

TECHNICAL NOTE

PROJECT: Peel Hall, Warrington

REPORT: 1901/TN/03 – Transport and Highways Scoping Note for Use of WMMTM16

DATE: April 2019 (*Updated 10th July 2019*)

1. This Technical Note has been provided to set out the scope for using the WMMTM16 SATURN model to test the traffic impact of the proposed Peel Hall development.
2. This scoping note covers the following points:
 - i. Development profile
 - ii. Access strategy
 - iii. Vehicle Trips
 - iv. Years of assessment
 - v. Study area
 - vi. TEMPRO growth factors
 - vii. Committed development

Development Profile

3. The development profile is now confirmed as follows:
 - i. 1,200 dwellings
 - ii. Care home (up to 100 bedrooms)
 - iii. Local centre – A1 food store up to 2,000sqm, A1-A5 up to 600sqm (no single unit larger than 200sqm), A3/A4 family pub/restaurant up to 800sqm
 - iv. Community sports pitches
 - v. Primary School (assumed two-form entry for the purpose of the transport assessment work)
4. It should be noted that the local centre is provided to serve the new residential neighbourhood and is not intended as an attractor in its own right and that pupils attending the primary school will be local.

Access Strategy

5. The main access strategy for the Peel Hall site is the creation of a non-through route with the development served off five separate access points including a new roundabout from Mill Lane in the east. (See **Appendix 1** for overview and access drawings – which can be provided as dwg format to AECOM for inclusion within SATURN). This is known as Option A.
6. The developer has agreed to test a further access strategy using WMMTM16, which will be a through route that connects the proposed new roundabout junction on Mill Lane with the A49 in the west via a new signalised junction on Poplars Avenue. (See **Appendix 2** for overview and access drawings). This sensitivity test is known as Option B.

Vehicle Trips

7. The trip rates were agreed at the Appeal and are available in the Transport Assessment HTp/1107/TA/01/A (dated January 2018) – Section 8.0 of the TA on trip rates and discounting is provided as **Appendix 3** for ease of reference regarding actual trip rates (only).
8. The development trips are set out in Table 8.11 from TA/01/A, with the employment land use reduced to reflect the updated development profile. This is updated and provided below as **Table 1**.

Table 1 - Peel Hall vehicular trip generation summary (no discounts applied)

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Residential Trips (1,200)	270	628	594	368
Care Home Trips (100 beds)	7	7	8	8
Food Store Trips (2,000sqm)	92	61	181	191
Local Centre Shop Trips (600sqm)	30	29	36	39
Family Pub/Restaurant Trips	-	-	23	15
Primary School Trips (two form entry)	113	79	19	27
Community Uses	10	5	7	8
Total Trips	522	809	868	656

9. A discounting strategy is applied to these trip rates, as set out in TA/01/A. In summary trip discounts for the AM and PM peak hours are as follows:
 - i. Residential 0%
 - ii. Care Home 0%
 - iii. Food Store 100% (70% discounted and 30% pass-by)
 - iv. Local Centre 100%
 - v. Family Pub/Restaurant 0%
 - vi. Primary School 50%
 - vii. Community uses 0%

10. The corresponding trips at each access are set out below under 'Years of Assessment'.

11. It is assumed that AECOM may also require peak period vehicle trip information to cover either side of the peak hour within the SATURN modelling. This was provided in Appendix 41 of TA/01/A.

Years of Assessment

12. The agreed years of assessment are as follows:

WMMTM16 Base 2016

No development

2018

No development (required for Air Quality)

Opening Year 2022 (To be Run for Access Strategy Option A and Access Strategy Option B)

- a. Do Minimum (no development)
- b. Do Something (120 dwellings)
- c. Do Something (full development - to define mitigation for HE at Junction 9 and required for Air Quality assessments)

Five Years After Opening 2027 (To be Run for Access Strategy Option A and Access Strategy Option B)

- a. Do Minimum (no development)
- b. Do Something (600 dwellings and Local Centre)

10 years After Opening 2032 (To be Run for Access Strategy Option A and Access Strategy Option B)

- a. Do Minimum (no development)
- b. Do Something (full development)

13. The WMMTM16 will be run for the AM and PM peak hours and for an inter-peak scenario.
14. The vehicle trips for these assessment years are set out below for the AM and PM peak hours. Inter-peak vehicle trips will be provided in Technical Note TN/06 following.

Opening Year - 120 Dwellings

15. These 120 dwellings will be built out (60) from the Mill Lane extension north of the junction with Radley Lane and (60) from the proposed priority junction with Poplars Avenue (central). The corresponding trips are set out in **Table 2** below.

