 N: 240095 Junction Detail: T or staggered junct Control: Automatic traffic sign
Fine without high winds Road surface Dry Daylight:street lights present

Vehicle Reference 1	Car			Moving from	N	to	S	Going ahead other		On main carriageway	
Casualty Reference:	1	Age:	15		Female			Pedestrian	Severity:	Serious	Injured by vehicle: 1

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Tuesday 28/08/2012 Time 0845 Serious at BRIDGE STREET BY J/W ACCESS TO RAIL STATION ENTRANCE BANBURY

E: 446024 N: 240591 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Dry Daylight:street lights present
Vehicle Reference 1 Car Moving from W to S Turning right On main carriageway
Vehicle Reference 2 Pedal Cycle Moving from E to W Going ahead other On main carriageway
Casualty Reference: 1 Age: 27 Female Driver/rider Severity: Serious Injured by vehicle: 2

Wednesday 10/10/2012 Time 0823 Slight at A4260 OXFORD ROAD J/W A4260 UPPER WINDSOR ST BANBURY

E: 445420 N: 239805 Junction Detail: T or staggered junct Control: Automatic traffic sign
Fine without high winds Road surface Dry Daylight:street lights present
Vehicle Reference 1 Car Moving from to Going ahead other On main carriageway
Casualty Reference: 1 Age: 11 Female Pedestrian Severity: Slight Injured by vehicle: 1

Friday 12/10/2012 Time 1818 Slight at A361 SOUTH BAR ST J/W ST JOHNS RD BANBURY

E: 445329 N: 240119 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from E to N Turning right On main carriageway
Vehicle Reference 2 Car Moving from N to S Starting On main carriageway
Casualty Reference: 1 Age: 40 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Monday 04/06/2012 Time 1330 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 446002 N: 241627 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight:street lights present
Vehicle Reference 1 Car Moving from E to W Going ahead other On main carriageway
Casualty Reference: 1 Age: 54 Male Driver/rider Severity: Slight Injured by vehicle: 1
Casualty Reference: 2 Age: 30 Female Passenger Severity: Slight Injured by vehicle: 1

Monday 06/08/2012 Time 1224 Slight at A422 HENNEF WAY AT RBT J/W A4260 CONCORD AVENUE BANBURY

E: 445945 N: 241611 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight:street lights present
Vehicle Reference 1 Car Moving from E to W Going ahead other On main carriageway
Casualty Reference: 1 Age: 45 Male Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from E to W Stopping On main carriageway

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Tuesday 26/03/2013 Time 1140 Slight at A4260 OXFORD RD AT J/W HIGHTOWN RD BANBURY

E: 445542 N: 239501 Junction Detail: T or staggered junct Control: Automatic traffic sign
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to E Turning right On main carriageway
Vehicle Reference 2 Car Moving from N to S Going ahead other On main carriageway
Casualty Reference: 1 Age: 20 Female Driver/rider Severity: Slight Injured by vehicle: 2

Monday 08/04/2013 Time 1009 Slight at A4260 WINDSOR ST APPROX 40M N OF J/W GATTERIDGE ST BANBURY

E: 445870 N: 240240 Junction Detail: Not within 20m of j Control:
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to S U-turn On main carriageway
Vehicle Reference 2 Motorcycle over 500 Moving from S to N Going ahead other On main carriageway
Casualty Reference: 1 Age: 52 Male Driver/rider Severity: Slight Injured by vehicle: 2

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Sunday 25/11/2012 Time 1100 Slight at WHITE POST ROAD RBT T J/W A4260 OXFORD RD SLIP RD & SYCAMORE DRIVE BODICOTE

E: 446052 N: 238414 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight:street lights present
Vehicle Reference 1 Car Moving from E to W Going ahead other On main carriageway
Vehicle Reference 2 Pedal Cycle Moving from N to S Going ahead other On main carriageway
Casualty Reference: 1 Age: 31 Male Driver/rider Severity: Slight Injured by vehicle: 2

Sunday 24/02/2013 Time 0151 Slight at A361 NORTH BAR AT BANBURY CROSS RBT J/W B4035 & HIGH ST BANBURY

E: 445337 N: 240425 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Wet/Damp Darkness: street lights present and lit
Vehicle Reference 1 Taxi/Private hire car Moving from N to S Going ahead other On main carriageway
Casualty Reference: 1 Age: 22 Female Pedestrian Severity: Slight Injured by vehicle: 1

Tuesday 12/03/2013 Time 1755 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 445965 N: 241606 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to N Going ahead other On main carriageway
Vehicle Reference 2 Car Moving from E to W Going ahead other On main carriageway
Casualty Reference: 1 Age: 31 Female Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Tuesday 14/05/2013 Time 0958 Slight at A361 AT BANBURY CROSS RBT J/W B4035 & HIGH ST BANBURY

E: 445314 N: 240394 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to N U-turn On main carriageway
Casualty Reference: 1 Age: 29 Female Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from S to E Turning right On main carriageway

Monday 24/06/2013 Time 1529 Slight at A361 AT BANBURY CROSS RBT J/W B4035 & HIGH ST BANBURY

E: 445337 N: 240410 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other On main carriageway
Vehicle Reference 2 Motor Cycle over 50 Moving from W to E Going ahead other On main carriageway
Casualty Reference: 1 Age: 38 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Saturday 13/04/2013 Time 1115 Slight at A4260 CONCORDE AVE J/W A422 HENNEF WAY BANBURY

E: 445981 N: 241593 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to N Going ahead other On main carriageway
Vehicle Reference 2 Car Moving from S to N Stopping On main carriageway
Casualty Reference: 1 Age: 69 Male Driver/rider Severity: Slight Injured by vehicle: 2

Thursday 18/04/2013 Time 1916 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY

E: 445995 N: 241651 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from W to E Going ahead other On main carriageway
Casualty Reference: 1 Age: 12 Male Passenger Severity: Slight Injured by vehicle: 1
Casualty Reference: 2 Age: 8 Female Passenger Severity: Slight Injured by vehicle: 1

Tuesday 30/04/2013 Time 1615 Serious at BRIDGE STREET J/W EXIT FOR BUS DEPOT BANBURY

E: 445889 N: 240609 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Bus or coach Moving from N to E Turning left On main carriageway
Casualty Reference: 1 Age: 42 Male Pedestrian Severity: Serious Injured by vehicle: 1

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Monday 19/08/2013 Time 0944 Serious at A4260 OXFORD ROAD J/W BROAD GAP & CANAL LANE BODICOTE

E: 446457 N: 238115 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Goods over 3.5 ton Moving from NE to S Starting On main carriageway
Vehicle Reference 2 Car Moving from N to SE Going ahead other On main carriageway
Casualty Reference: 1 Age: 78 Male Driver/rider Severity: Serious Injured by vehicle: 2

Monday 21/10/2013 Time 1502 Slight at A4260 OXFORD RD J/W WEEPING CROSS RD BANBURY

E: 446702 N: 237779 Junction Detail: T or staggered junct Control: Give way or controlled
Raining without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from W to SE Turning right On main carriageway
Vehicle Reference 2 Car Moving from SE to N Going ahead other On main carriageway
Casualty Reference: 1 Age: 34 Male Driver/rider Severity: Slight Injured by vehicle: 2

Wednesday 23/10/2013 Time 1540 Serious at A361 SOUTH BAR ST J/W ST JOHNS RD BANBURY

E: 445329 N: 240126 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to S Going ahead other On main carriageway
Casualty Reference: 1 Age: 14 Male Pedestrian Severity: Serious Injured by vehicle: 1

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Sunday 28/07/2013 Time 0945 Slight at A4260 J/W SERVICE RD S OF ESSO FILLING STATION BODICOTE

E: 446204 N: 238428 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from N to NE Turning left On main carriageway
Vehicle Reference 2 Pedal Cycle Moving from N to SE Going ahead other Cycle lane (on main carriageway)
Casualty Reference: 1 Age: 46 Male Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 30/07/2013 Time 1625 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 445943 N: 241631 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from W to E Starting On main carriageway
Vehicle Reference 2 Car Moving from W to E Going ahead but held up On main carriageway
Casualty Reference: 1 Age: 29 Female Driver/rider Severity: Slight Injured by vehicle: 2

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Thursday 27/02/2014 Time 2054 Slight at SWAN CLOSE RD J/W PETROL FILLING STATION EXIT APPROX 50M SE OF J/W A4260 UPPER WINDSOR ST BANBURY

E: 445896 N: 240144 Junction Detail: Using private drive c Control: Give way or controlled
Fine without high winds Road surface Dry Darkness: street lights present and lit

Vehicle Reference 1 Car Moving from N to SE Turning left On main carriageway

Casualty Reference: 2 Age: 56 Female Passenger Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Taxi/Private hire car Moving from N to SE Going ahead other On main carriageway

Casualty Reference: 1 Age: 35 Male Driver/rider Severity: Slight Injured by vehicle: 2

Saturday 05/04/2014 Time 1909 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 445953 N: 241637 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from W to E Going ahead other On main carriageway

Casualty Reference: 1 Age: 25 Female Passenger Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from W to E Changing lane to left On main carriageway

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Thursday 24/10/2013 Time 1731 Serious at A4260 OXFORD ROAD J/W HORTON VIEW BANBURY

E: 445528 N: 239540 Junction Detail: T or staggered junct Control: Automatic traffic sign
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1 Car Moving from N to S Going ahead other On main carriageway

Casualty Reference: 1 Age: 16 Male Pedestrian Severity: Serious Injured by vehicle: 1

Wednesday 11/12/2013 Time 1323 Slight at WHITE POST ROAD J/W CHERWELL DISTRICT COUNCIL CAR PARK BODICOTE

E: 446037 N: 238197 Junction Detail: Other junction Control: Give way or controlled
Fog or mist Road surface Wet/Damp Daylight

Vehicle Reference 1 Car Moving from E to N Turning right On main carriageway

Vehicle Reference 2 Motor Cycle over 50 Moving from N to S Going ahead other On main carriageway

Casualty Reference: 1 Age: 56 Male Driver/rider Severity: Slight Injured by vehicle: 2

Friday 17/01/2014 Time 1930 Slight at A361 SOUTH BAR AT CAR PARKING AREA APPROX 50M S OF J/W BANBURY CROSS RBT BANBURY

E: 445314 N: 240350 Junction Detail: Not within 20m of j Control:
Fine without high winds Road surface Wet/Damp Darkness: street lights present and lit

Vehicle Reference 1 Car Moving from S to W Turning left On main carriageway

Vehicle Reference 2 Pedal Cycle Moving from S to N Going ahead other Cycle lane (on main carriageway)

Casualty Reference: 1 Age: 40 Male Driver/rider Severity: Slight Injured by vehicle: 2

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Tuesday 30/09/2014 Time 0930 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 446012 N: 241625 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Other Vehicle	Moving from E to W	Stopping	On main carriageway		
Vehicle Reference 2	Car	Moving from E to S	Turning left	On main carriageway		
Casualty Reference: 1	Age: 52	Female	Driver/rider	Severity: Slight	Injured by vehicle: 2	

Wednesday 22/10/2014 Time 0830 Slight at A4260 OXFORD ROAD J/W ACCESS TO FAIRLAWNS GUEST HOUSE APPROX 45M S OF J/W A260 BANBURY INNER RELIEF ROAD BANBURY

E: 445424 N: 239777 Junction Detail: Using private drive c Control: Give way or controlled
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Car	Moving from S to NE	Stopping	9		
Vehicle Reference 2	Pedal Cycle	Moving from S to N	Going ahead other	9		
Casualty Reference: 1	Age: 38	Male	Driver/rider	Severity: Slight	Injured by vehicle: 2	
Vehicle Reference 3	Pedal Cycle	Moving from S to N	Going ahead other	9		
Casualty Reference: 2	Age: 7	Female	Driver/rider	Severity: Slight	Injured by vehicle: 3	

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Monday 28/04/2014 Time 1450 Slight at A361 NORTH BAR APPROX 25M N OF J/W BANBURY CROSS RBT B4035 & HIGH ST BANBURY

E: 445328 N: 240443 Junction Detail: Not within 20m of j Control:
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Car	Moving from S to N	Going ahead other	On main carriageway		
Casualty Reference: 1	Age: 19	Female	Passenger	Severity: Slight	Injured by vehicle: 1	
Vehicle Reference 2	Car	Moving from S to N	Going ahead but held up	On main carriageway		

Saturday 03/05/2014 Time 1215 Slight at B4100 WARWICK RD XRDS J/W A361 NORTH BAR / SOUTHAM RD & CASTLE ST BANBURY

E: 445362 N: 240773 Junction Detail: Crossroads Control: Automatic traffic sign
Fine without high winds Road surface Dry Daylight

Vehicle Reference 1	Car	Moving from N to S	Going ahead other	On main carriageway		
Casualty Reference: 2	Age: 30	Male	Pedestrian	Severity: Slight	Injured by vehicle: 1	
Vehicle Reference 2	Car	Moving from E to N	Turning right	On main carriageway		
Casualty Reference: 1	Age: 64	Female	Driver/rider	Severity: Slight	Injured by vehicle: 2	

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Friday 24/10/2014 Time 1503 Slight at A4260 OXFORD ROAD NEAR SERVICE RD APPROX 110M NW OF J/W WEEPING CROSS ROAD BANBURY
E: 446647 N: 237876 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from SE to N Going ahead other On main carriageway
Casualty Reference: 1 Age: 19 Female Driver/rider Severity: Slight Injured by vehicle: 1
Vehicle Reference 2 Car Moving from SE to N Going ahead but held up On main carriageway
Vehicle Reference 3 Car Moving from SE to N Going ahead but held up On main carriageway
Vehicle Reference 4 Car Moving from SE to N Going ahead but held up On main carriageway

Monday 10/11/2014 Time 1727 Serious at B4100 OXFORD ROAD J/W A4260 UPPER WINSOR STREET J/W ACCESS TO ASHLEA GUEST HOUSEL BANBURY
E: 445418 N: 239813 Junction Detail: Crossroads Control: Automatic traffic sign
Fine without high winds Road surface Wet/Damp Darkness: street lights present and lit
Vehicle Reference 1 Motorcycle over 500 Moving from S to N Going ahead other On main carriageway
Casualty Reference: 1 Age: 30 Male Driver/rider Severity: Serious Injured by vehicle: 1
Vehicle Reference 2 Car Moving from N to W Turning right On main carriageway

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months
Selection: **Notes:**
Selected using Manual Selection

Friday 24/10/2014 Time 2305 Slight at A4260 LOWER CHERWELL STREET J/W BRIDGE STREET BANBURY
E: 445928 N: 240585 Junction Detail: Crossroads Control: Automatic traffic sign
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from S to W Turning left On main carriageway
Casualty Reference: 1 Age: 21 Male Pedestrian Severity: Slight Injured by vehicle: 1

Friday 24/10/2014 Time 1210 Slight at A4260 BRIDGE ST APPROX 10M E OF XRDS J/W CHERWELL ST BANBURY
E: 445970 N: 240588 Junction Detail: Not within 20m of j Control:
Fine without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from W to E Going ahead other On main carriageway
Vehicle Reference 2 Car Moving from W to E Going ahead but held up On main carriageway
Casualty Reference: 1 Age: 36 Female Driver/rider Severity: Slight Injured by vehicle: 2

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Monday 26/01/2015 Time 1857 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVENUE BANBURY

E: 445991 N: 241652 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to E Going ahead other On main carriageway

Casualty Reference: 1 Age: 49 Male Driver/rider Severity: Slight Injured by vehicle: 1

Vehicle Reference 2 Car Moving from W to E Going ahead other On main carriageway

Saturday 28/02/2015 Time 0140 Serious at WHITE POST ROAD APPROX 100M S OF RBT J/W A4260 OXFORD RD SLIP RD & SYCAMORE DRIVE BODICOTE

E: 446040 N: 238316 Junction Detail: Not within 20m of j Control:
Fine without high winds Road surface Wet/Damp Darkness: street lights present and lit
Vehicle Reference 1 Taxi/Private hire car Moving from S to N Going ahead other On main carriageway

Casualty Reference: 1 Age: 25 Male Pedestrian Severity: Serious Injured by vehicle: 1

Friday 06/03/2015 Time 2342 Slight at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 446005 N: 241622 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Motorcycle over 500 Moving from E to W Going ahead other On main carriageway

Casualty Reference: 1 Age: 25 Male Driver/rider Severity: Slight Injured by vehicle: 1

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Thursday 04/12/2014 Time 1831 Slight at A4260 LOWER CHERWELL ST J/W BRIDGE STREET BANBURY

E: 445938 N: 240593 Junction Detail: Crossroads Control: Automatic traffic sign
Fine without high winds Road surface Dry Darkness: street lights present and lit
Vehicle Reference 1 Car Moving from W to S Turning right On main carriageway

Casualty Reference: 1 Age: 20 Female Pedestrian Severity: Slight Injured by vehicle: 1

Tuesday 16/12/2014 Time 0950 Slight at A361 SOUTH BAR STREET J/W ST JOHNS ROAD BANBURY

E: 445331 N: 240122 Junction Detail: T or staggered junct Control: Give way or controlled
Fine without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from E to N Turning right On main carriageway

Vehicle Reference 2 Car Moving from N to S Going ahead other On main carriageway

Casualty Reference: 1 Age: 38 Female Driver/rider Severity: Slight Injured by vehicle: 2

Tuesday 06/01/2015 Time 1616 Slight at A4260 CONCORDE AVE RBT J/W A422 HENNEF WAY BANBURY

E: 445972 N: 241599 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Wet/Damp Daylight
Vehicle Reference 1 Car Moving from S to W Turning left On main carriageway

Vehicle Reference 2 Car Moving from S to W Turning left On main carriageway

Casualty Reference: 1 Age: 33 Female Driver/rider Severity: Slight Injured by vehicle: 2

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Accidents involving:

	Fatal	Serious	Slight	Total
Motor vehicles only (excluding 2-wheels)	0	8	27	35
2-wheeled motor vehicles	0	2	4	6
Pedal cycles	0	1	4	5
Horses & other	0	0	0	0
Total	0	11	35	46

Casualties:

	Fatal	Serious	Slight	Total
Vehicle driver	0	2	22	24
Passenger	0	1	10	11
Motorcycle rider	0	2	4	6
Cyclist	0	1	5	6
Pedestrian	0	5	6	11
Other	0	0	0	0
Total	0	11	47	58

Number of casualties meeting the criteria: **58**

TRAFFMAP **INTERPRETED LISTING** **Run on: 10/ 06/2015**

AccsMap - Accident Analysis System

Accidents between dates **01/01/2012** **and** **30/04/2015** (40) months

Selection: **Notes:**

Selected using Manual Selection

Thursday 16/04/2015 Time 1436 Serious at A422 HENNEF WAY RBT J/W A4260 CONCORDE AVE BANBURY

E: 445996 N: 241605 Junction Detail: Roundabout Control: Give way or controlled
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Motor Cycle over 1 Moving from W to S Turning right On main carriageway

Casualty Reference: 1 Age: 48 Male Driver/rider Severity: Serious Injured by vehicle: 1

Thursday 16/04/2015 Time 1730 Slight at HORTON VIEW APPROX 60M SW OF J/W A4260 OXFORD RD BANBURY

E: 445449 N: 239528 Junction Detail: Not within 20m of j Control:
Fine without high winds Road surface Dry Daylight
Vehicle Reference 1 Car Moving from S to NE Starting On main carriageway

Casualty Reference: 1 Age: 47 Male Pedestrian Severity: Slight Injured by vehicle: 1

This page has been left intentionally blank

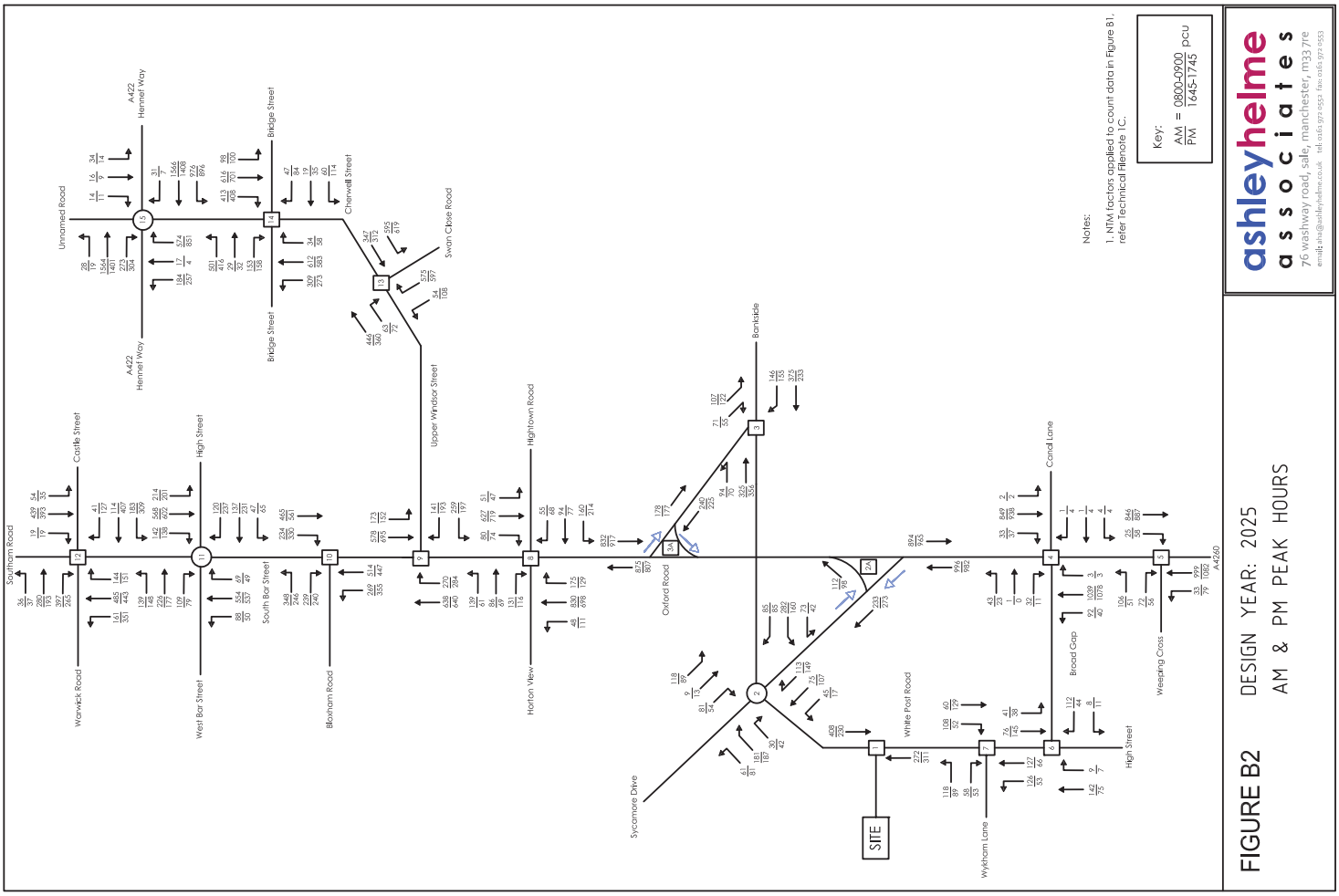


FIGURE B2 DESIGN YEAR: 2025
AM & PM PEAK HOURS

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 9553 fax: 0161 972 9553

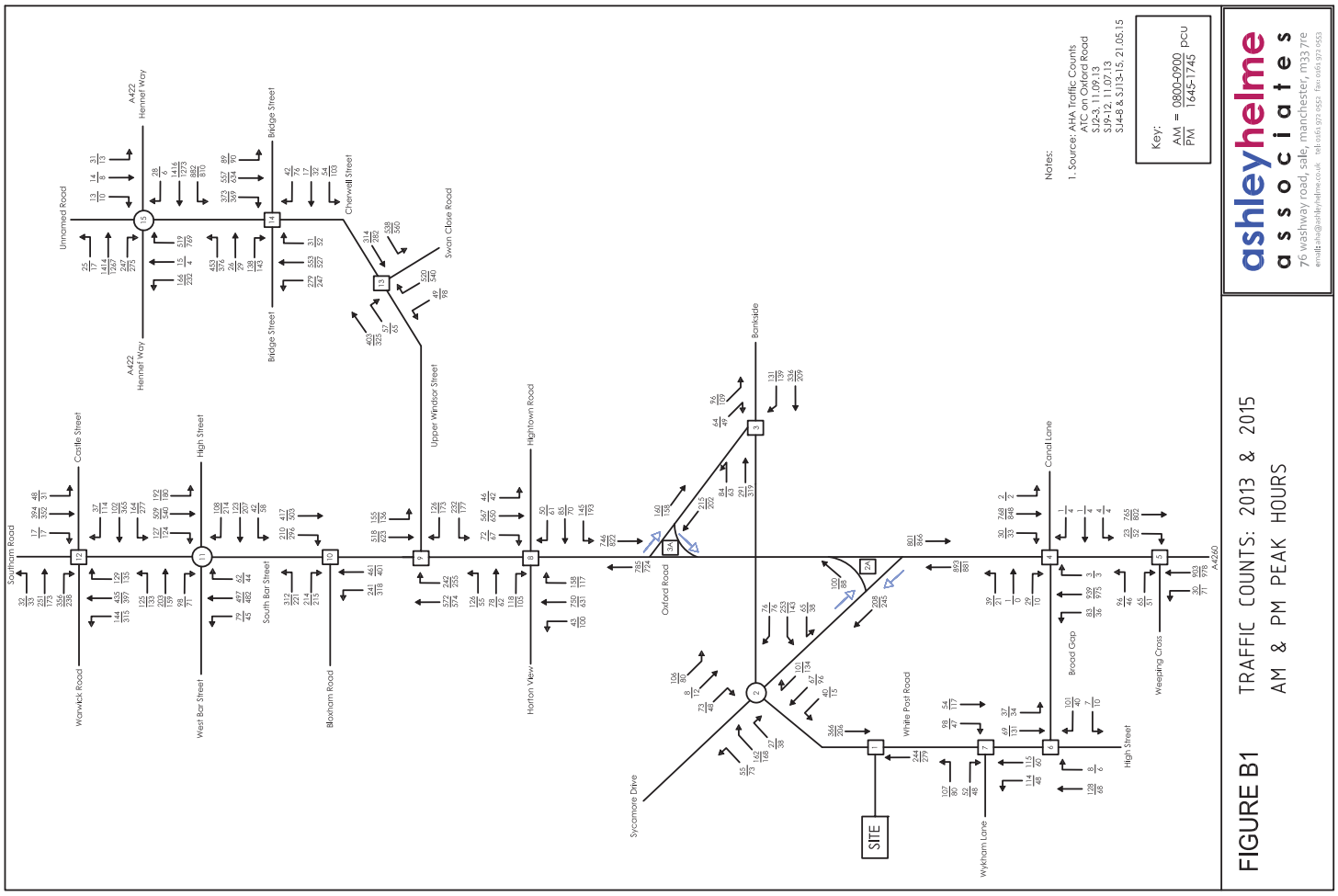
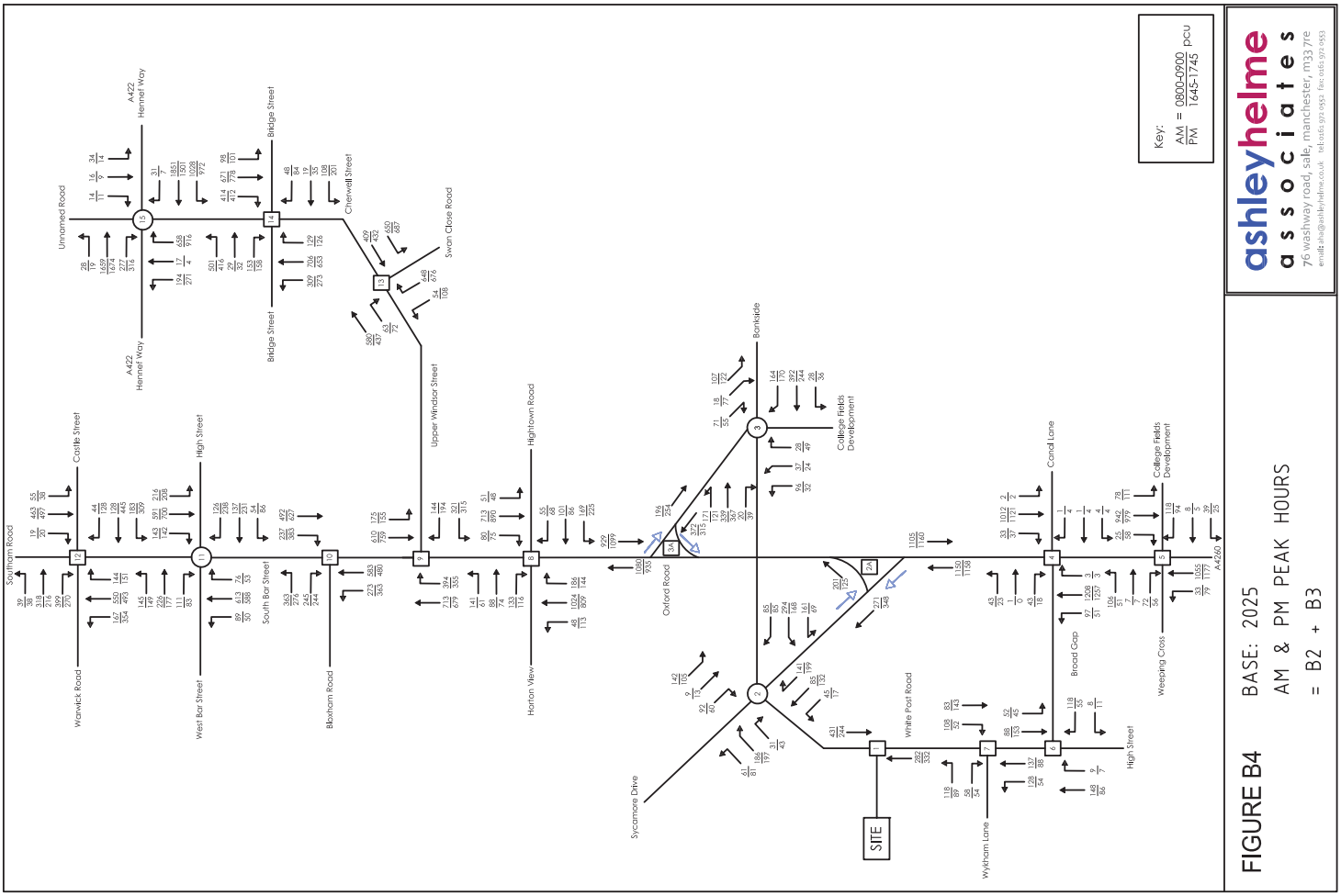
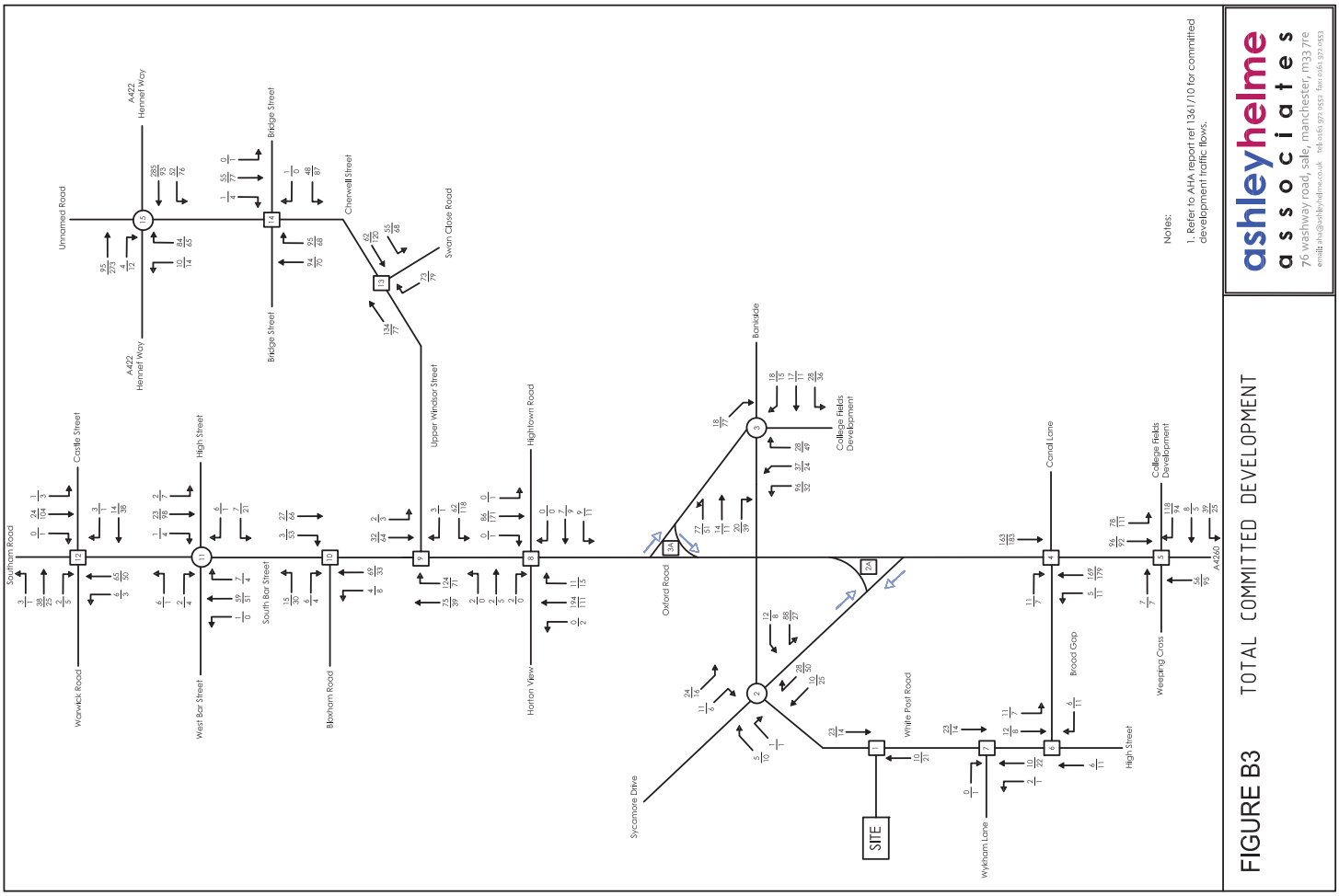


FIGURE B1 TRAFFIC COUNTS: 2013 & 2015
AM & PM PEAK HOURS

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 9553 fax: 0161 972 9553


Key:
AM = 0800-0900 PCU
PM 1645-1745
Southam Road
Castle Street
Warwick Road
High Street
West Bar Street
South Bar Street
Bloxham Road
Upper Windsor Street
Hightown Road
Horton View
Unnamed Road
A422 Hennef Way
Bridge Street
Cherwell Street
Swan Close Road
Bankside
College Fields Development
Oxford Road
Canal Lane
Broad Gap
White Post Road
Sycamore Drive
Wykham Lane
Weeping Cross
A4260
SITE
FIGURE B4 BASE: 2025
AM & PM PEAK HOURS
= B2 + B3
ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: ahl@ashleyhelme.co.uk tel: 0161 972 0553 fax: 0161 972 0553


Notes:
1. Refer to AHA report ref 1361/10 for committed development traffic flows.
Southam Road
Castle Street
Warwick Road
High Street
West Bar Street
South Bar Street
Bloxham Road
Upper Windsor Street
Hightown Road
Horton View
Unnamed Road
A422 Hennef Way
Bridge Street
Cherwell Street
Swan Close Road
Bankside
College Fields Development
Oxford Road
Canal Lane
Broad Gap
White Post Road
Sycamore Drive
Wykham Lane
Weeping Cross
A4260
SITE
FIGURE B3 TOTAL COMMITTED DEVELOPMENT
ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: ahl@ashleyhelme.co.uk tel: 0161 972 0553 fax: 0161 972 0553

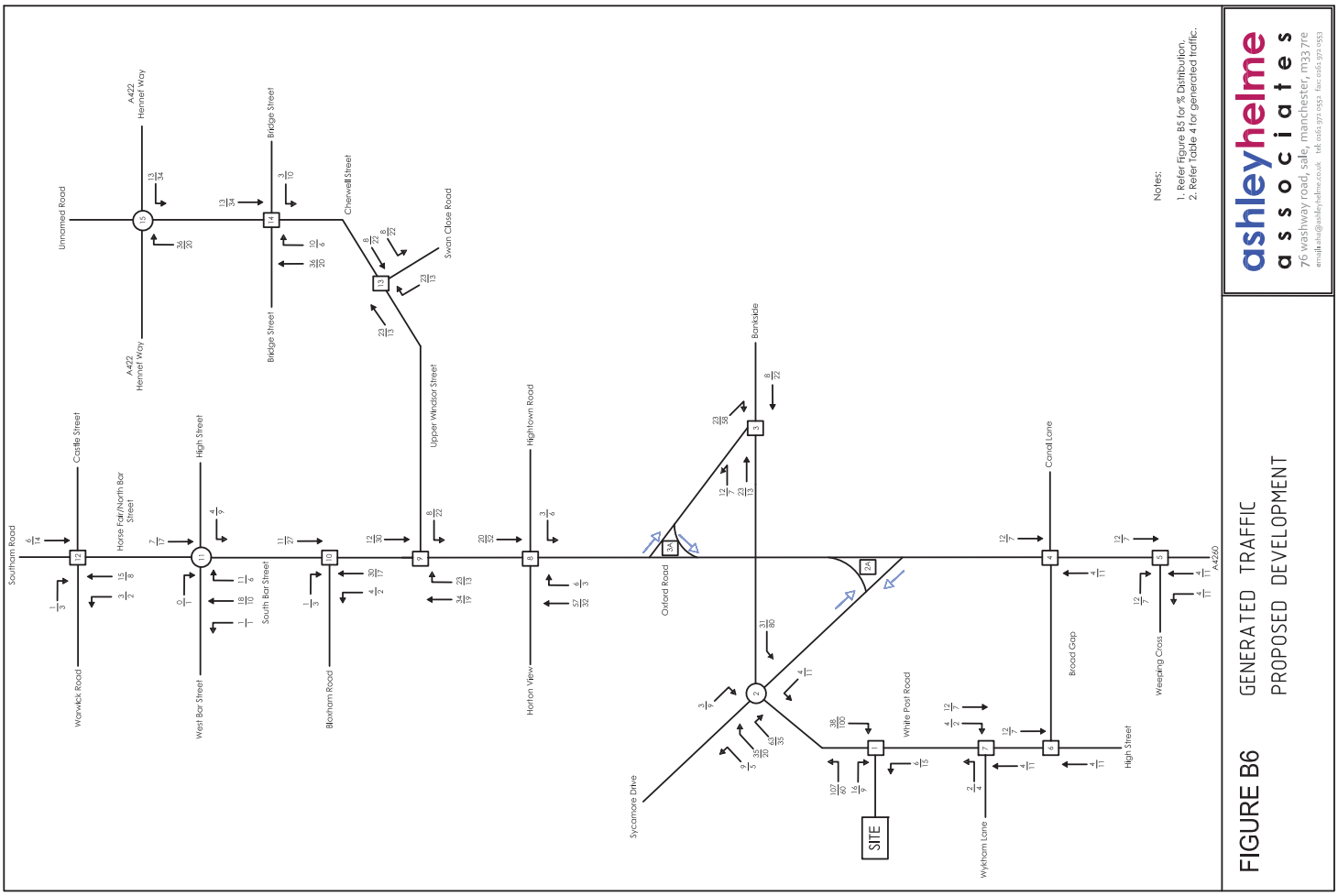


FIGURE B6 GENERATED TRAFFIC
PROPOSED DEVELOPMENT

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: info@ashleyhelme.co.uk tel: 0161 972 9552 fax: 0161 972 9553

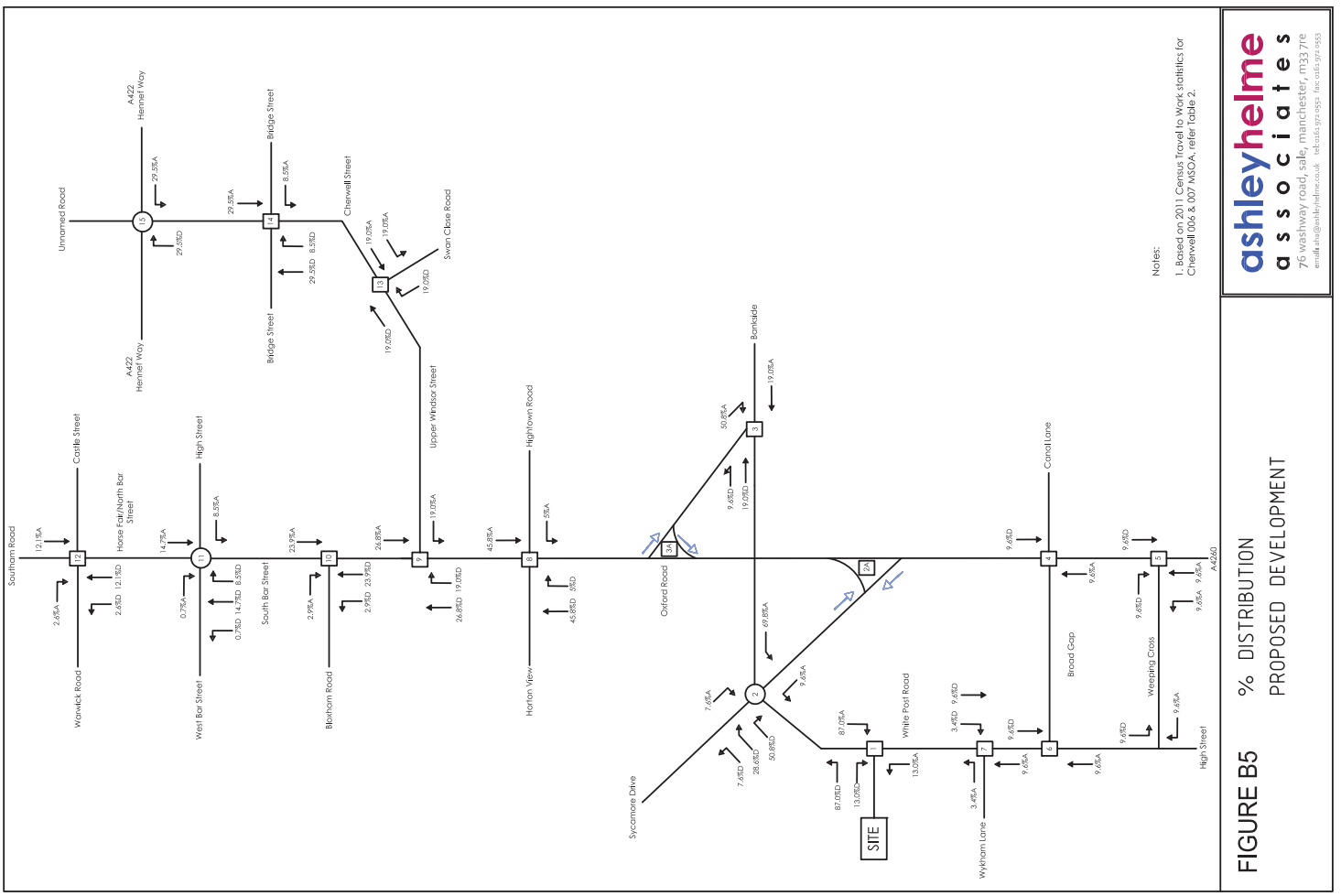
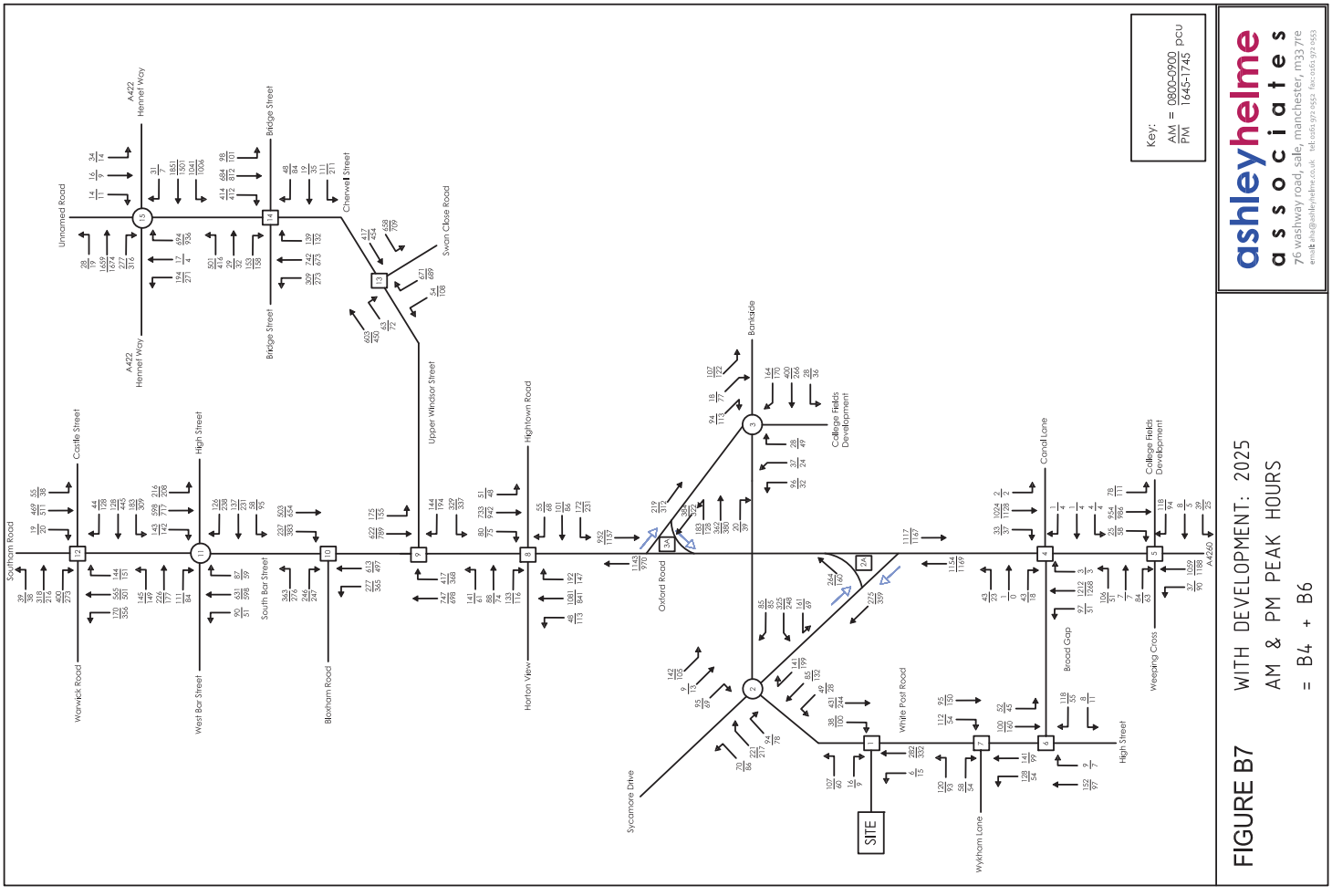