Table 2 - Summary of 2022 peak hour vehicle trip numbers at each access location

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Mill Lane	60 dwellings	14	31	30	18
Poplars Avenue (central)	60 dwellings	14	31	30	18
Total		28	62	60	36

Full Development

16. The full development trips were summarised in Table 8.14 and Table 8.16 of TA/01/A for Option A and Option B access strategies respectively. These are reproduced below in **Table 3** and **Table 4** for the Option A access strategy and the Option B access strategy sensitivity test respectively, and adjusted for the removal of the employment land use and to better reflect the impact of pass-by trips.

Table 3 - Summary of full development peak hour vehicle trip numbers at each access location Option A (with discounts applied)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	180 dwellings	41	94	89	55
	care home	7	7	8	8
	food store*	28	18	54	57
	local shops	0	0	0	0
	family pub	0	0	23	15
	<i>Sub Total**</i>	<i>48</i>	<i>101</i>	<i>120</i>	<i>78</i>
Poplars Avenue (West)	150 dwellings	34	79	74	46
Mill Lane	150 dwellings	34	79	74	46
Mill Lane/Blackbrook Avenue	700 dwellings	158	366	347	215
	primary school	57	40	10	14
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total**		346	681	642	413

* pass-by trips only

** excluding pass-by

Table 4 - Summary of full development peak hour vehicle trip numbers at each access location Option B (with discounts applied)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	180 dwellings	41	94	89	55
	care home	7	7	8	8
	food store*	28	18	54	57
	local shops	0	0	0	0
	family pub	0	0	23	15
	<i>Sub Total**</i>	<i>48</i>	<i>101</i>	<i>120</i>	<i>78</i>
Poplars Avenue (West) through to A49 & Mill Lane/Blackbrook Avenue	850 dwellings	191	445	421	261
	primary school	57	40	10	14
	<i>Sub Total</i>	<i>248</i>	<i>485</i>	<i>431</i>	<i>275</i>
Mill Lane	150 dwellings	34	79	74	46
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total**		345	681	642	413

* pass-by trips only

** excluding pass-by

Intermediate Assessment Year – 600 dwellings, care home and Local Centre

17. An intermediate year of 2027 (five years after opening) will be assessed in terms of the traffic impact on the local highway network before the internal link to the local centre is created. It is agreed that this will present a worst-case intermediate build out scenario, with no discounting of vehicular trips for any of the land uses, because residents on the development would have to use the local highway network to access shops without the direct vehicular link to the local centre through the site. The resultant trips are set out in **Table 5** and **Table 6** for access strategy Option A and the sensitivity test through route access strategy Option B respectively.

Peel Hall network 2027 before road link to local centre



Table 5 - Summary of 2027 peak hour vehicle trip numbers at each access location (Option A)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	75 dwellings	17	39	37	23
	care home	7	7	8	8
	food store	92	61	181	191
	local shops	30	29	36	39
	family pub	0	0	23	15
	<i>Sub Total</i>	<i>146</i>	<i>136</i>	<i>285</i>	<i>276</i>
Poplars Avenue (West)	75 dwellings	17	39	37	23
Mill Lane	150 dwellings	34	79	74	46
Mill Lane/Blackbrook Avenue	280 dwellings	63	147	139	86
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total		275	417	552	445

Table 6 - Summary of 2027 peak hour vehicle trip numbers at each access location (Option B)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	70 dwellings	16	37	35	22
	care home	7	7	8	8
	food store	92	61	181	191
	local shops	30	29	36	39
	family pub	0	0	23	15
	<i>Sub Total</i>	<i>145</i>	<i>134</i>	<i>283</i>	<i>275</i>
Poplars Avenue (West) through to A49 & Mill Lane/Blackbrook Avenue	360 dwellings	81	188	178	111
Mill Lane	150 dwellings	34	79	74	46
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
	Total	275	417	552	446

Study Area

18. The study area for Peel Hall has been agreed and the previously modelled network is shown on the plan contained in **Appendix 4**.
19. It is understood that the WMMTM16 layout is slightly different within this Peel Hall area (see **Appendix 5**). It is agreed that AECOM will update the WMMTM16 network to include for Howson Road; Birch Avenue; Poplars Avenue from A49; and Mill Lane up to Radley Lane
20. AECOM are to provide a revised network model plan for agreement of the Peel Hall study area, for use within WMMTM16, with the junction nodes clearly marked.