FIGURE B5 % DISTRIBUTION
PROPOSED DEVELOPMENT

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: info@ashleyhelme.co.uk tel: 0161 972 9552 fax: 0161 972 9553

This page has been left intentionally blank



This page has been left intentionally blank

ashleyhelme associates

TECHNICAL FILE NOTE 1C

Project	White Post Road, Banbury			Project No	1361	Meeting [ ] Telephone [ ]
Contact		Originator	SJH	Date	June 2015	Aide Memoire [x]

TRAFFIC GROWTH: NATIONAL TRANSPORT MODEL (NTM)

METHODOLOGY

Methodology for growthing background traffic from count years (2013 & 2015) to the future year (2025) is to use the National Transport Model (NTM) methodology, using the following criteria:

- TEMPRO Version 6.2 (AF09 dataset),
- Banbury geographical area (representing the 'best-fit' for the application Site),
- All purpose car driver trips,
- Area type: Urban,
- Road type: All

2013 to 2025

The TEMPRO model assumes that the number of households in the Banbury area will grow from 20,630 (2013) to 22,993 (2025). Consequently, adjustments are made to the local factors to reflect that the TA includes traffic generated by 1,997 dwellings with planning consent in the Banbury area. The resultant (adjusted) growth factors are:

AM peak period: 1.1121

PM peak period: 1.1173

Adopt average growth factor: **1.115.**

2015 to 2025

The TEMPRO model assumes that the number of households in the Banbury area will grow from 21,301 (2015) to 22,993 (2025). Consequently, adjustments are made to the local factors to reflect that the TA includes traffic generated by 1,997 dwellings with planning consent in the Banbury area. The resultant (adjusted) growth factors are:

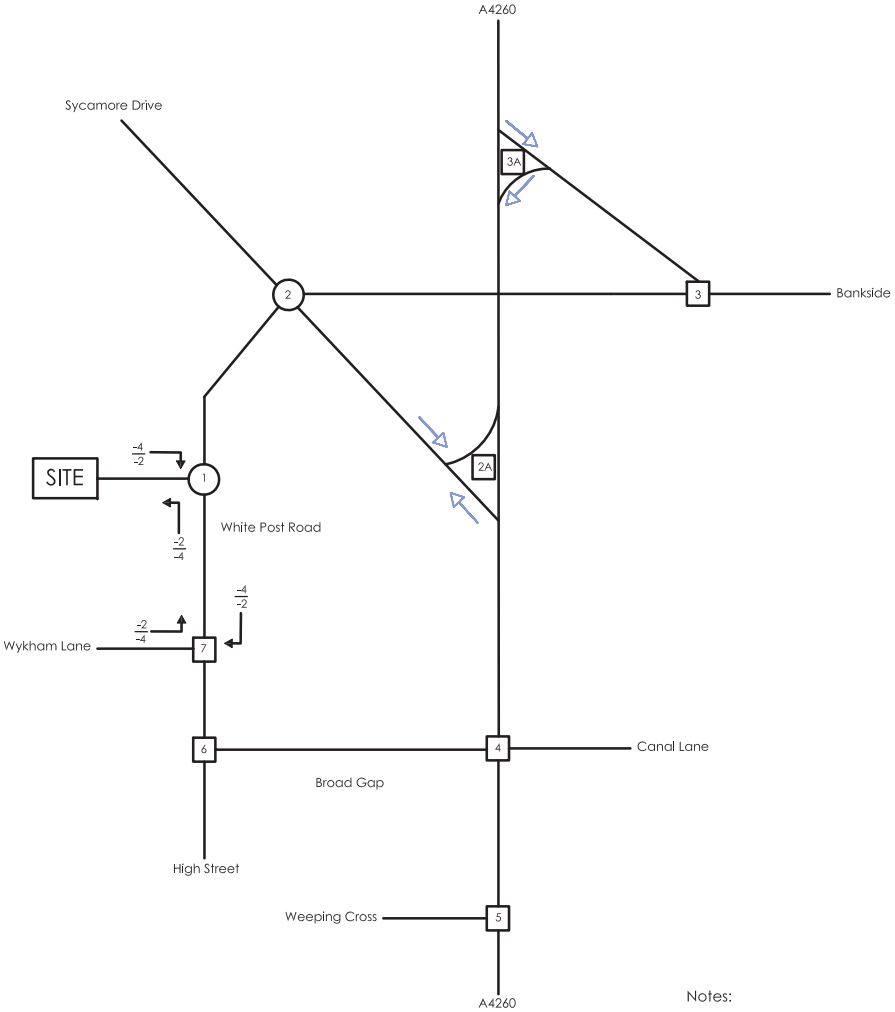
AM peak period: 1.1039

PM peak period: 1.1087

Adopt average growth factor: **1.106**

This page has been left intentionally blank

This page has been left intentionally blank

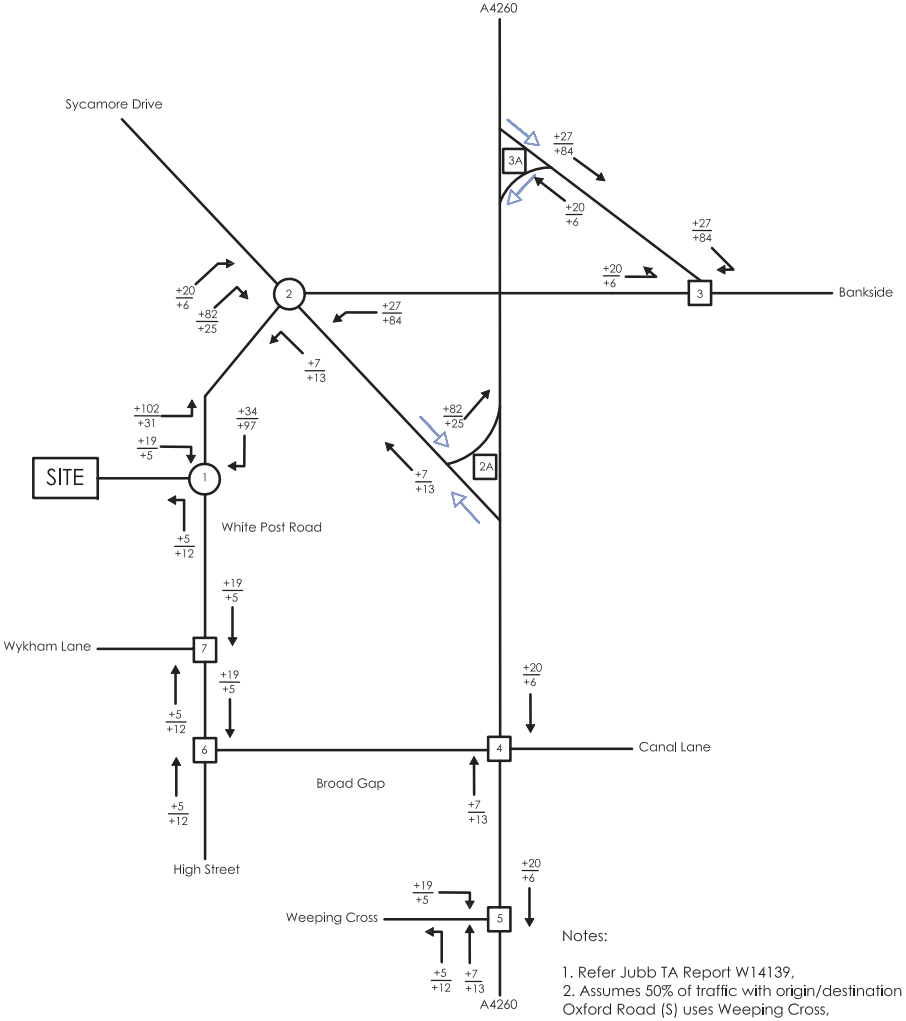


Notes:

1. Refer Figure B6, Appendix B.

FIGURE D1 GENERATED TRAFFIC EFFECT OF LINK ROAD

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553



Notes:

1. Refer Jubb TA Report W14139.
2. Assumes 50% of traffic with origin/destination on Oxford Road (S) uses Weeping Cross.
3. Assumes 50% of traffic with origin/destination on Oxford Road (S) uses northbound off-slip and southbound on-slip.

FIGURE D2 GENERATED TRAFFIC: WYKHAM PARK FARM WITH LINK ROAD AM & PM PEAK HOURS

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

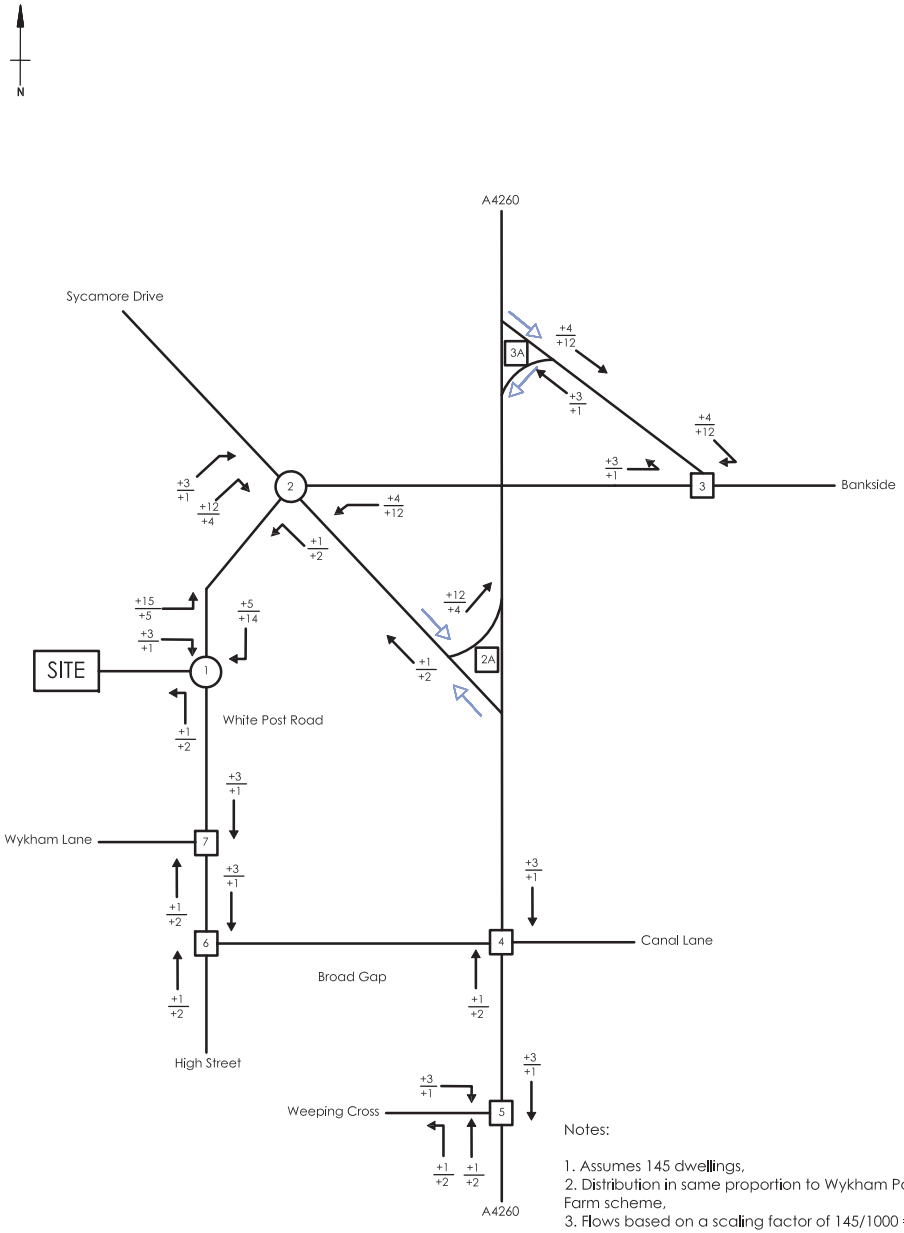


FIGURE D3 GENERATED TRAFFIC: CROUCH FARM PHASE 1
WITH LINK ROAD
AM & PM PEAK HOURS

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

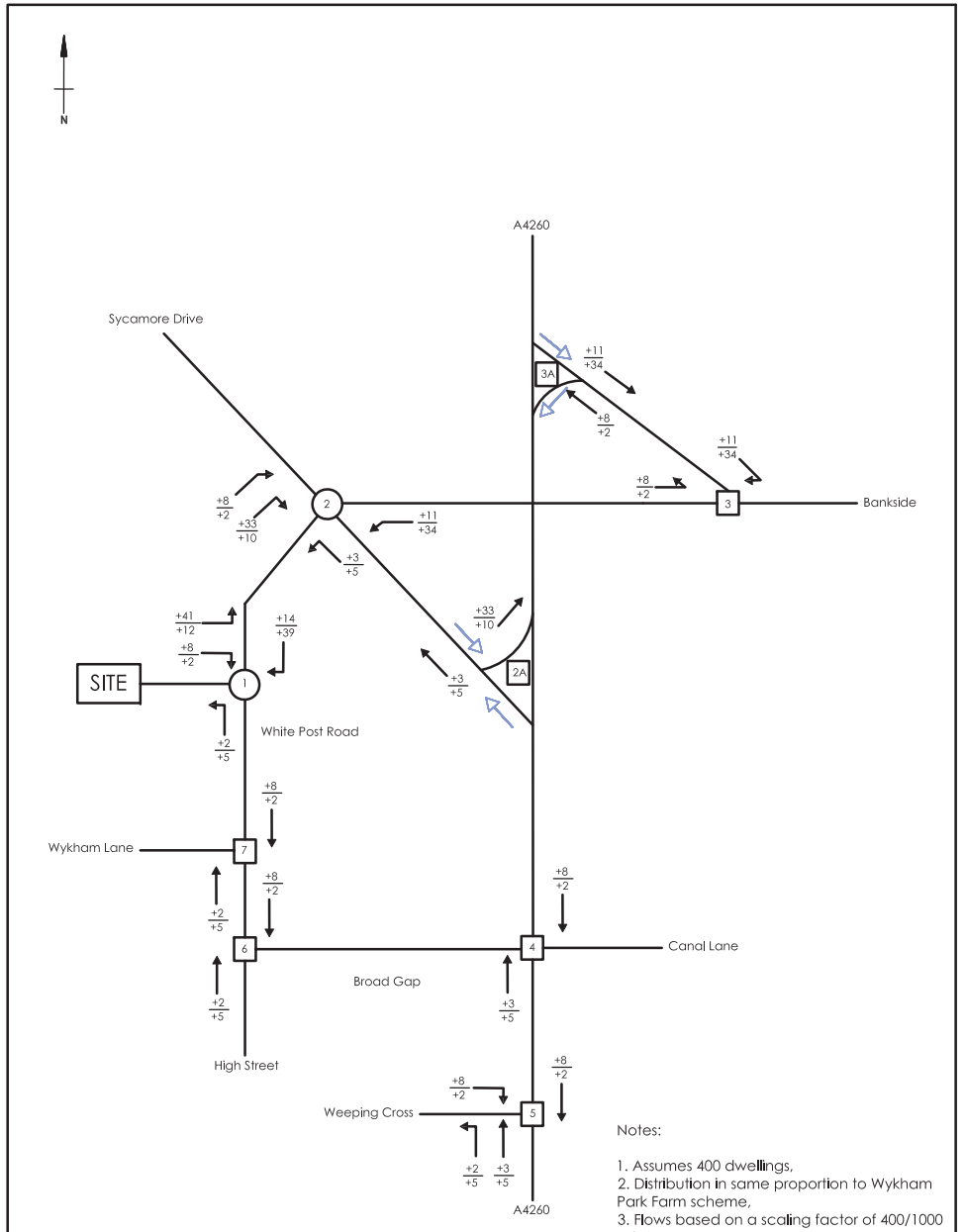


FIGURE D4 GENERATED TRAFFIC: CROUCH FARM PHASE 2
WITH LINK ROAD
AM & PM PEAK HOURS

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

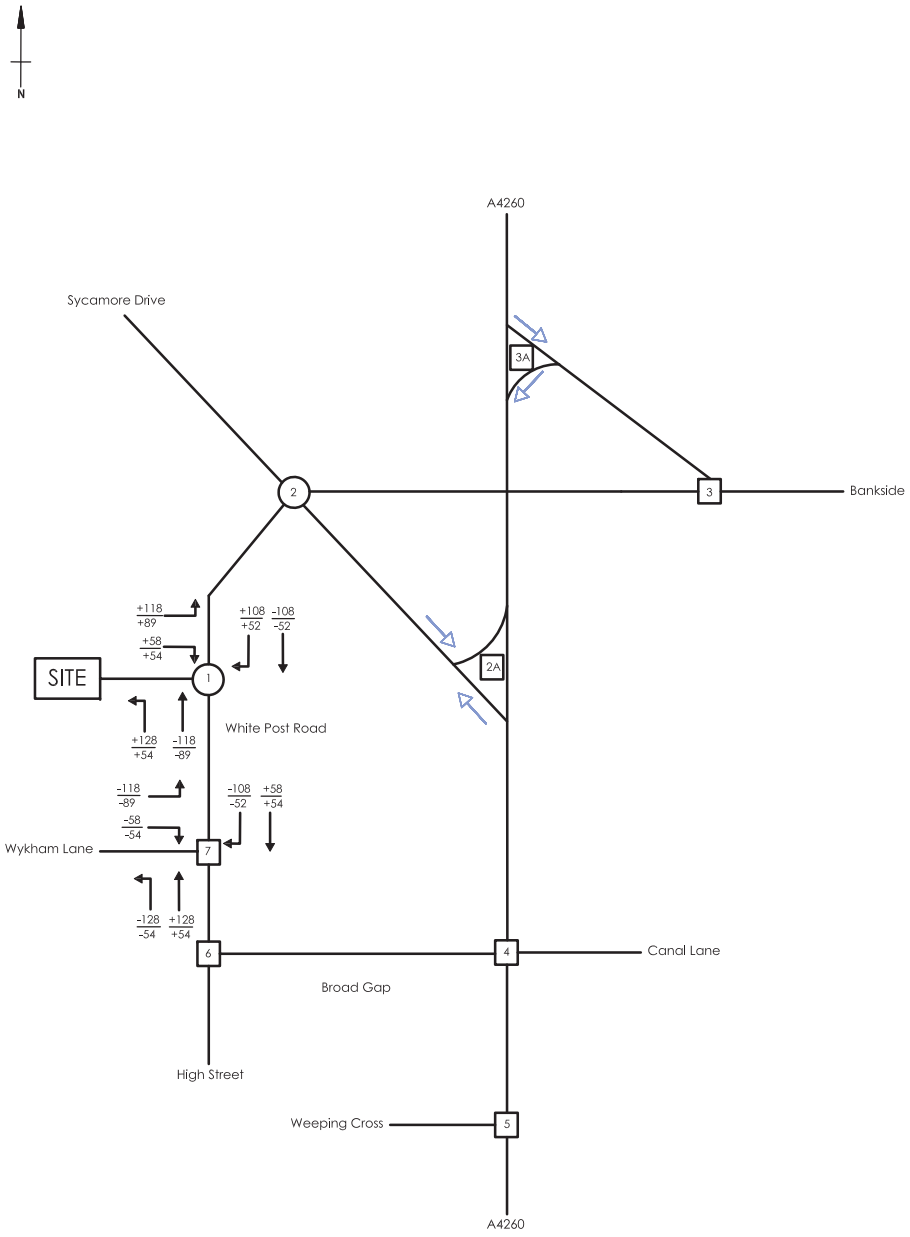


FIGURE D5 WYKHAM LANE
EFFECT OF LINK ROAD
AM & PM PEAK HOURS

ashleyhelme
associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

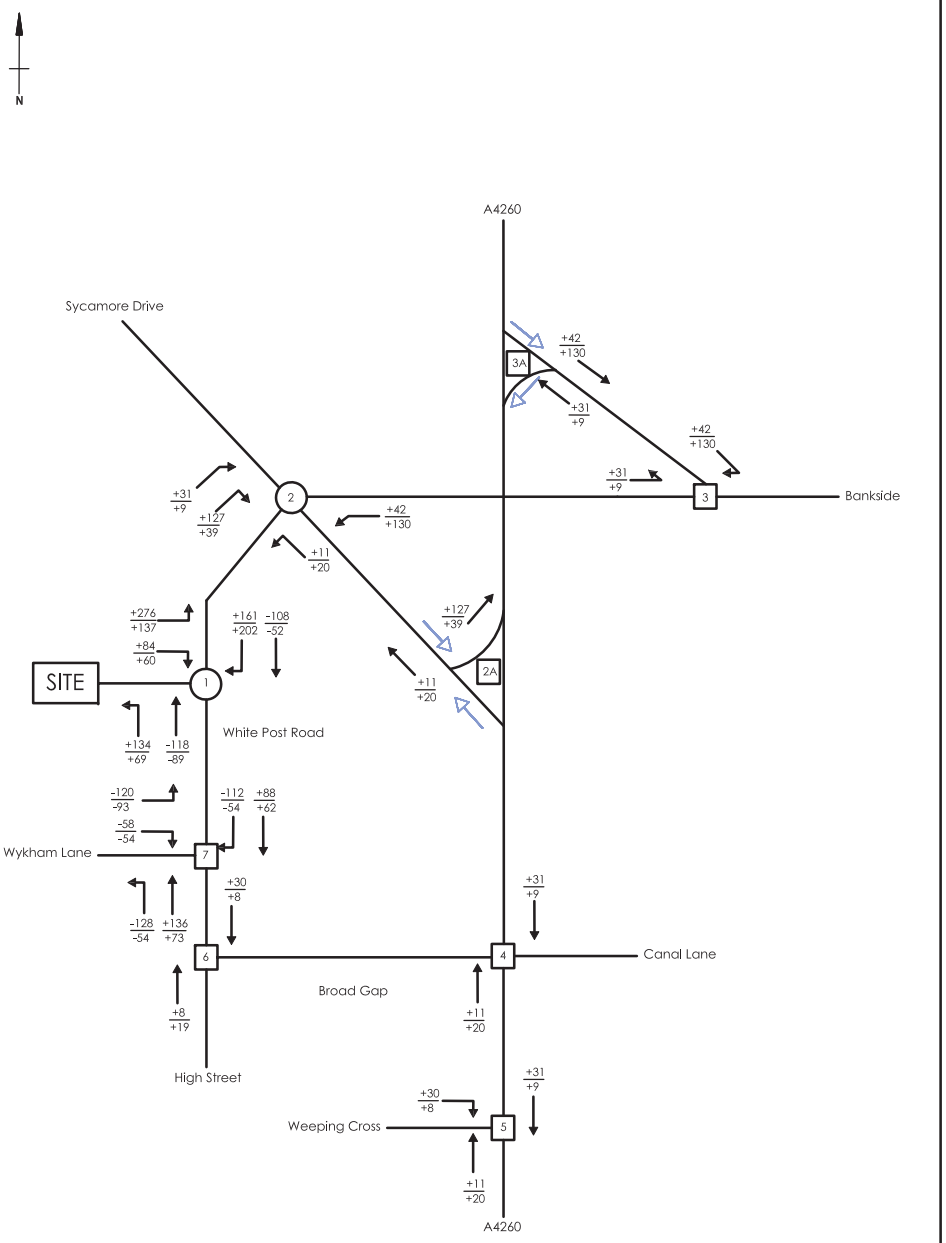


FIGURE D6 TOTAL EFFECT OF LINK ROAD
AM & PM PEAK HOURS
= D1 + D2 + D3 + D4 + D5

ashleyhelme
associates
76 washway road, sale, manchester, m33 7re
email: aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

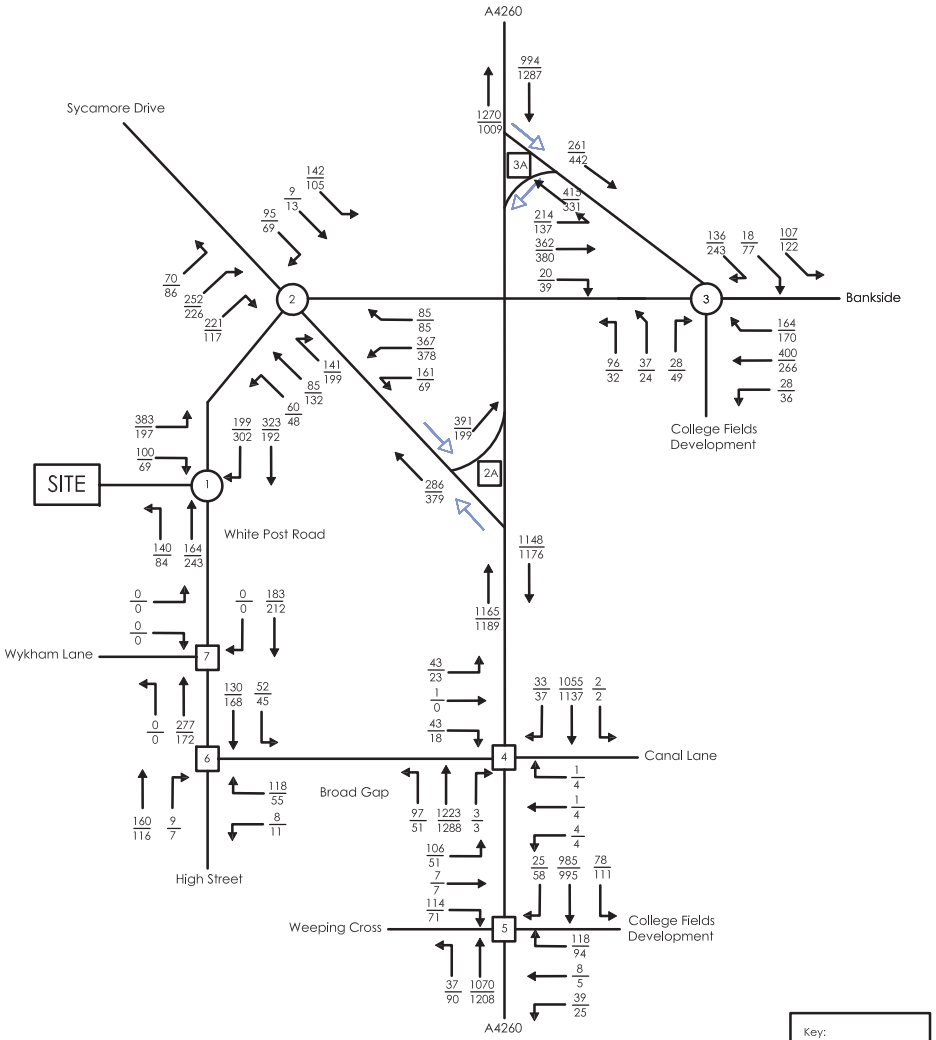


FIGURE D7 WITH DEVELOPMENT: 2025
WITH LINK ROAD
= B7 + D6

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
email aha@ashleyhelme.co.uk tel: 0161 972 0552 fax: 0161 972 0553

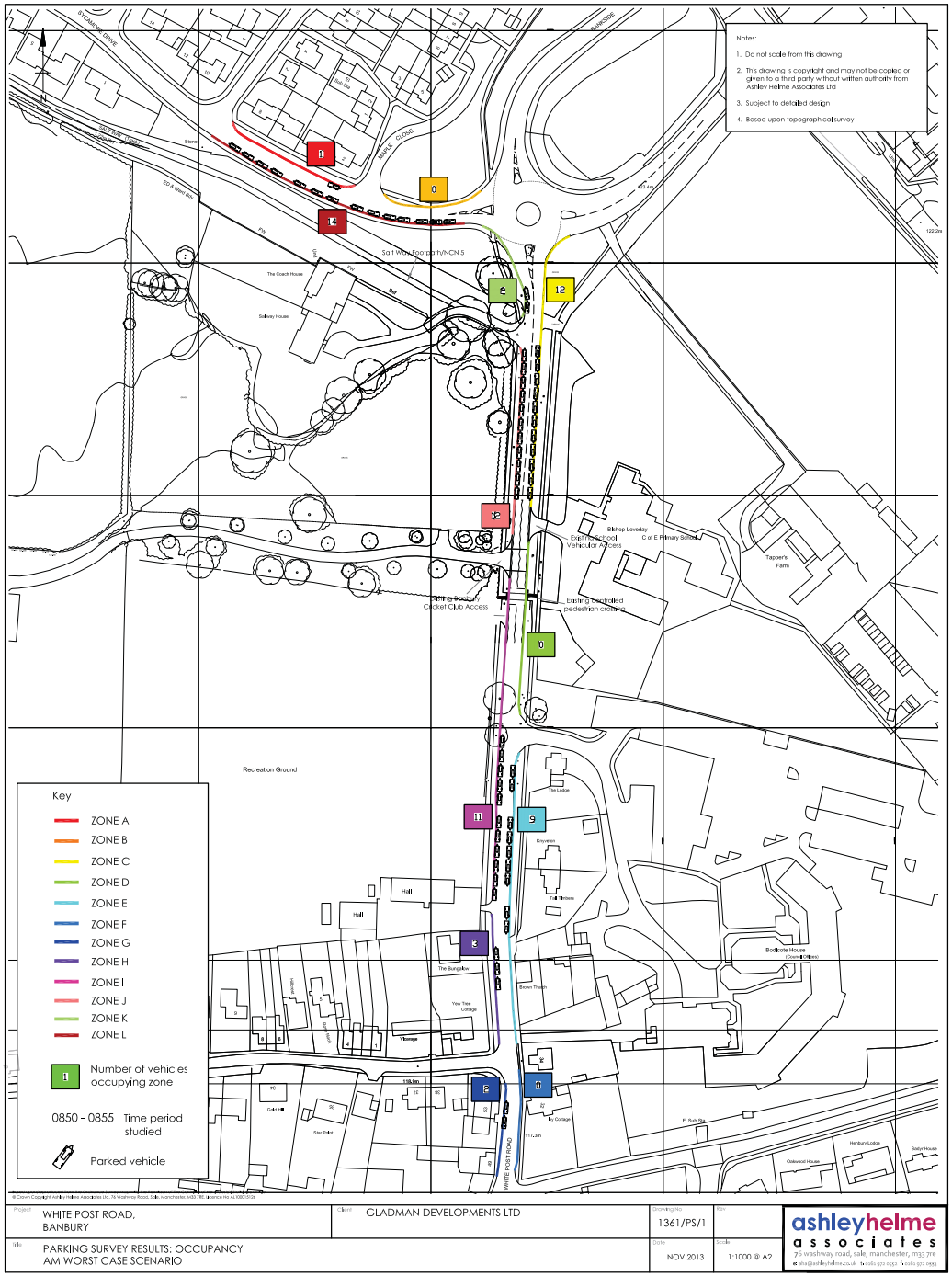
This page has been left intentionally blank

This page has been left intentionally blank

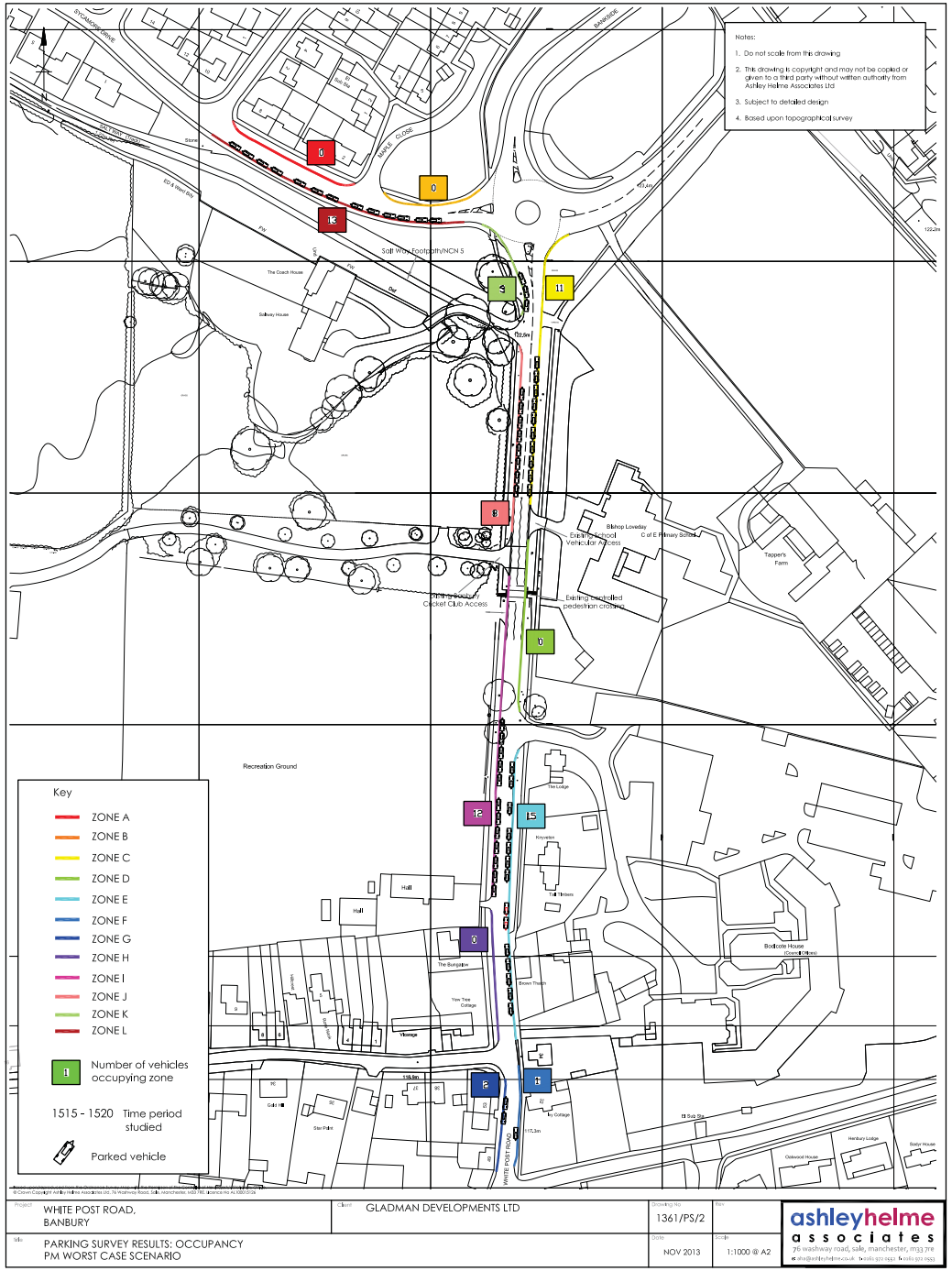
This page has been left intentionally blank

	Occupancy												
TIME	Zone A	Zone B	Zone C	Zone D	Zone E	Zone F	Zone G	Zone H	Zone I	Zone J	Zone K	Zone L	**TOTAL**
at start	1	0	0	0	1	0	0	1	1	0	0	0	**4**
08:00 - 08:05	2	0	1	0	3	0	0	2	2	0	0	0	**10**
08:05 - 08:10	2	0	3	0	3	0	0	2	2	0	0	0	**12**
08:10 - 08:15	2	0	6	0	3	0	0	2	2	0	0	0	**15**
08:15 - 08:20	2	0	10	0	3	0	0	2	2	5	0	0	**24**
08:20 - 08:25	2	0	5	0	3	0	0	2	2	2	0	1	**16**
08:25 - 08:30	2	0	9	0	4	0	0	2	2	3	1	3	**22**
08:30 - 08:35	2	0	10	0	6	0	2	2	2	7	2	4	**31**
08:35 - 08:40	2	0	10	0	9	0	2	2	4	8	3	9	**37**
08:40 - 08:45	1	0	10	0	11	0	2	2	8	10	3	15	**44**
08:45 - 08:50	1	0	11	0	10	0	2	3	9	11	2	15	**47**
08:50 - 08:55	1	0	12	0	9	0	2	3	11	12	2	14	**50**
08:55 - 09:00	1	0	11	0	8	0	2	3	9	12	2	10	**46**
09:00 - 09:05	1	0	11	0	6	0	2	2	5	10	2	8	**37**
09:05 - 09:10	1	0	10	0	6	0	2	1	3	8	0	4	**31**
09:10 - 09:15	1	0	9	0	4	0	2	1	3	8	0	2	**28**
09:15 - 09:20	1	0	9	0	4	0	2	1	2	7	0	2	**26**
09:20 - 09:25	1	0	8	0	5	0	2	1	2	6	0	0	**25**
09:25 - 09:30	1	0	7	0	4	0	2	1	2	5	0	0	**22**
at start	0	0	7	0	2	0	2	0	1	5	0	0	**17**
14:45 - 14:50	1	0	4	0	4	0	0	0	2	5	1	0	**16**
14:50 - 14:55	1	0	5	0	4	0	0	0	3	5	1	1	**18**
14:55 - 15:00	1	0	7	0	6	0	0	0	6	5	1	3	**25**
15:00 - 15:05	1	0	8	0	7	0	0	0	12	5	3	6	**33**
15:05 - 15:10	0	0	11	0	13	0	0	0	12	7	3	7	**43**
15:10 - 15:15	0	0	11	0	15	1	0	0	13	7	3	12	**47**
15:15 - 15:20	0	0	11	0	15	1	2	0	12	8	3	13	**49**
15:20 - 15:25	0	0	10	0	13	1	2	0	11	8	1	12	**45**
15:25 - 15:30	0	0	9	0	12	1	1	1	9	6	0	7	**39**
15:30 - 15:35	0	0	7	0	9	0	2	1	8	6	0	2	**33**
15:35 - 15:40	0	0	7	0	7	0	2	1	9	2	0	2	**28**
15:40 - 15:45	0	0	4	0	7	0	2	0	8	2	0	0	**23**

TABLE 1361/PS/1 **PARKING SURVEY RESULTS: OCCUPANCY**



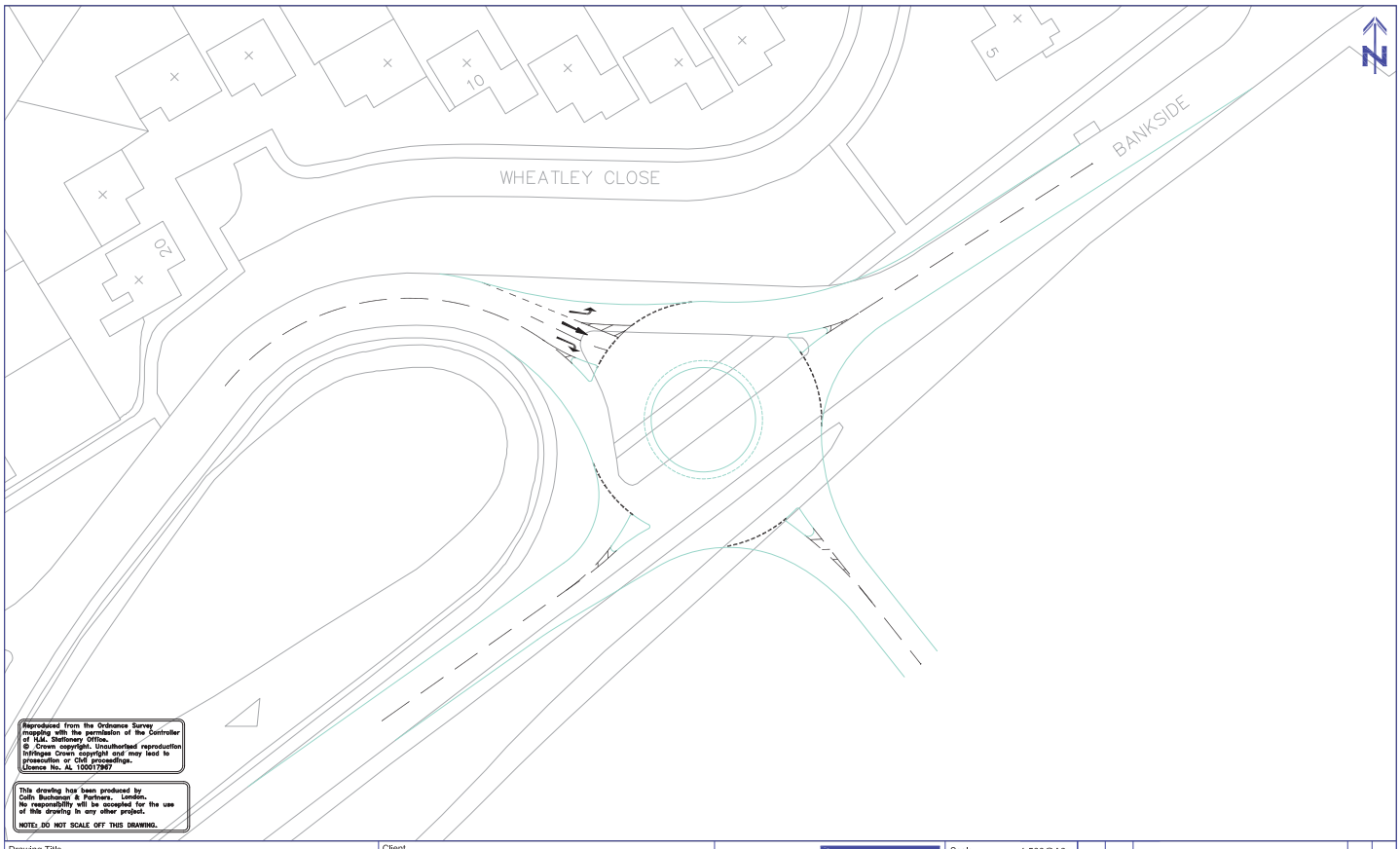
This page has been left intentionally blank



This page has been left intentionally blank

This page has been left intentionally blank

This page has been left intentionally blank



Drawing Title

BANKSIDE/CONNECTOR ROAD/SITE ACCESS - PROPOSED ROUNDABOUT

Client

HALLAM LAND MANAGEMENT LTD. & JJ GALLAGHER LTD.

Job Title

LAND AT COLLEGE FIELDS, BANBURY

Newcombe House
45 Notting Hill Gate
London
W11 3PB

T 020 7309 7000
F 020 7309 0906
www.cbuchanan.co.uk

BUCHANAN

Scale:	1:500@A3
Designed by:	J.H.
Drawn by:	A.D.
Ckd/Appd:	
First Issued:	JAN.'05
Job No:	38581

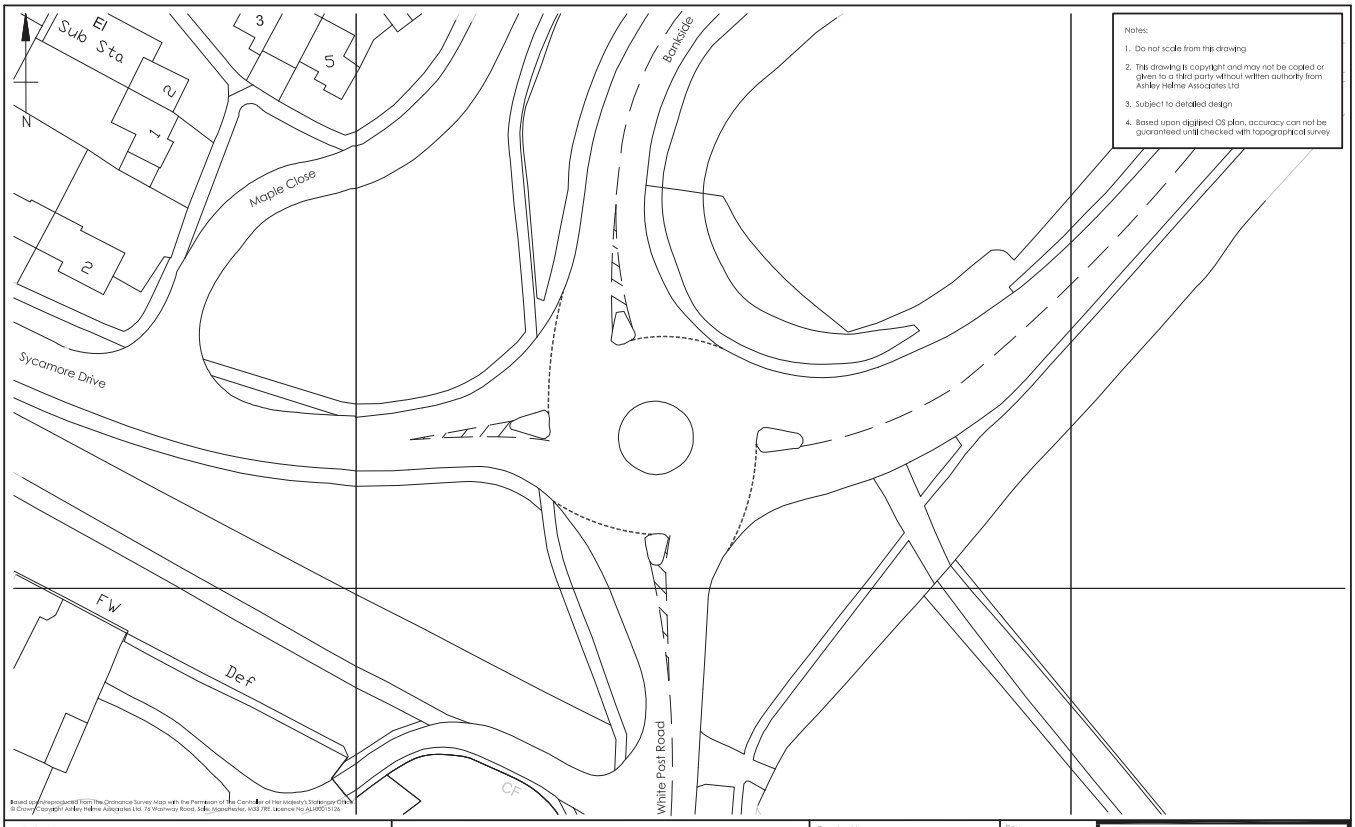
Rev.	Date.	Amendment.	Des.	Drn.