TEMPRO Growth Factors

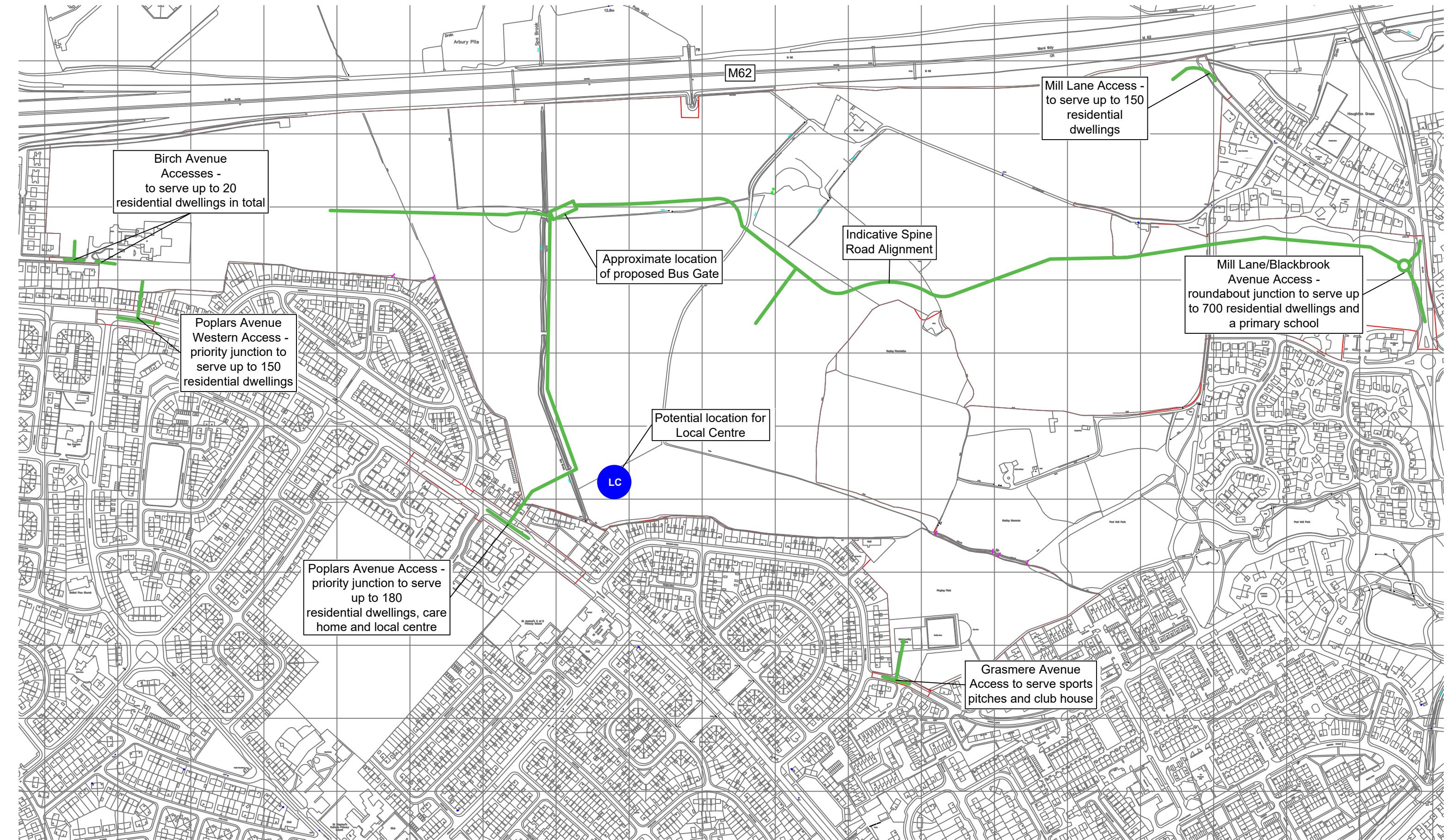
21. It is understood that AECOM will be confirming the appropriate NTEM adjusted TEMPRO growth factors with Warrington Borough Council as part of the modelling exercise.

22. WBC have requested that background growth be forecast to NTEM levels, with known committed developments explicitly modelled as follows:
 - i. J9 Retail Park (2016/29425).
 - ii. Parkside Phase 1 (2018/32247).
 - iii. Birchwood Park (2015/26044).
23. WBC have confirmed that if the committed development forecast exceeds NTEM levels, then the higher growth level is to be used.