Drg No: FIGURE 59 Rev

I:\38581\2004 TA\STUDY\GRAPHICS\38581-fig 61.dwg

This page has been left intentionally blank

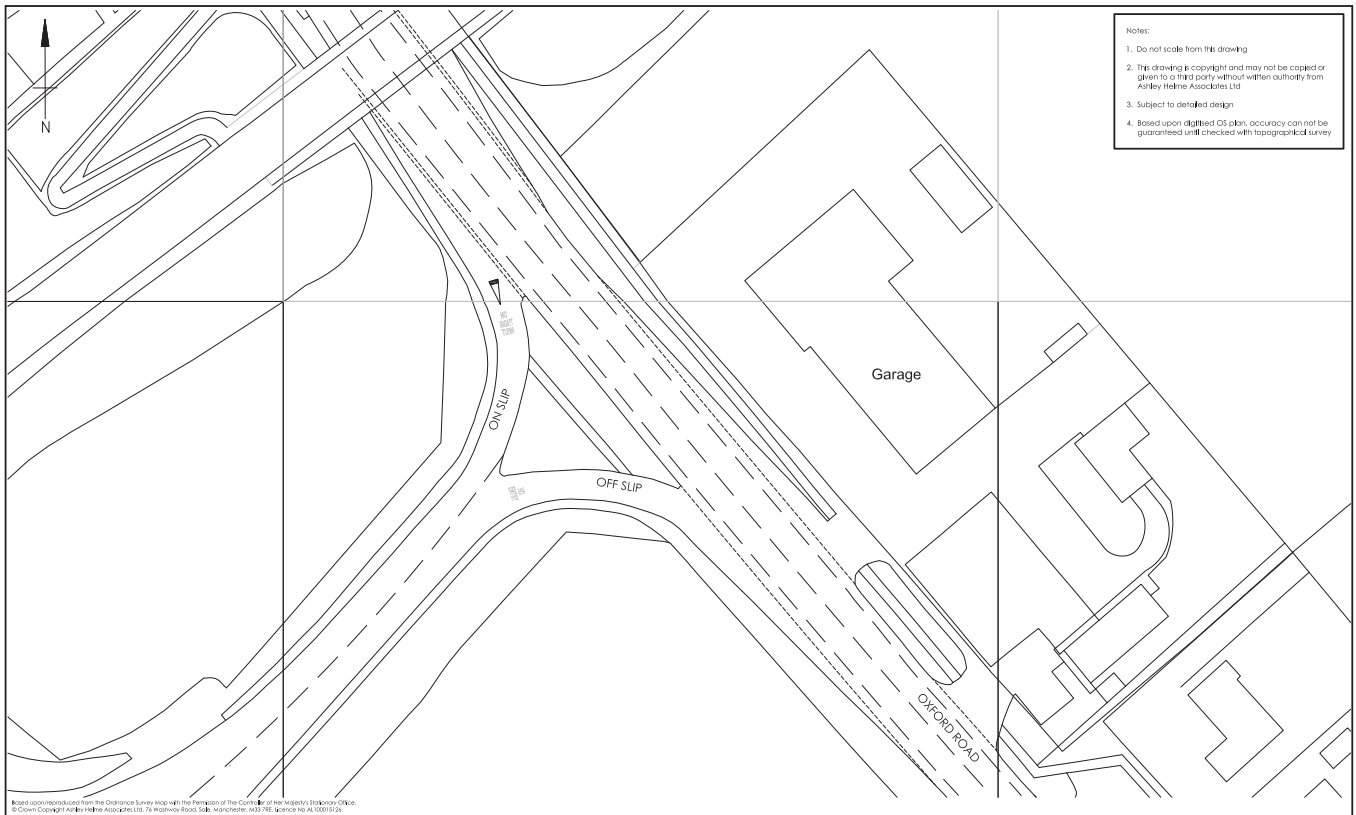
This page has been left intentionally blank



Project: LAND TO THE WEST OF WHITE POST ROAD, BANBURY	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 2	Drawing No: 1361/02	Rev:
Client: GLADMAN DEVELOPMENTS		Date: AUGUST 2013	Scale: 1:500 @ A3

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: ahe@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

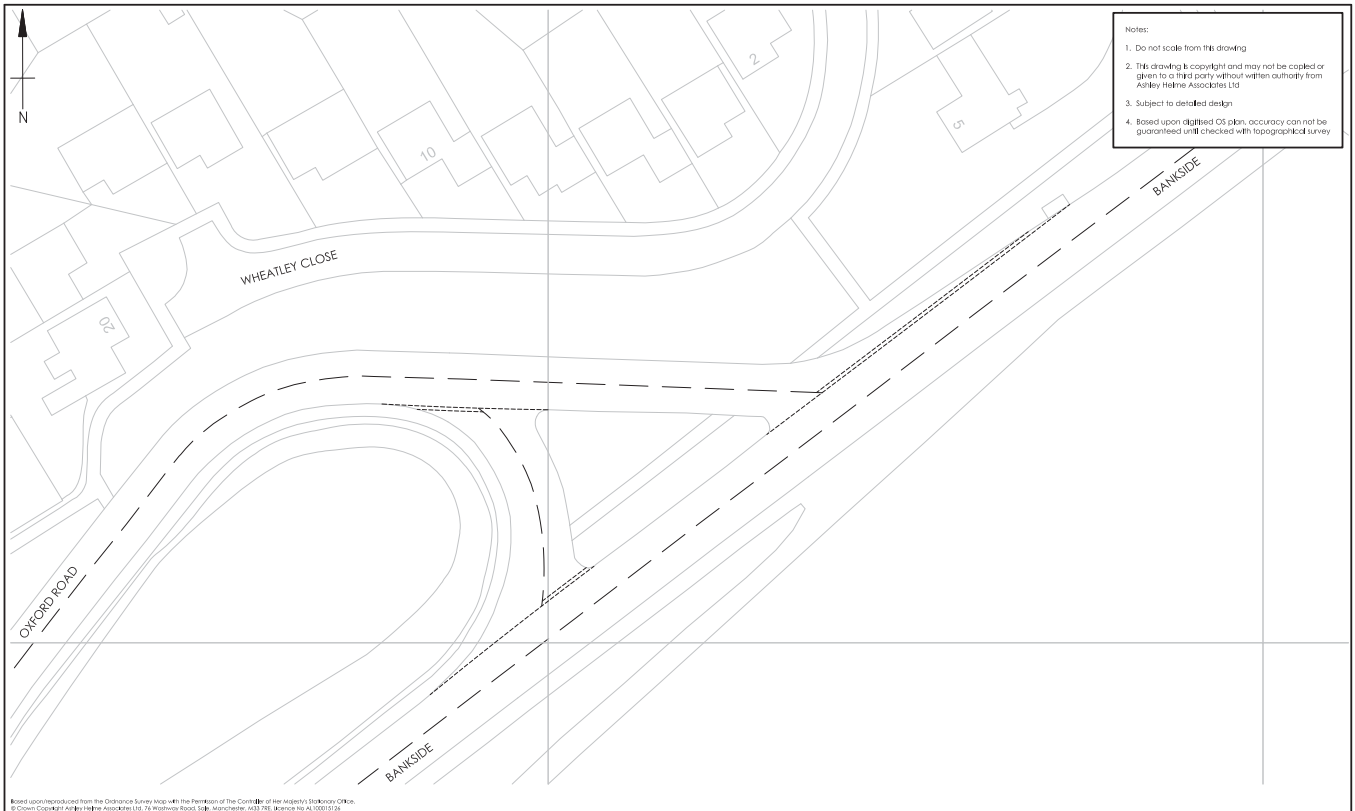
This page has been left intentionally blank



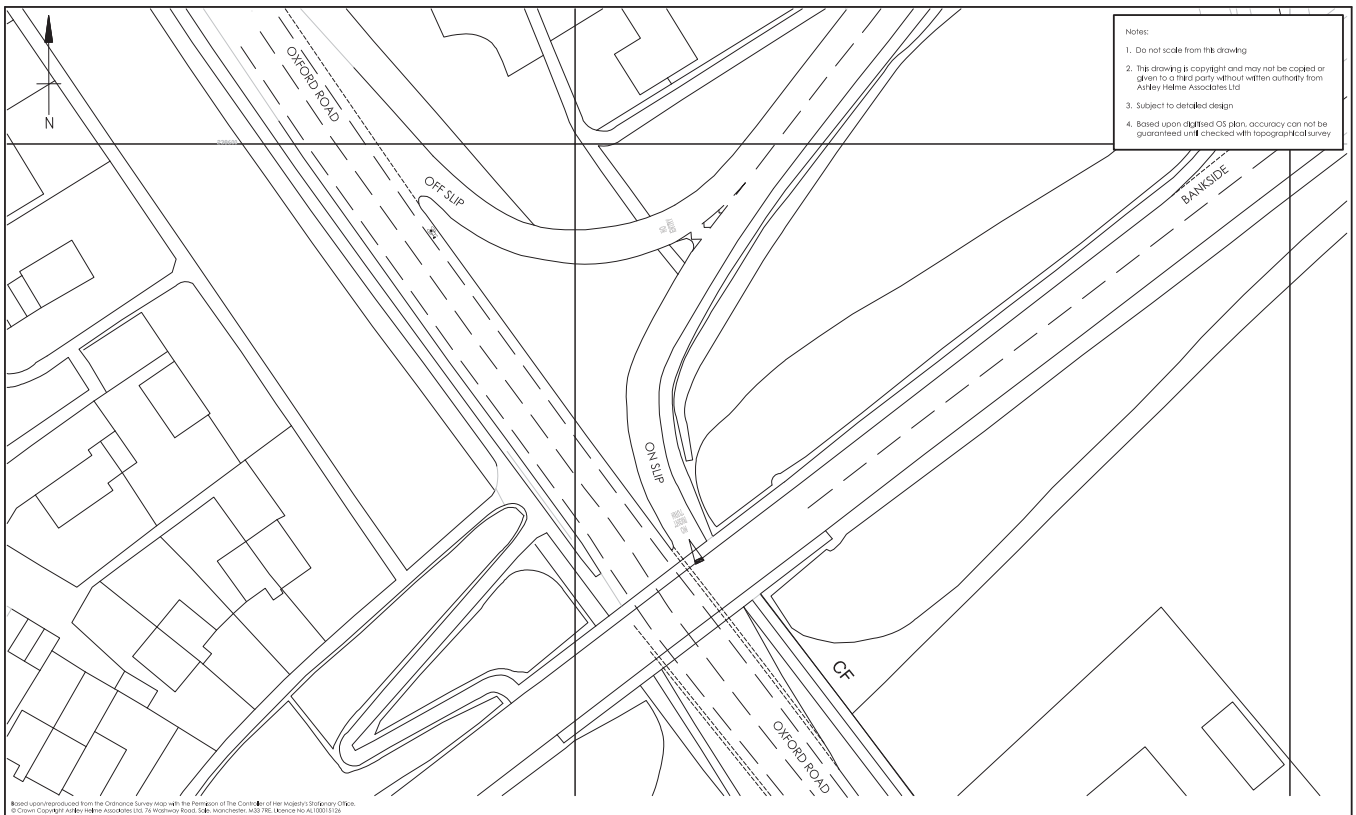
Project: LAND TO THE WEST OF WHITE POST ROAD. BANBURY	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 2A	Drawing No: 1361/03	Rev:
Client: GLADMAN DEVELOPMENTS		Date: AUGUST 2013	Scale: 1:500@A3

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

This page has been left intentionally blank

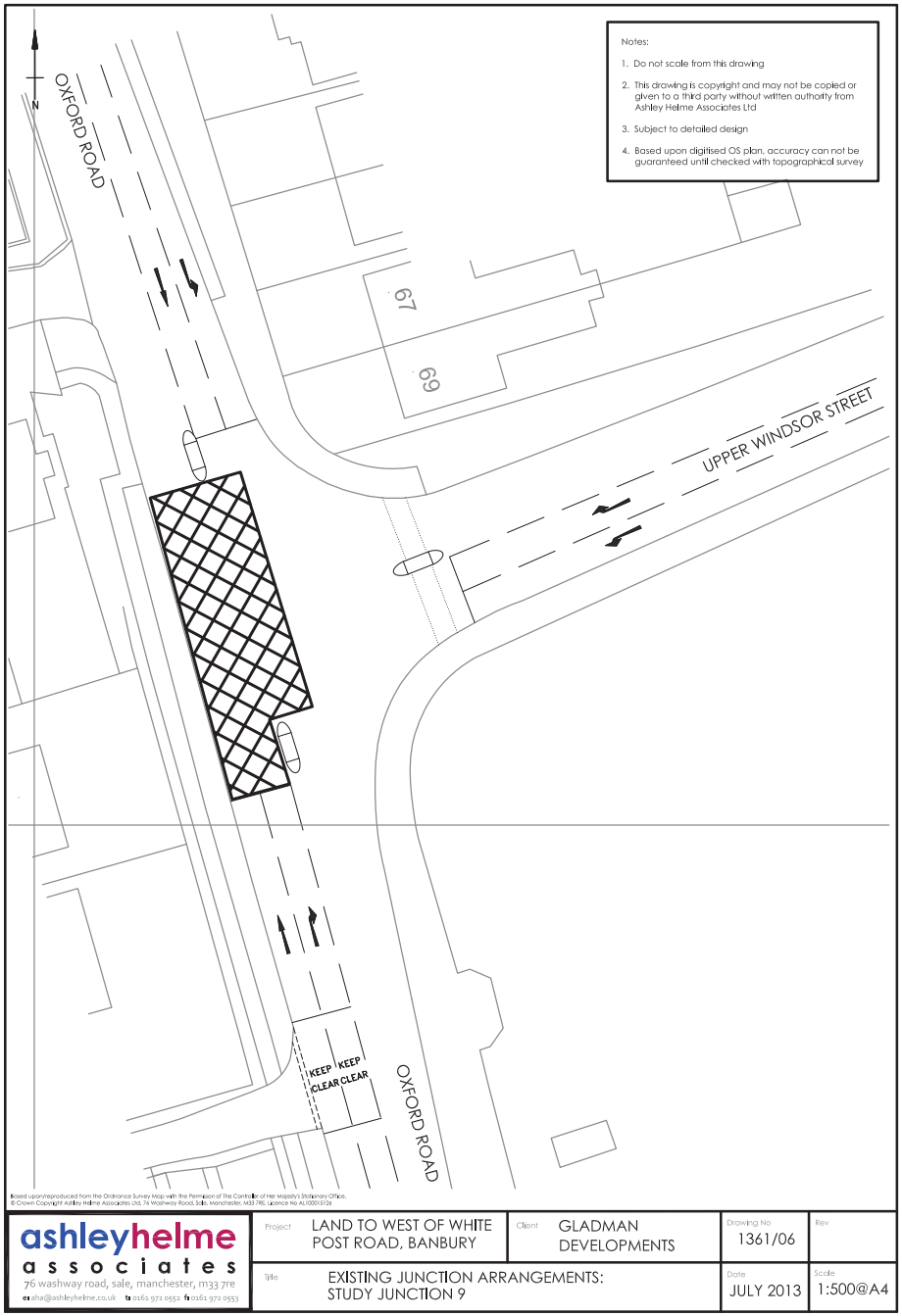


This page has been left intentionally blank

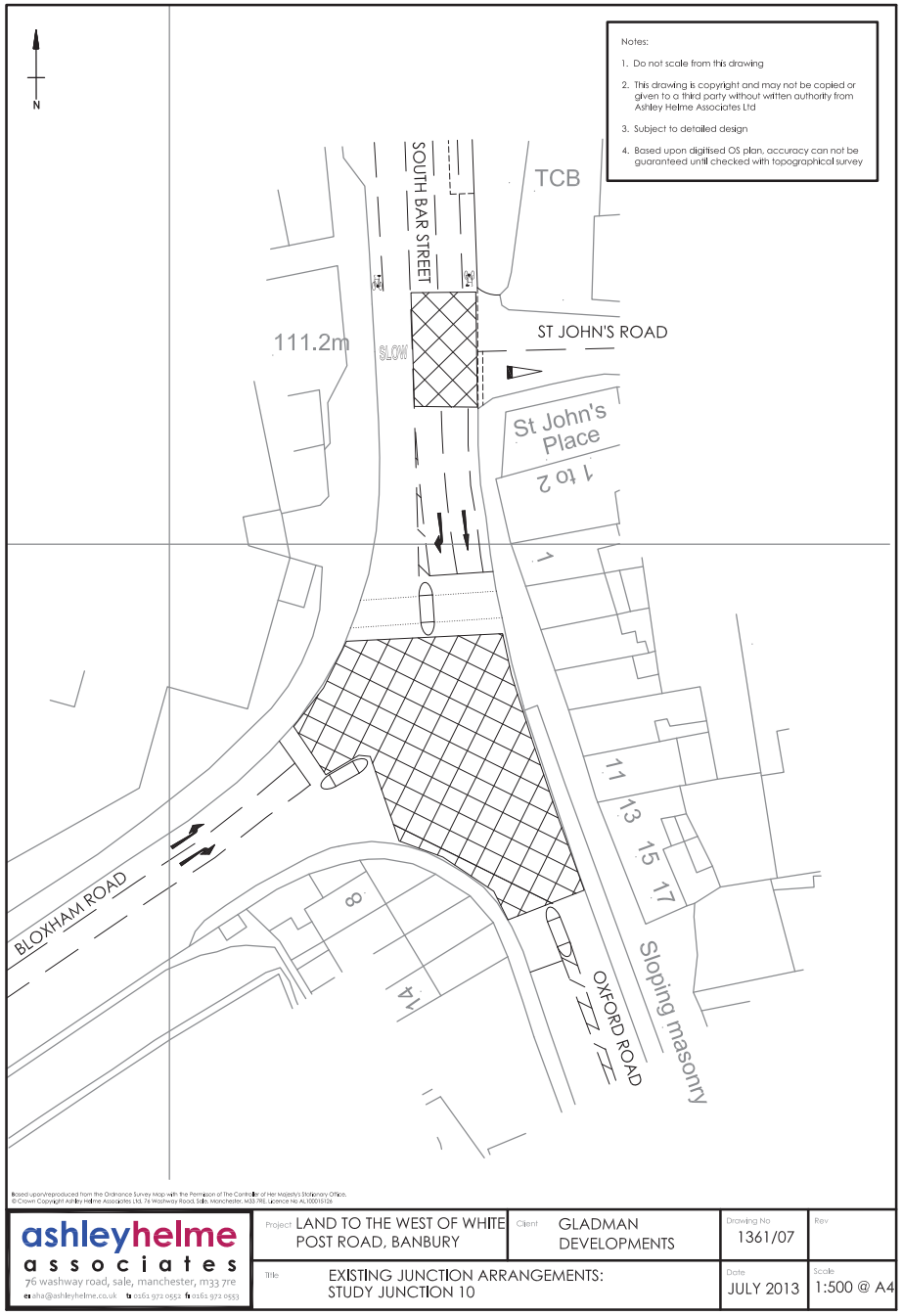


Project: LAND TO THE WEST OF WHITE POST ROAD, BANBURY	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 3A	Drawing No: 1361/05	Rev:
Client: GLADMAN DEVELOPMENTS		Date: AUGUST 2013	Scale: 1:500@A3

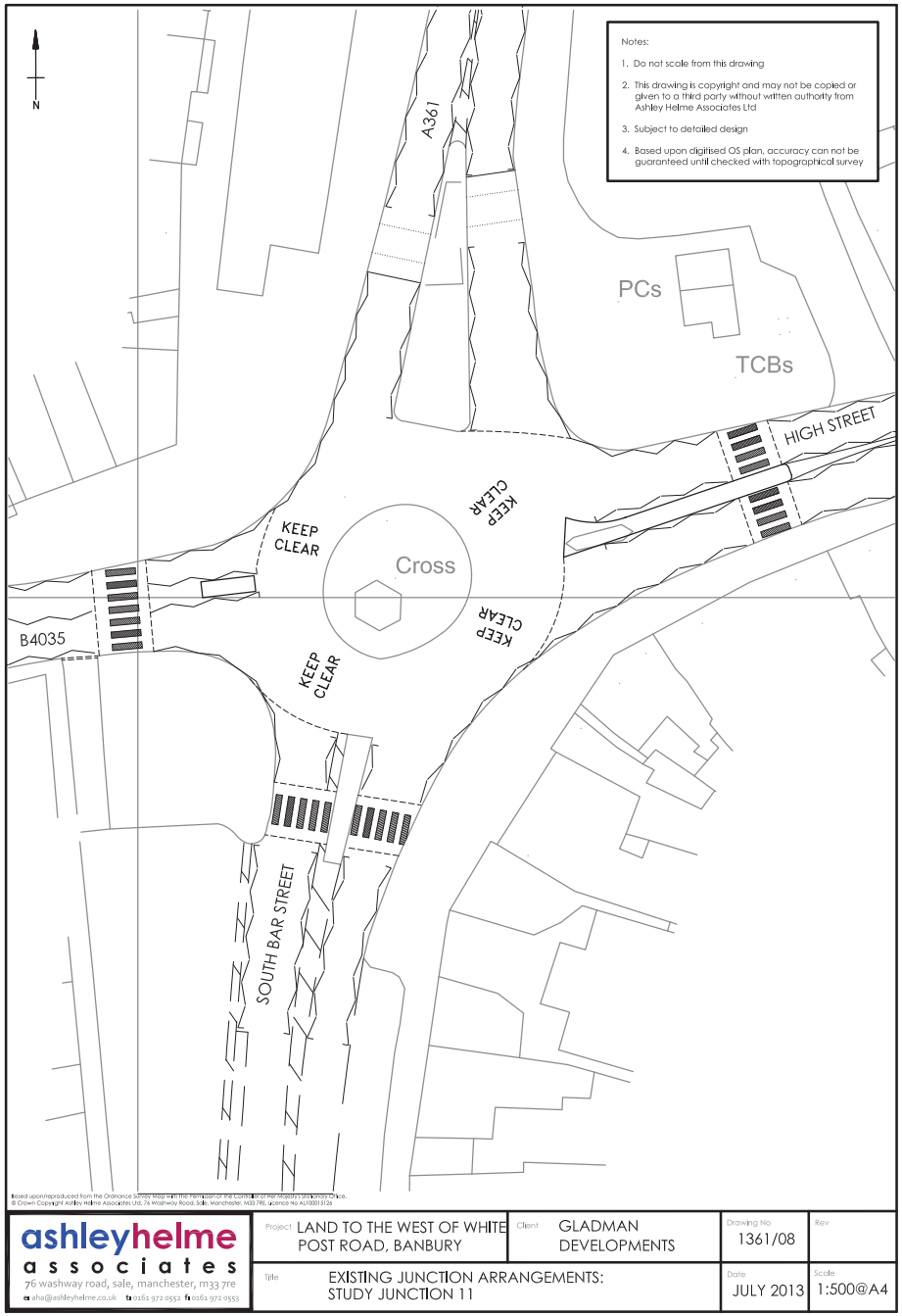
ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: aha@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553



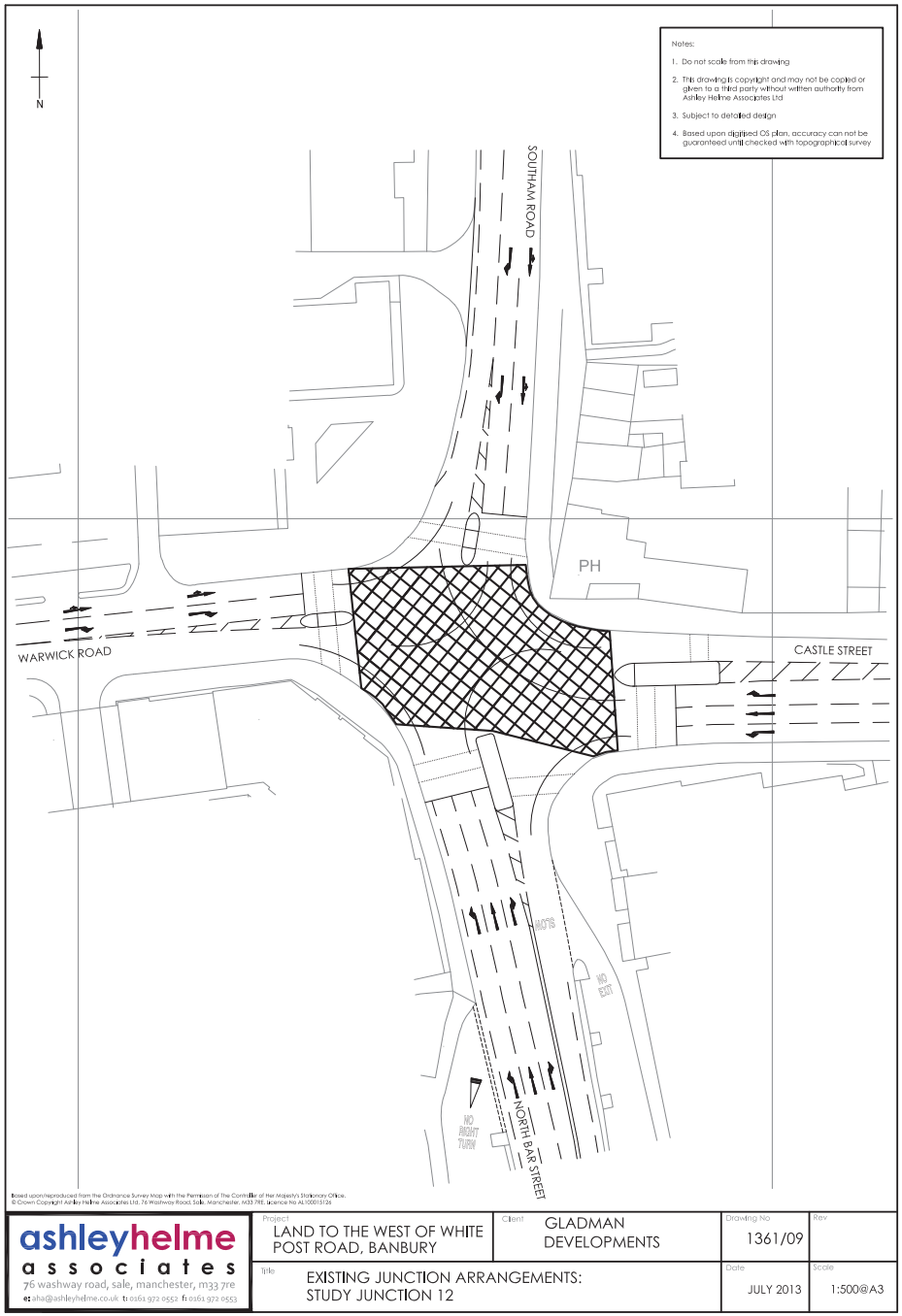
This page has been left intentionally blank



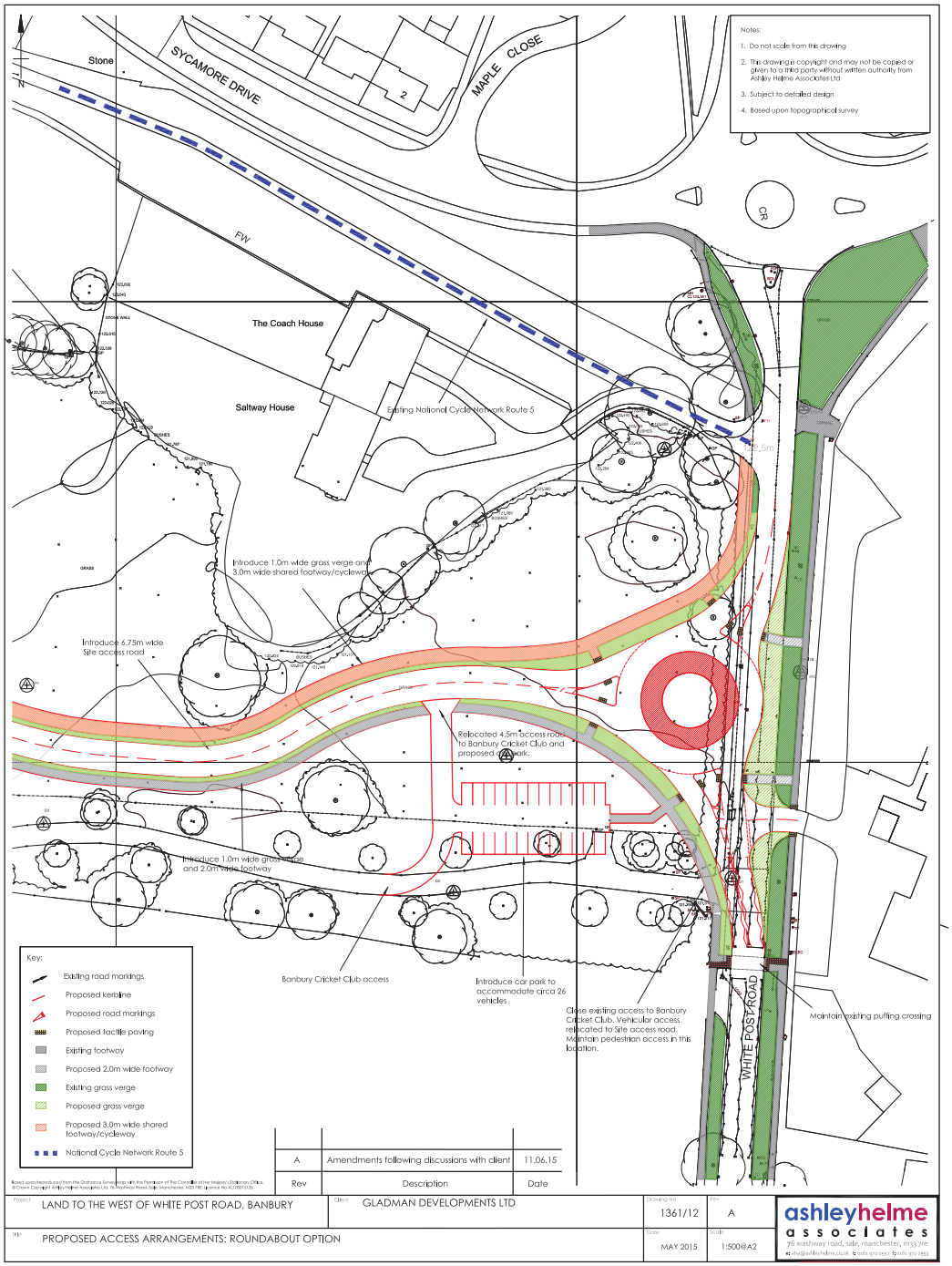
This page has been left intentionally blank



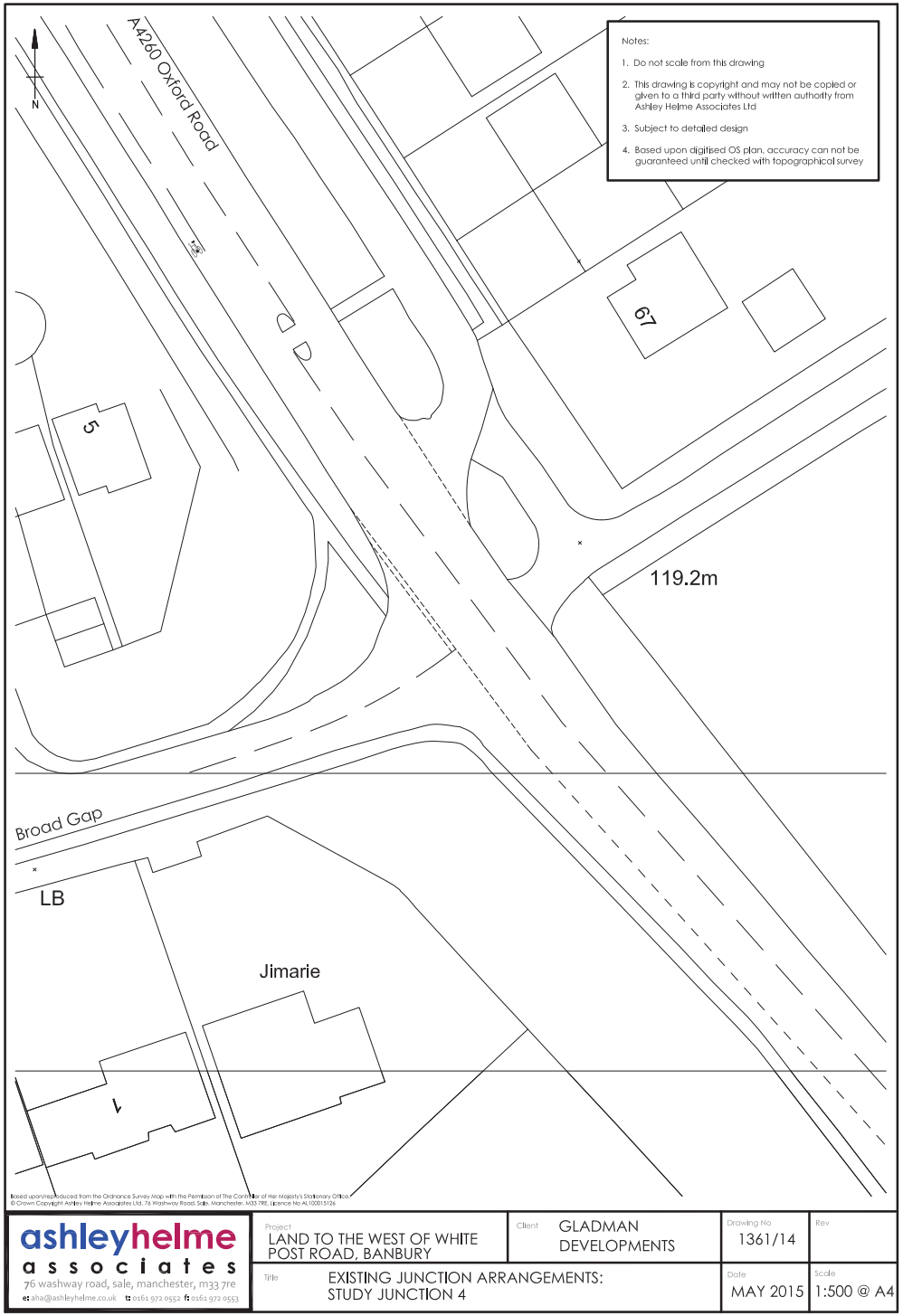
This page has been left intentionally blank



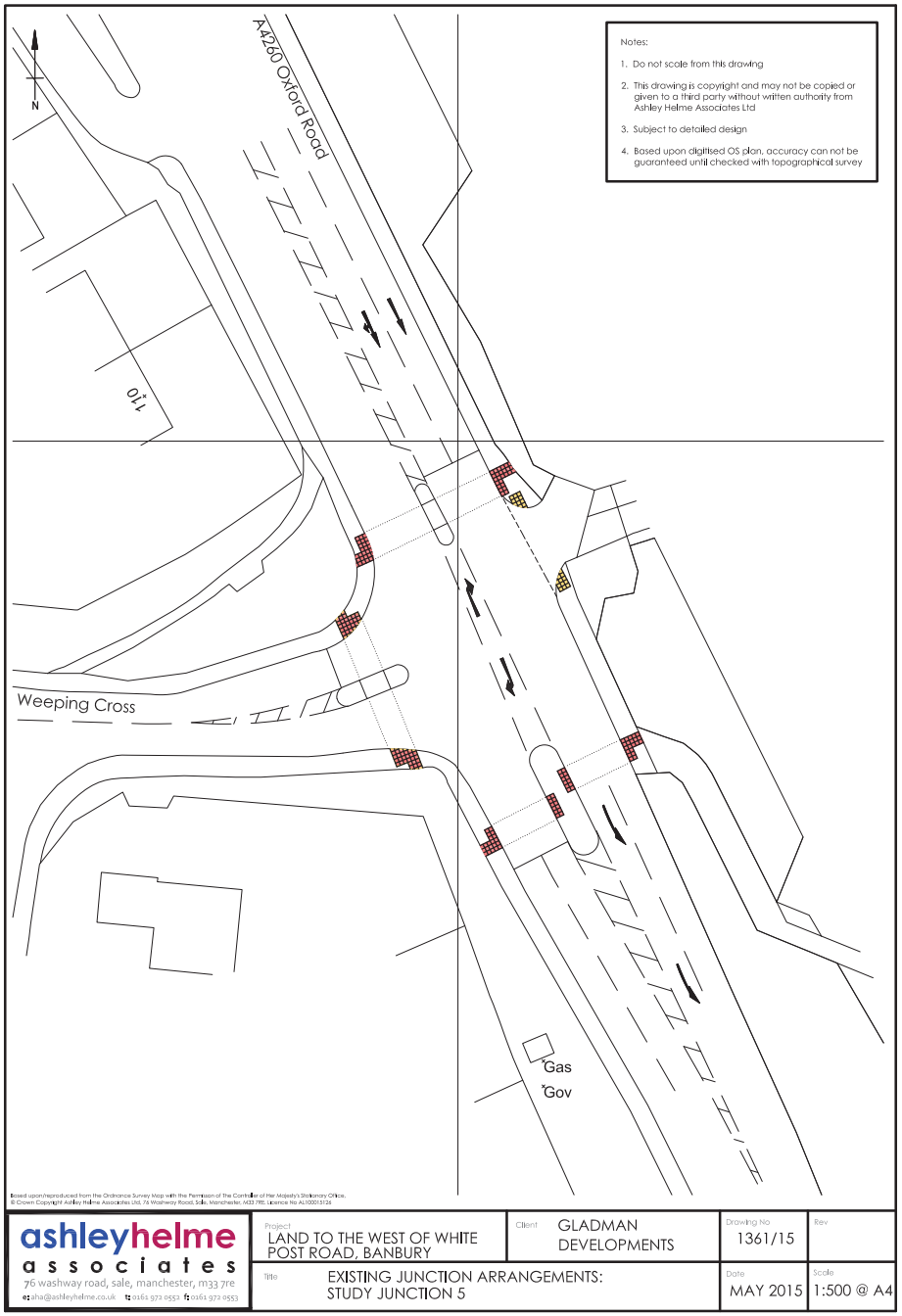
This page has been left intentionally blank



This page has been left intentionally blank

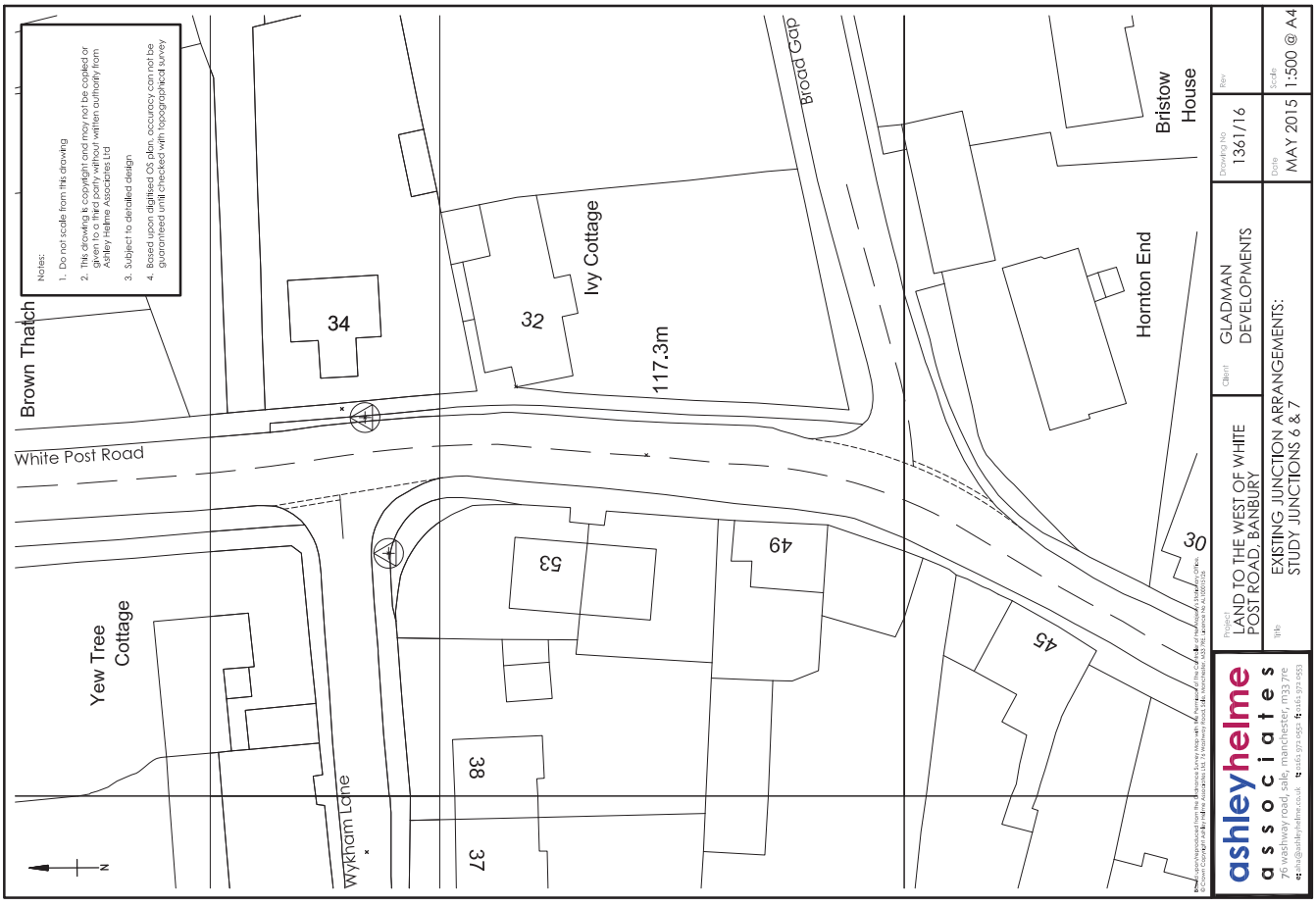


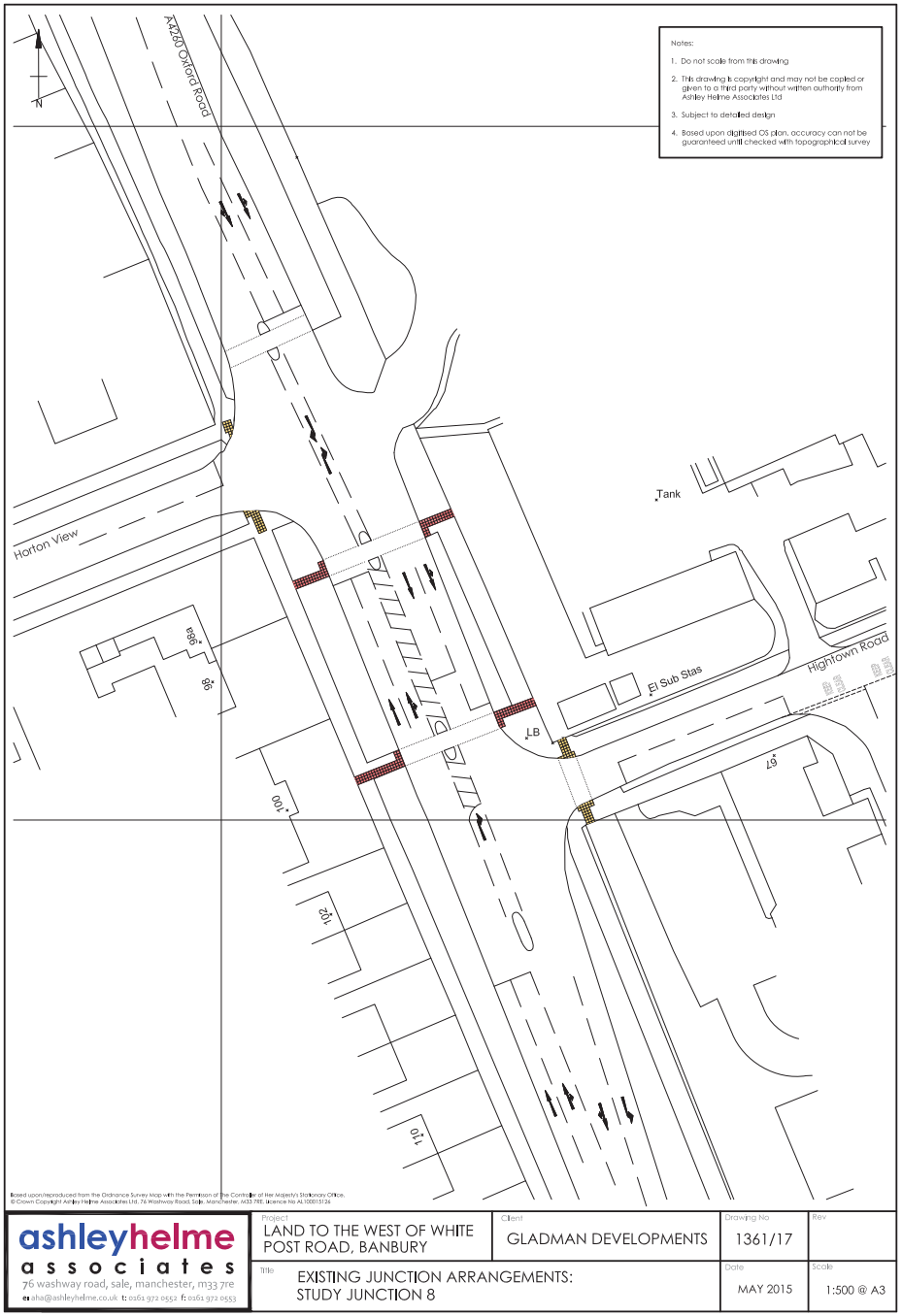
This page has been left intentionally blank