Appendix 1

Option A

Overview and Access Drawings



NOTES:
© Crown Copyright 2019 OS 100056454

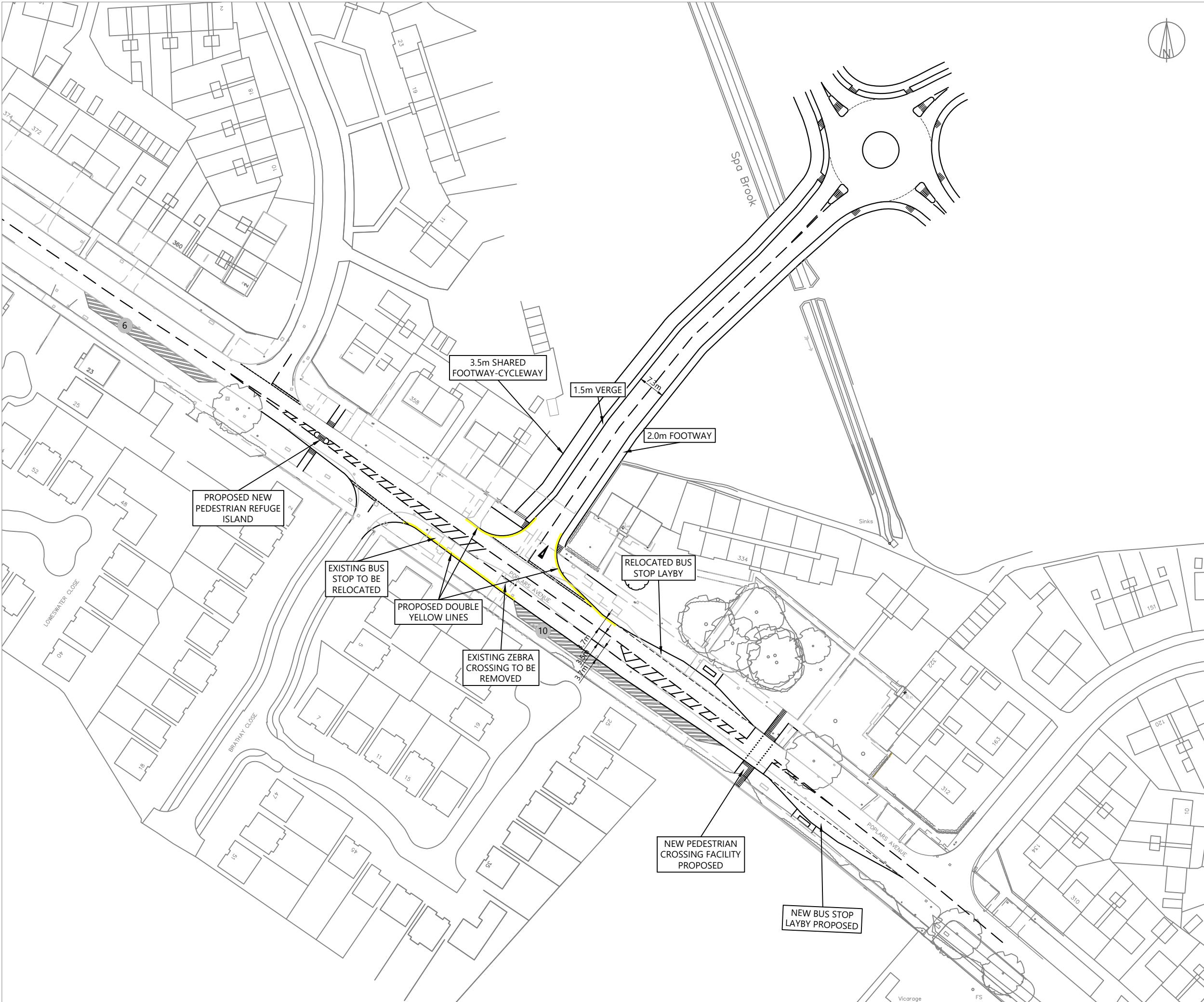


H G F E D C B A	Update re: employment land use Update to location of local centre Amendment to annotation Amendment to dwelling numbers at access points Amendment to bus gate location Alteration to dwelling numbers at access points Alteration to dwelling numbers at access points Reduction in number of dwellings shown off Birch Avenue	03/07/19 16/01/18 16/01/17 10/05/17 04/05/16 12/04/16 04/03/16 19/02/16
ISSUE	REASON FOR REVISION	DATE
DATE:	12/01/15	DRAWN BY: FB CHECKED: DT

PROJECT:
PEEL HALL, WARRINGTON
CLIENT:
SATNAM

TITLE:
PROPOSED ACCESS POINTS AND INDICATIVE SPINE ROAD
PROJECT REFERENCE: 1107 DRAWING NUMBER: 19 SCALE: Not to scale

Highgate Transportation
www.highgatetransportation.co.uk
First Floor, 43–45 Park Street
Bristol BS5 1NL
01179 349 121
©Highgate Transportation Limited





Drawing based on Powers & Tiltman
topographical survey 6297_01 dated
25/07/11.