This page has been left intentionally blank

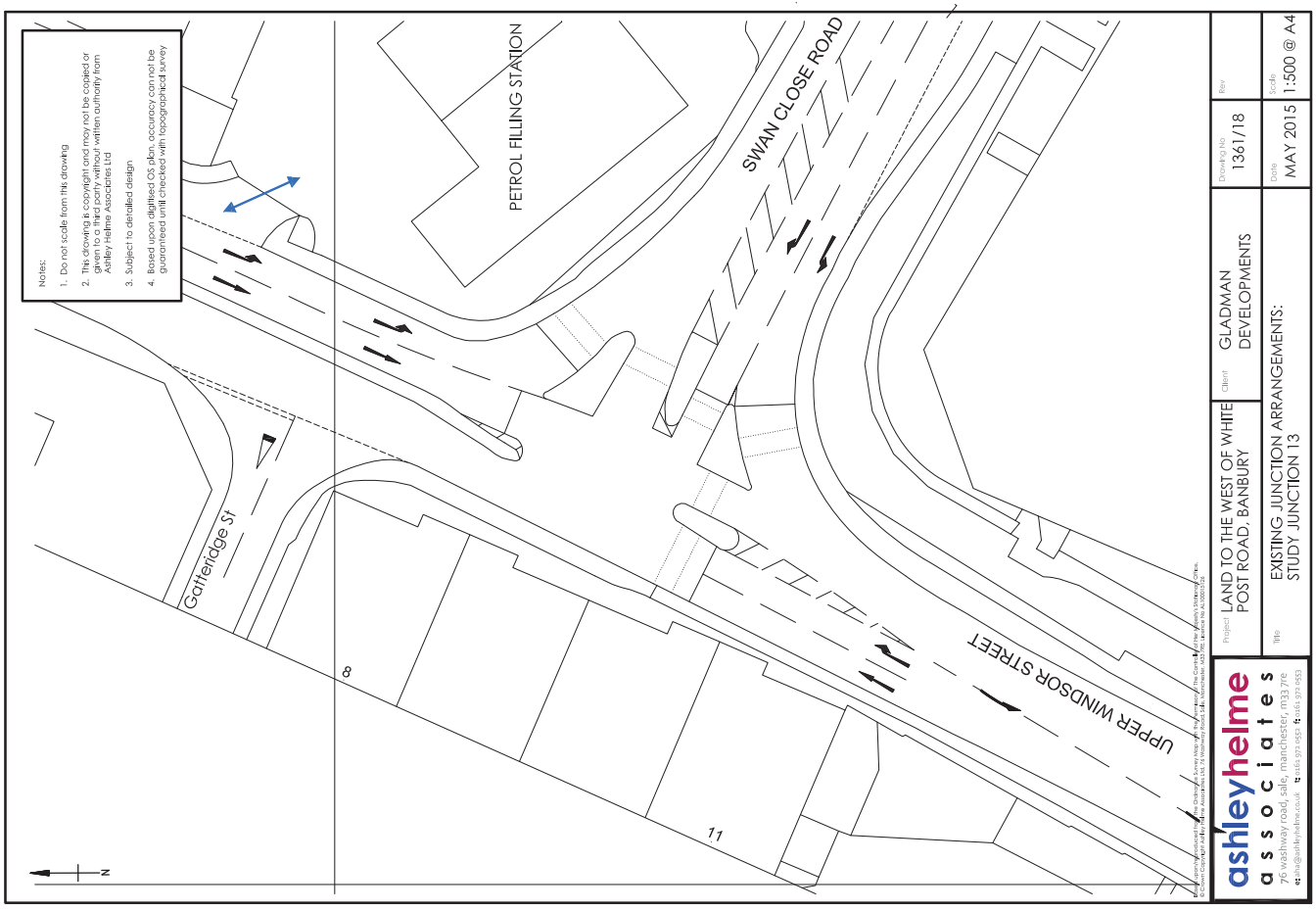
This page has been left intentionally blank

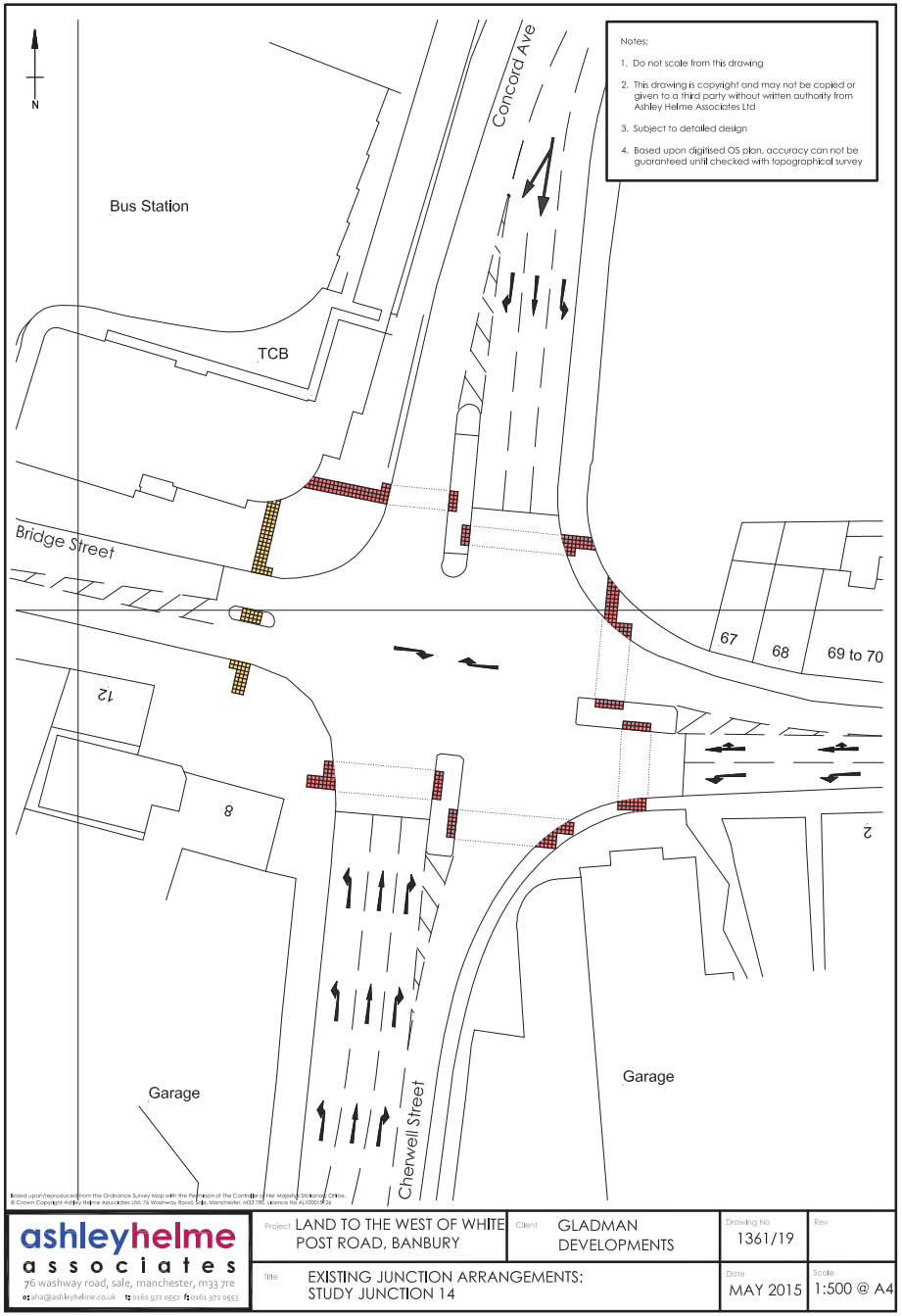




This page has been left intentionally blank

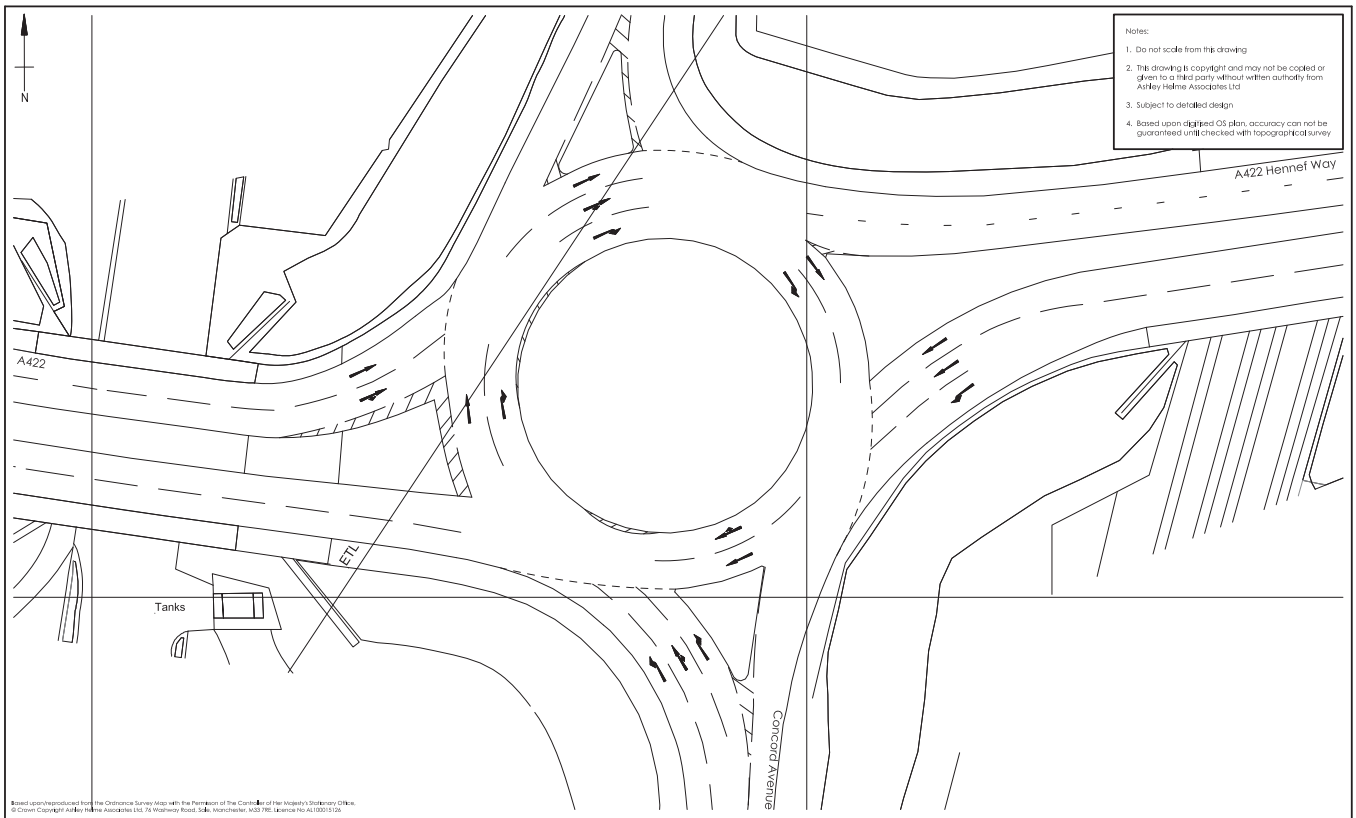
This page has been left intentionally blank





This page has been left intentionally blank

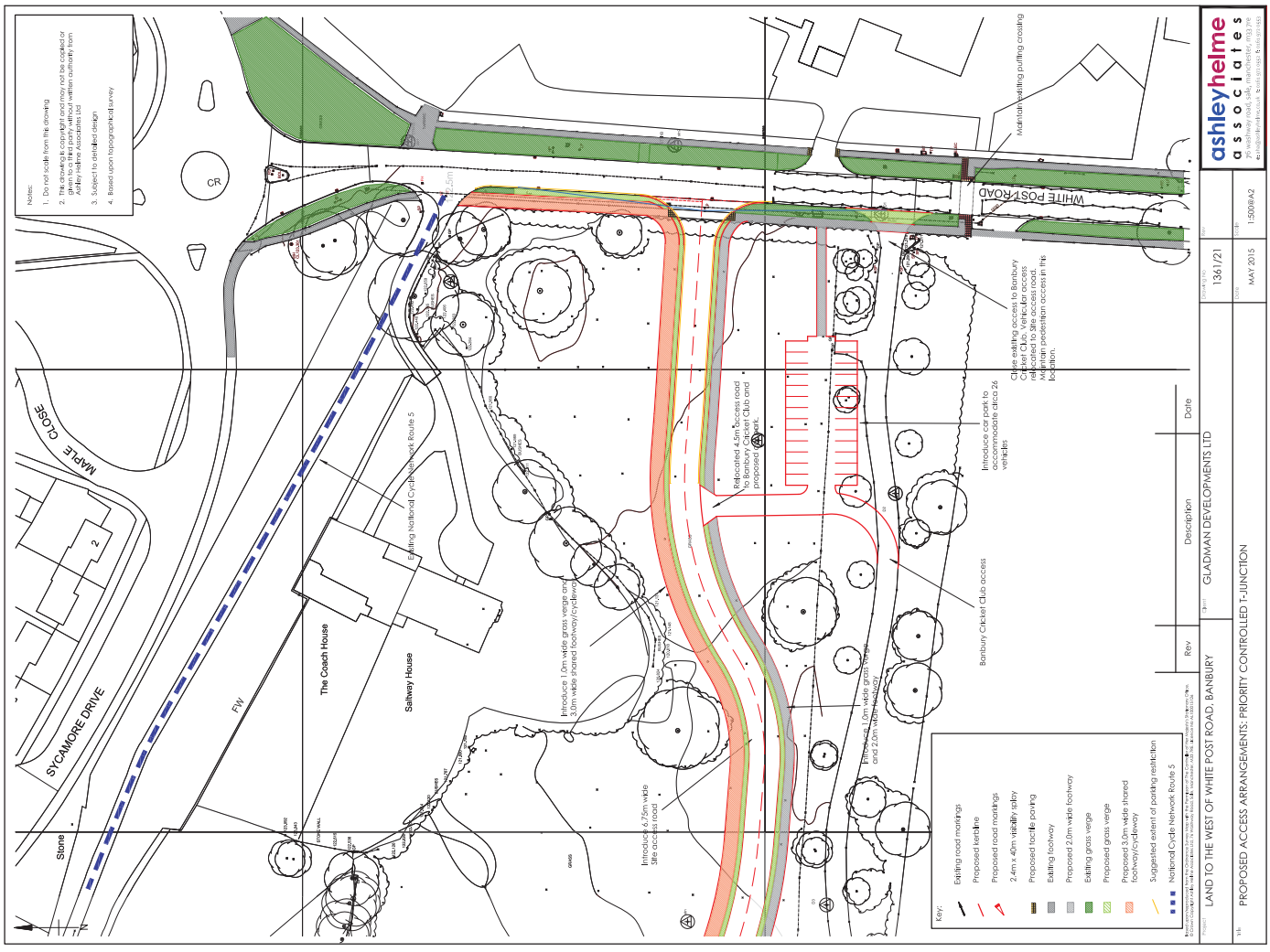
This page has been left intentionally blank



Project: LAND TO THE WEST OF WHITE POST ROAD, BANBURY	Title: EXISTING JUNCTION ARRANGEMENTS: STUDY JUNCTION 15	Drawing No: 1361/20	Rev:
Client: GLADMAN DEVELOPMENTS		Date: MAY 2015	Scale: 1:500 @ A3

ashleyhelme associates
76 washway road, sale, manchester, m33 7re
e: ahe@ashleyhelme.co.uk t: 0161 972 0552 f: 0161 972 0553

This page has been left intentionally blank



A8 Traffic and Transport

Appendix 8.2 Travel Plan

This page has been left intentionally blank

ashleyhelme

Land West of White Post Road, Banbury

Travel Plan

Report Prepared for

Gladman Developments Ltd

July 2015

Report Reference 1361/8/B

ashleyhelme

Travel Plan

Land West of White Post Road, Banbury

Client:	Gladman Developments Ltd
Report Ref:	1361/8/B
Status:	Final
Date:	July 2015

Ashley Helme Associates Ltd
76 Washway Road
SALE, Manchester
M33 7RE

Telephone
0161 972 0552

aha@ashleyhelme.co.uk
www.ashleyhelme.co.uk

Travel Plan

Land West of White Post Road, Banbury

ashleyhelme

1 Introduction

1.1 Gladman Developments Ltd has submitted an outline planning application for residential development on land off White Post Road, Banbury (henceforth referred to as the Site). The location of the Site is indicated on the Figure 1 Location Plan. This Framework Travel Plan (TP), supports the outline planning application.

1.2 **OVERVIEW**

1.2.1 The reason that this is a 'Framework ' TP is that the application is in outline. For the avoidance of doubt, this Framework TP applies to, and provides the context for, any and all future TPs prepared for the entirety of the outline application Site area; requirements of the Framework TP must relate to all dwellings constructed on the application Site area.

1.2.2 The planning application is for a development of up to 280 dwellings.

1.2.3 The Framework TP is informed by a separate Transport Assessment (TA) report prepared and submitted in support of the outline planning application. There is consistency between the Framework TP and the corresponding TA report.

1.2.4 The access strategy for the development is founded on the fundamental principle of encouraging travel by residents/users of the Site to be made by sustainable travel mode choices. The TP provides the context and means of achieving the development access strategy. The TP proposals ensure that, from the outset, sustainable travel choices are available for residents and visitors of the development.

1.2.5 The proposed Site access arrangements comprise a priority controlled (give-way) junction on White Post Road.

1.3 **TRAVEL PLAN OBJECTIVES**

1.3.1 The TP provides the context and means of achieving the development access strategy and objectives, and its formulation is ongoing and dynamic, in accordance with best practice.

1.3.2 The key objectives of the TP are to:

- Contribute to traffic reduction and other sustainable transport objectives set out in national and local policies,
- Improve accessibility of the Site by sustainable modes of transport and address traffic and parking issues,
- Widen choice of travel mode for all those travelling to/from the Site.

1.3.3 It is imperative that the TP measures are effective and efficient.

1.3.4 The 2014 Planning Practice Guidance (PPG) 'Travel Plans, transport assessments and statements in decision taking' provides the most up-to-date national guidance.

1.3.5 PPG states that Travel Plans are a way of *"mitigating the negative impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements."* (Reference ID: 42-002-20140306)

1.4 **SCOPE OF TRAVEL PLAN**

1.4.1 It is established and acknowledged that there are two broad types of TP:

- 'Destination': designed to increase sustainable travel to a particular location, and
- 'Origin': residential Travel Plans where journeys are made to varied locations.

The proposed development is for residential use, and hence this Framework TP is an 'origin' TP.

1.4.2 The Framework TP sets out how the developer(s) will progress the TP, progressing from this Framework TP to the preparation and submission to the local authority of a Full TP, which is to be agreed with the local authority.

1.4.3 The outcomes approach is an established TP approach and is adopted for this TP. In the outcomes approach, the focus is on securing the performance of the TP through ensuring targets are met. To work, the approach needs the developer to commit to achieving specific targets/outcomes and agree to a review and monitoring process. The advantage of this approach is that it is objective led. The outcomes sought should relate to the local situation and individual Site requirements. The approach provides scope for adjusting the means of achieving the outcomes over time in relation to experience at the Site.

1.4.4 The underlying purpose of a residential Framework TP is to reduce car travel and encourage alternative modal choices that are more sustainable, such as walk, cycle and public transport, as well as car share.

1.5 **COMPREHENSIVE STRATEGY**

1.5.1 It is essential to recognise that in order to achieve the optimal benefits from a TP, there is more required than ensuring provision of facilities for sustainable modes of travel. What is required, to meet the Framework TP outcomes objectives (refer Chapter 4), is a shift in behavioural attitudes, leading consequently to a change in behaviour when choosing the mode for making journeys.

1.5.2 Achieving changes to behavioural attitudes to travel, and the achievement of the associated Framework TP targets, requires a considered approach comprising many strands. For example, for some people the highlighting of health benefits and/or environmental benefits may 'do the trick', but for others this will not be as successful, for a variety of reasons.

1.5.3 The role of the TPC (refer Chapters 5 & 8) in addressing this is critical to the degree of success of the TP. The TPC must explore and identify these 'other reasons', and recognise that there is a need for a range of strategies to be employed to achieve

the TP target result of people actually choosing to not make a journey driving alone, but rather to plan their travel needs in a more sustainable way.

1.5.4 It is imperative to understand and accept that behavioural change is for many people only achieved via a series of 'small steps'. In other words, there is a substantial body of people that will not take an 'overnight' decision to stop making journeys by driving alone (eg to work), but who can be gradually and positively influenced to change their attitudes and choices (to and for travel). The 'small steps' approach forms a key part of the Framework TP comprehensive strategy, and is discussed further in Chapter 5. This is wholly consistent with the strategies being pursued nationally for travel behavioural change.

1.5.5 The success of the TP is dependent upon the TP strategy proposals of the TPC. There is not a 'one size fits all formula' for a successful TP. Within the context of the overall principles that apply for any TP, the operation of a specific TP must be responsive to the specifics of individual sites. This approach is adopted for the development Framework TP.

1.6 BANBURY 17 ALLOCATION

1.6.1 The application Site forms part of wider area that is allocated for residential development in the Council's Submission Local Plan. The application Site, together with other sites to the west, are known collectively as the Banbury 17 Allocation sites. There are 3no sites within the Banbury 17 allocation that are centred on Bloxham Road. These are:

- Wykham Park Farm,
- Land to the east of Bloxham Road, and
- Land to the west of Bloxham Road.

1.6.2 The main site within the Banbury 17 area is known as Wykham Park Farm (WPF). A planning application for a predominantly residential scheme was submitted to CDC. The scheme comprises:

- Circa 1000 dwellings,
- Primary School,

- Local centre.

1.6.3 Planning permission has been granted for a residential scheme on land to the east of Bloxham Road. This scheme, known as Crouch Farm Phase 1, comprises 145 dwellings.

1.6.4 The scheme referred to as Crouch Farm Phase 2 comprises 400 dwellings. A Screening Opinion was submitted to CDC in May 2014.

1.6.5 This TP considers the proposed development in the context of the neighbouring development Sites that comprise the Banbury 17 allocation.

2 Policy Context

2.1 The policy context for requiring a TP for a development is established across the board, at national, regional and local levels.

2.2 **NATIONAL POLICY**

2.2.1 The Government's sustainable development strategy aims to reduce the need to travel, influence the rate of traffic growth and reduce the environmental impacts of travel overall.

2.2.2 The National Planning Policy Framework (NPPF, March 2012) explicitly refers to travel planning and the need for TPs, in the context of the need to "*protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people*" (para 35). This continues to state that:

"*Therefore, developments should be located and designed where practical to*

- *accommodate the efficient delivery of goods and supplies;*
- *give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;*
- *create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;*
- *incorporate facilities for charging plug-in and other low emission vehicles; and*
- *consider the needs of people with disabilities by all modes of transport.*" (para 35), and

"*A key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan.*" (para 36)

2.2.3 PPG sets out that Travel Plans:

"...support national planning policy which sets out that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable." (Reference ID: 42-00620140306)

2.3 **EMERGING CHERWELL LOCAL PLAN 2011-2031**

2.3.1 The emerging Cherwell Local Plan was submitted to the Secretary of State for Communities and Local Government for formal examination on January 2014. In June 2014 the Inspector suspended the examination to allow the Council to undertake main modifications in relation to meeting its objectively assessed housing needs over the plan period. The Council has since undertaken modifications along with further public consultation and has re-submitted these to the Inspector in October 2014. The Inspector's Report on Examination of the modified submission has been published and council officers are considering the report. It is intended that it will be presented to Members at meeting of the Council on 20 July 2015 with a recommendation for adoption.

2.3.2 Relevant policies include the following:

- Draft Policy SLE4: Improved Transport and Connections

2.3.3 Draft Policy SLE 4 sets out the council's aim for improved transport and connections in Cherwell. The draft policy states:

"*The Council will support the implementation of the proposals in the Movement Strategies and the Local Transport Plan to deliver key connections, to support modal shift and to support more sustainable locations for employment and housing growth. We will support key transport proposals including:*

- *Transport Improvements at Banbury and Bicester and at Former RAF Upper Heyford in accordance with the County Council's Local Transport Plan and Movement Studies Strategies.*
- *Projects associated with East-West rail including new stations at Bicester Town and Water Eaton*
- *Rail freight associated development at Graven Hill, Bicester.*
- *Improvements to M40 junctions."*

2.3.4 Para C.126 addresses the Council's strategy for Banbury and includes the following statement:

"Provide for new development in accessible locations which will provide good opportunities for improving and accessing public transport services, for delivering and using new cycleways, for travelling on foot and for minimising the impact on the highway network and traffic congestion."

2.4 CHERWELL LOCAL PLAN, 1996

2.4.1 The Cherwell Local Plan was adopted in November 1996. This document contains the most current adopted planning policies for Cherwell. There are a number of 'saved' transportation policies from the Cherwell Local Plan.

2.4.2 Saved policy TR1 sets out the Council's position with regard to accessibility to public transport for new developments. Policy TR1 states that:

"Before proposals for development are permitted the council will require to be satisfied that new highways, highway improvement works, traffic-management measures, additional public transport facilities or other transport measures that would be required as a consequence of allowing the development to proceed will be provided."

2.5 OXFORDSHIRE LOCAL TRANSPORT PLAN 2011-2030

2.5.1 The Oxfordshire Local Transport Plan (LTP) was adopted in 2011 and is the third adopted LTP. The LTP has been subject to two subsequent adopted amendments in

2012 and 2014. This document remains the most current LTP for Oxfordshire but the fourth LTP is currently in preparation, this is discussed in para 2.10.

2.5.2 Oxfordshire County Council (OCC) is the Local Highway Authority, and has responsibility for the development and delivery of the Local Transport Plan (LTP).

2.5.3 LTP3 sets out four local transport goals, as follows:

- to support the local economy and the growth and competitiveness of the county;
- to make it easier to get around the county and improve access to jobs and services for all by offering real choice;
- to reduce the impact of transport on the environment and help tackle climate change; and
- to promote healthy, safe and sustainable travel.

2.5.4 The underlying theme and objectives of the third LTP are to promote policies and measures to foster and achieve improved opportunities for travel choices by non-car modes. This provides the context for specific local measures to be considered, promoted and introduced.

2.6 EMERGING OXFORDSHIRE LTP4

2.6.1 Following the adoption of the third LTP in 2011, there have been a number of amendments to policy. OCC notes that in order:

"To ensure that the county's transport systems are fit to support population and economic growth, in 2014/15 we have developed a new Local Transport Plan, that will give Oxfordshire the best chance of success when bidding for projects and securing new infrastructure to support new development."

2.6.2 OCC is in the process of developing the new LTP4 and expects to finalise the document for approval in summer 2015.

2.6.3 Chapter 5 of the emerging LTP4 sets out enhancements to the road network to support growth and economic vitality. Para 85 addresses local routes in Banbury and specifically notes the link road between A4260 Oxford Road and A361 Chipping Norton Road. Para 85 states:

"The Banbury Area Strategy includes a new link road between the town and a large employment site to be developed east of M40 junction 11. A spine road to be built as part of development at Salt Way south of the town will link the A4260 Oxford Road and A361 Chipping Norton Road."

2.6.4 The link road between A4260 Oxford Road and A361 Chipping Norton Road is also detailed in the emerging LTP4 Volume 2 Part II: Area Strategies, A420 Route Strategy and Freight Strategy. The additional infrastructure improvements are highlighted in Para 12, stating:

"Additional infrastructure improvements will be delivered to support future regeneration of Banbury and the Local Plan Modifications development proposals:

A361 Bloxham Road to A4260 Oxford Road Spine Road through the residential development South of Salt Way: The co-ordinated approach to development to the south of Banbury as proposed in the Local Plan Modifications (August 2014), will enable provision of essential infrastructure including delivery of an east-west link from the A361 Bloxham Road to join White Post Road and the A4260 Oxford Road. This road will support operation of commercially viable bus services through the development, increasing accessibility and long term sustainability of the development. The spine road will be built by the developer."

2.6.5 BAN1 in the emerging LTP4 notes the council will seek improvements to support regeneration and growth. BAN1 refers to the link road connection, stating:

"We will seek opportunities to deliver transport schemes which will support the regeneration and growth of Banbury to 2031 and protect the historically sensitive areas of the town through:

- *Provision of A361 Bloxham Road to A4260 Oxford Road Spine Road."*

3 Existing Conditions: Key Information from TA

3.1 **SITE LOCATION**

The Site is presently vacant agricultural land, and has frontage onto:

- White Post Road, to the east,
- Wykham Lane, to the south.

3.2 **ACCESSIBILITY BY WALK**

3.2.1 It is established and acknowledged 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.

3.2.2 The CIHT provides guidance about journeys on foot. It does not provide a definitive view of distances, but does suggest a preferred maximum distance of 2000m for walk commuting trips. A 400m distance corresponds to a walk time of 5 minutes, based on upon a typical normal walking speed. Figure 2 presents the development 400m, 800m, 1200m and 2000m walk isochrones, (ie reflecting 5, 10, 15 and 25 minute walk journeys), and taking account of the pedestrian infrastructure.

3.2.3 The DfT National Travel Survey of 2013 confirms that 78% of all trips less than a mile (1.6km) are carried out on foot.

3.2.4 The 'walkable neighbourhood' concept is set out in MfS1 and endorsed in MfS2. MfS1 explains that:

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot. However, this is ***not an upper limit*** *and .....that walking offers the greatest potential to replace short car trips, particularly those under 2 km."* (MfS para 4.4.1, my emphasis)

3.2.5 Indicated on Figure 2 are examples of local facilities near to the Site. This illustrates that there are a number of amenities within 800m of the Site, including:

- Nursery,
- Primary school,
- Convenience store,
- Community centre,
- Playgrounds/public open space,
- Cricket club,
- Salons,
- Public house,
- Church,
- Employment (Cherwell District Council),
- Allotments,
- Bus stops.

3.2.6 Within about 1200m of the Site (typically a 15 minute walk) there are a number of additional facilities, including:

- Secondary school/sixth form,
- Convenience Store,
- Supermarket,
- Post Office,
- Bank/ATM,
- Dentist, Pharmacy & Optician,
- Restaurants/takeaways.

3.2.7 Figure 2 demonstrates that there is a substantial range of amenities within 2000m of the Site. The edge of Banbury town centre is within 2000m of the Site and Horton Hospital provides a substantial employment destination within 2000m of the Site.

3.2.8 The adjacent WPF scheme (refer Section 1.6) includes a primary school and local centre. If there is a link road connection between the proposed development and the WPF scheme then the primary school and local centre will be within a convenient walk or cycle ride for residents of the proposed development.

ashleyhelme

3.2.8 **Public Rights of Way**

3.2.8.1 Figure 3 presents the existing Public Rights of Way (PROW) near to the Site. This shows that there is a restricted byway along the northern boundary of the Site, and a bridleway close to the western Site boundary. There are a number of footpaths connecting the restricted byway to the residential area to the north of the Site.

3.2.8.2 There is an existing footpath within the Site between the restricted byway and Wykham Lane.

3.2.8.3 Figure 3 shows that there is an extensive network of PROW in the vicinity of the Site providing convenient pedestrian routes to a range of local amenities.

3.2.8.4 Measures proposed to promote walking are outlined in Section 7.1, Chapter 7.

3.3 **CYCLE**

3.3.1 It is recognised that cycling also has potential to substitute for short car trips, particularly those under 5km, and to form part of a longer journey by public transport.

3.3.2 The CIHT guidance 'Cycle Friendly Infrastructure' (2004) states that:

"Most journeys are short. Three quarters of journeys by all modes are less than five miles (8km) and half under two miles (3.2km) (DOT 1993, table 2a). These are distances that can be cycled comfortably by a reasonably fit person."(para 2.3)

3.3.3 Figure 4 indicates the 2km and 5km cycle isochrones for the Site, reflecting typically 10 minute and 25 minute journeys. Review of Figure 4 highlights that all of the built-up area of Banbury is within 5km of the Site. Additionally, all of Twyford, Adderbury, Broughton, North Newington, and most of Bloxham are accessible to Site residents by cycle.

3.3.4 Figure 5 indicates formally identified cycle routes in the locale of the Site. These include:

- National Cycle Network Route 5 (NCN 5): Reading to Holyhead via Oxford,
- A local signed on-road route linking the Site and NCN 5 to Banbury Rail Station.

3.3.5 In summary, the destination opportunities within a 5km cycle ride of the Site for residents of the development comprise a full range of amenity and employment locations within Banbury itself and beyond.

3.3.6 Measures proposed to promote cycling are outlined in Section 7.2, Chapter 7.

3.4 **ACCESSIBILITY BY PUBLIC TRANSPORT**

3.4.1 The proposed development affords opportunity for development generated public transport journeys to be made by bus and rail.

3.4.2 **Bus**

3.4.2.1 Figure 6 presents the bus stops within 800m of the Site. The closest bus stops to the Site are on Sycamore Drive, within 400m. There are additional bus stops on White post Road that are circa 500m from the centre of the Site. The bus stop on the southern side of Sycamore Drive closest to the White Post Road/Sycamore Drive/Bankside junction has a shelter. All other bus stops on Sycamore Drive and White Post Road comprise a 'flag and pole'.

3.4.2.2 Table 1 presents the routes and frequencies of bus services calling at stops within 800m of the Site. The routes of services summarised in Table 1 are shown on Figure 7. Table 1 shows that the B1 service calls within 400m of the Site. The B1 operates at a 30 minute frequency, Monday – Saturday, and a 120 minute frequency on Sunday. The journey time between Sycamore Drive and Banbury bus station is 12-13 minutes. The earliest weekday departure from Sycamore Drive is 0702, and the latest weekday arrival at Sycamore Drive is at 1822.

3.4.2.3 The B2 service calls on White Post Road, circa 500m from the Site, and operates on the same frequency as the B1 service. There are additional services calling on A4260 within 800m of the Site. In a typical weekday situation there are circa 8 buses per hour calling within 800m of the Site, taking into account buses travelling in both

directions along the road. Destinations include, among others, Banbury town centre, Bodicote, Easington, Oxford, Kings Sutton, Aynho, Evenly, Croughton, and Brackley.

3.4.2.4 All services calling within 800m of the Site also call at Banbury bus station, which is within 400m of Banbury Rail station. This provides opportunity for onward journeys by public transport to an extensive range of destinations.

3.4.3 **Rail**

3.4.3.1 Banbury Rail Station is circa 2.5km from the Site (refer Figure 2). This provides opportunity for residents to travel by rail, with the journey between the rail station and the Site by cycle or bus. Cycle storage is provided at the station, and all bus services calling close to the Site call within 400m of the rail station. Additionally, there are 720 car park spaces provided at the station with a weekly charge of £26 for rail users. There are mobility impaired spaces available free of charge for blue badge holders.

3.4.3.2 The main services calling at Banbury Rail Station comprise:

OPERATOR	PRINCIPAL ROUTE	TYPICAL WEEKDAY FREQUENCY (mins)
Chiltern Railways	London - Birmingham:	30
Cross Country	Manchester - Bournemouth:	60
Cross Country	Newcastle – Reading:	60

Additionally, there are a number of less frequent services calling at Banbury, operated by Chiltern Railways and First Great Western. Typically, there are circa 10-11 services per hour calling at Banbury Station.

3.4.3.3 Services calling at Banbury provide frequent direct trains to a wide range of destinations including, among others, London, Birmingham, Manchester, Leeds, Sheffield, Newcastle, Southampton, Bournemouth, Coventry, Stoke-on-Trent, Derby, Doncaster and York.

3.4.3.4 Banbury rail station provides opportunity for residents undertake regular journeys (eg for work) to a wide range of destinations. Journey times between Banbury and key destinations that may be suitable for daily commuting are:

DESTINATION	APPROXIMATE JOURNEY TIME (mins)
Bicester	14
Leamington Spa	17
Oxford	21
Warwick	22
High Wycombe	32
Reading	45
Birmingham	53
London Marylebone	54 - 64

3.4.3.5 It is demonstrated that there is excellent opportunity for residents of the proposed development to undertake journeys by rail to an extensive range of destinations.

3.4.4 **Public Transport Measures**

Measures proposed to promote use of public transport are outlined in Section 7.2, Chapter 7.

4 Objectives and Outcomes

4.1 The underlying objectives of the TP are to:

- Contribute to traffic reduction and other sustainable transport objectives set out in national and local policies,
- Promote accessibility to the development by sustainable modes of transport.

4.2 A key objective is that the TP measures are effective and efficient.

4.3 Specific outcomes sought from the development TP are to:

- Achieve the minimum number of car traffic movements to/from the development,
- Address the access needs of Site users, by supporting walking, cycling and public transport and other sustainable transport options,
- Reduce the need for travel to/from the Site.

These outcomes are consistent with the underlying objectives of the TP (refer para 4.1).

4.4 As explained in para 1.4.1, this Framework TP is an 'origin' TP.

4.5 It is important that, as far as possible, measures are in place that provide good active encouragement for sustainable transport choices, from the commencement of people residing at the Site. Thus, emphasis is placed on achieving, from the outset, a development 'culture' oriented to offering sustainable transport choices that are attractive to residents.

4.6 The Framework TP seeks to influence the choices made by people travelling to/from the Site, to favour selection of sustainable travel modes for journeys. Emphasis is to be placed on promoting all sustainable modes of travel.

5 Targets and Indicators

5.1 The term 'targets' is used in relation to a TP to cover any measurable aim that will be monitored and is agreed with local authority to be an important indicator to the TP's effectiveness.

5.2 The TP is a tool identified by the local authority to be employed to assist in supporting and promoting identified policies to reduce car travel. Similarly, at national level the TP is an identified instrument for pursuing sustainable transport policies. A general target for what such sustainable transport policies must achieve is represented by the SMART criteria (as defined for example by the DfT, 2004). The SMART criteria adopted for this Framework TP, that are consistent with the criteria identified by the DfT, are:

Specific	there must be no ambiguity in the output,
Measurable	the policy target(s) can be set against directly observable output(s),
Achievable	the policy must be feasible (rocket science should be avoided...),
Realistic	target should be within reasonable bounds and not too optimistic,
Time bound	the output of the policy should be observable over a pre-determined time frame.

The TP provides a mechanism for implementing the above SMART transport policies.

5.3 **BENCHMARKING: CENSUS DATA**

5.3.1 At present, prior to occupancy, there is no recorded information about modal choices for the residents of the development. However, there is recorded/published information that provides a context for considering the setting of targets within the Framework TP. The primary source of available information is the 2011 Census data.

5.3.2 The Census provides travel to work data for people living in an area and travelling to work at a variety of end destinations.

5.4 **CENSUS DATA**

5.4.1 Census modal split journey to work statistics is available for the scenario of 'Ward/Borough is the 'origin' of work trips': ie residents travel to work **from** here. This is applicable to the proposed residential use.

5.4.2 The 2011 Census is interrogated for recorded journey to work modal split for:

- Cherwell (District),
- Banbury Easington (ward).

5.4.3 The reason for selecting the above Census interrogations is as follows:

- Cherwell provides the overall Borough context,
- Banbury Easington: The Site is situated in Bloxham and Bodicote ward, which comprises the villages of Bloxham and Bodicote, and covers a large predominantly rural area extending beyond Banbury. However, the residential areas of Banbury in the immediate vicinity of the Site are in Banbury Easington ward. Therefore, it is considered most appropriate to use data for Banbury Easington ward for determining the likely journey to work modal split of residents of the proposed development.

This information is relevant to informing the selection of a suitable value for the TP targets.

5.4.4 The results of the Census journey to work interrogations are presented in Table 2.

5.5 **RESIDENTS TRAVELLING FROM AREA**

5.5.1 The reporting of the Census journey to work interrogations (presented in Table 2) includes people working 'at home'. These are included in the Census data, and clearly represent sustainable travel behaviour choices, in that the need to make a journey is removed.

5.5.2 Review of Table 2 identifies the following key information:

- Car driver: 59.8% of Banbury Easington journeys to work, and higher for Cherwell as a whole (63.2%),
- Car passenger: 5.4% of Banbury Easington ward journeys to work, and identical for Cherwell as a whole,
- 'Car driver + car passenger': 65.2% of Banbury Easington ward journeys to work, and higher for Cherwell as a whole (68.6%),
- Cycle: 3.2% of Banbury Easington ward, and similar for Cherwell as a whole (3.5%),
- Walk: Relatively high in Banbury Easington ward (18.5%), and lower in Cherwell as a whole (12.0%),
- Bus: Extremely low in Banbury Easington ward (1.7%), and higher Cherwell as a whole (4.9%),
- Train: 3.6% for Banbury Easington ward, and slightly lower for Cherwell as a whole (2.9%),
- Working from Home: 5.9% in Banbury Easington ward, and slightly higher for Cherwell as a whole, being 6.4%.

5.5.3 In summary, the Census modal split interrogations and analysis for journey to work for people residing in Banbury Easington ward and Cherwell as a whole highlights that:

- A lower percentage of people living in Banbury Easington ward drive to work than people living in Cherwell as a whole,
- There is a significantly higher percentage of people living in Banbury Easington ward who walk to work, than for Cherwell as a whole,
- A higher percentage of people in the district as a whole travel to work by bus, than for the ward,
- All other travel modes have broadly similar modes shares for journeys to work at ward and district level.

5.5.4 As well as providing information to inform the setting of the TP target, the above provides a valuable starting point for identifying the TP strategy for encouraging residents to adopt more sustainable travel choices.

5.6 **RESIDENTIAL TRIP RATES**

5.6.1 The average residential vehicle generated trip rates set out the TA are:

PEAK HOUR	ARR	DEP	2-WAY
AM	0.156	0.441	0.597
PM	0.413	0.245	0.658.

5.7 **TRIP GENERATION**

These vehicle trip rates are used to estimate the number of car trips generated by the proposed residential development. For example, for the outline application of up to 280 dwellings, there is estimated to be 123 vehicle Departures in the AM peak hour.

5.8 **TP TARGET METHODOLOGY**

5.8.1 Benchmarking information has been investigated and analysed, to assist in informing the setting of targets and indicators for the Framework TP.

5.8.2 The information available for setting of the residential TP target is described above. Established approaches for setting the residential TP target include:

- 'Number of car vehicle trips per occupied unit per weekday will not exceed X',
- 'Number of peak hour trips'.

5.8.3 The drawbacks to adopting the TP target based on the former approach are that:

- The Census data reported above relates to journeys to work (which primarily take place during the peak hours), ie Census data are neither available for the full weekday (ie 24 hour daily) or for other (ie non-work) trip purposes,

- TRICS residential trip data is only for the 12 hour period 0700-1900 hours, ie data are not available for the full daily period of 24 hours.

Hence, there are no recorded data available that inform the setting of the Framework TP target on a basis reflecting 'Number of car vehicle trips per occupied unit per weekday'. The only way to obtain such data would be to undertake a future travel survey of residents.

5.8.4 Notwithstanding the above, the Census data does provide information of assistance in setting a residential TP target on a basis reflecting 'Number of peak hour trips'. The Census data relates to journeys to work (which primarily take place during the peak hours). Some other journey purpose trips may also be undertaken during the peak hour(s), for example trips to school. In the absence of any other information, the assumption is (necessarily) made that these have the same modal split as the work trips. This is a robust assumption in terms of estimating car driver modal share, as most pupils cannot drive,

5.8.5 The Census data records the difference between the car driver modal share in Cherwell as a whole and Banbury Easington ward as being 3.4% higher in the ward.

5.8.6 The approach/philosophy adopted for the Framework TP target setting is to:

- Set the Framework TP target in terms of the 'Number of peak hour trips' taking account of the benchmarking information and the SMART criteria (refer para 5.2),

- Explicitly set out that, as part of the Monitoring & Review regime (refer Chapter 9), the Framework TP target for percentage of resident trips will be reviewed in the light of development-specific modal split data becoming available, to ensure that the target is appropriately challenging.

5.9 **TP RESIDENTIAL TARGET**

5.9.1 Clearly, the 'number' of car trips is a direct function of the number of dwellings. As explained in Chapter 1, this Framework TP is prepared to set the context and requirements for the outline application development proposal of up to 280 dwellings.

5.9.2 The detailed Site layout must be the subject of a reserved matters application(s). It is possible that, arising out of this, less than 280 dwellings might be constructed. Therefore, if the Framework TP target is set in terms of 'number' of peak hour car trips derived on an assumption of the maximum 280 dwellings (for which outline permission is sought), and the actual number of dwellings built proved to be less than 280, then the Framework TP target may not be sufficiently challenging.

5.9.3 The approach adopted at this stage, with the Framework TP is to set the Framework TP target in terms of 'peak hour vehicle trip rate'. As explained above, this is easily converted into a corresponding target 'number' of vehicle trips, (by multiplication of the trip rate and the number of dwellings). By adopting this target setting approach of trip rate, the TP target can apply to the Site irrespective of the final number of dwellings that are constructed.

5.9.4 Furthermore, a practical, and pragmatic, advantage of setting the TP target in terms that relates to peak hour vehicle trips is that this can be conveniently (and hence economically) measured, thereby providing an inherent assistance to the efficient and effective monitoring of the TP progress towards the TP target.

5.9.5 The residential TP target is set as **maximum AM peak hour 2-way vehicle trip rate of 0.537 vehicles/hour/dwelling**.

5.9.6 The explanation of how this is derived is as follows:

- Recorded (TRICS) 2-way AM peak hour vehicle trip rate, as adopted for TA estimate of traffic generated by the proposed residential development is 0.597 vehicles/hour/dwelling: this represents the 'business as usual' situation,

- Apply reduction factor of 10% to the TRICS 2-way peak hour trip rate of 0.597, ie 0.9 x 0.597 **= 0.537**; the Framework TP target 2-way peak hour vehicle trip rate.

5.9.7 One of the varied advantages of setting the Framework TP target in this manner is that it obviates the need for setting interim TP targets. This is because there is an implicit interim target applying at any point in time/level of dwellings occupied, ie the interim target is the same as the 'ultimate' target, that the total number of peak

hour car trips generated should correspond to an equivalent trip generation rate of no more than the Framework TP target rate of maximum AM peak hour 2-way vehicle trip rate of 0.537 vehicles/hour/dwelling.

5.9.8 An illustration of how the Framework TP target represents/is converted to 'number of vehicle trips' is set out below for the outline application and assuming 280 dwellings:

- TP target: 0.537 x 280 dwellings = 150 vehicles (total 2-way) in peak hour,
- The TA estimates of peak hour traffic (total 2-way) generated by the proposed 280 dwellings (and that is used in all the TA modelling of junctions) is 167 vehicles in the AM peak hour,
- Hence, the TP target represents a reduction of 17 vehicles (2-way) in the AM peak hour.

5.9.9 The above target is set so as to be less than 'business as usual' scenario, being a significant reduction in the AM peak hour.

5.9.10 There is no need, or requirement, to set associated TP targets for other mode choices. This is because the limiting of car driver mode in itself requires alternative more sustainable modes to be selected.

5.9.11 The TP promotion of sustainable travel choices, and facilitating sustainable transport measures provided with the development, provides a basis for it being concluded that the TP target complies with the SMART criterion of being 'realistic' (refer para 5.2).

5.10 **TIMESCALE**

5.10.1 A specified timescale is required to provide the context for aiming to achieve the TP targets. This is in accordance with the SMART criterion of 'time bound' (refer para 5.2 above). The initial TP target timescales are set out below. This can be kept under review with the Council on an ongoing basis as part of the TP monitoring and review regime (refer Chapter 9).

5.10.2 The Framework TP sets a timescale of 5 years from first occupation, for achievement of the TP residential target. For the avoidance of doubt, the TP residential target applies to **all** residential developers at the Site.