PROJECT:

PEEL HALL,
WARRINGTON

CLIENT:

SATNAM MILLENNIUM
LTD

PROJECT REFERENCE:

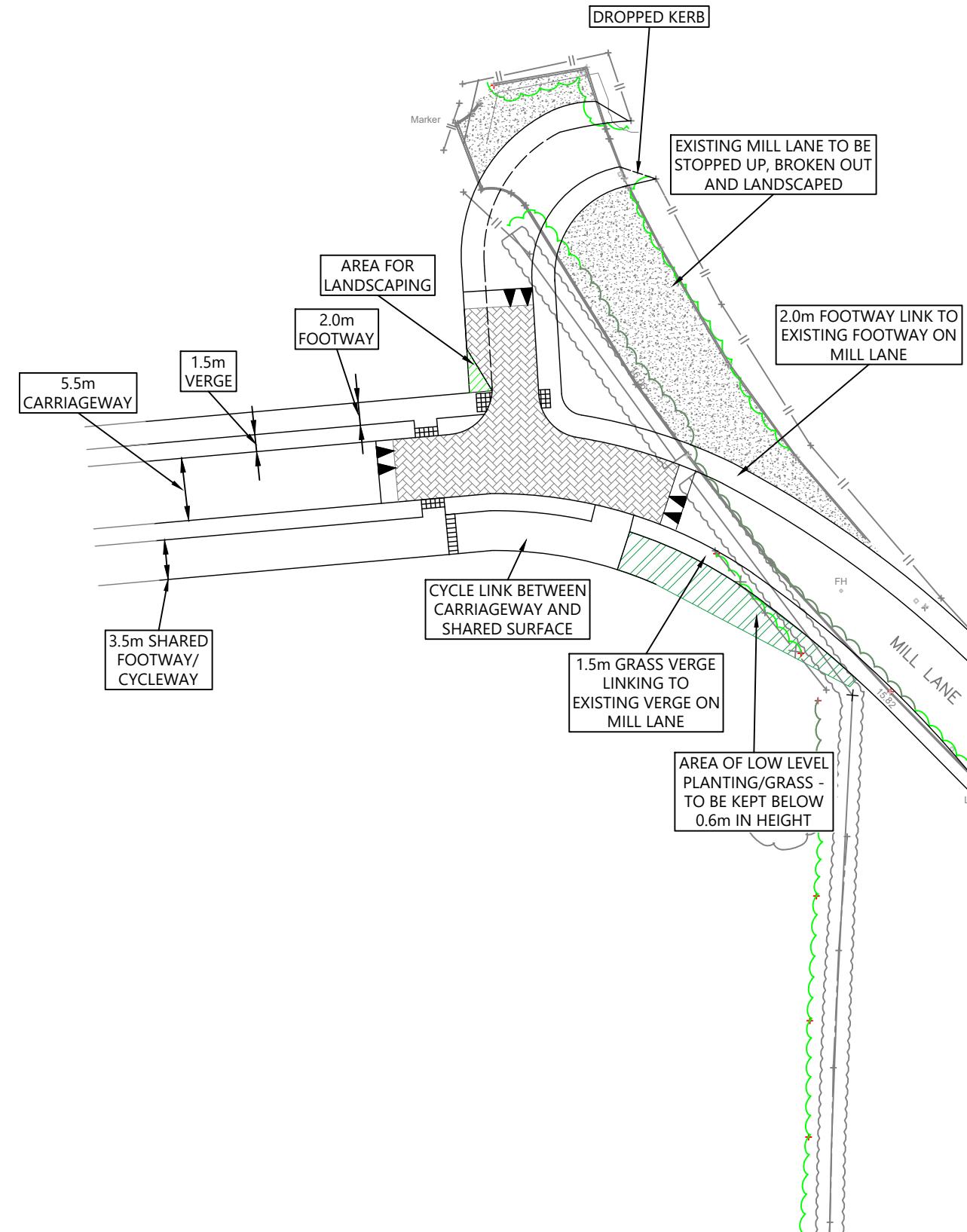
1107

DRAWING NUMBER:

11/L

SCALE:

1:500 @A3



Highgate *Transportation*

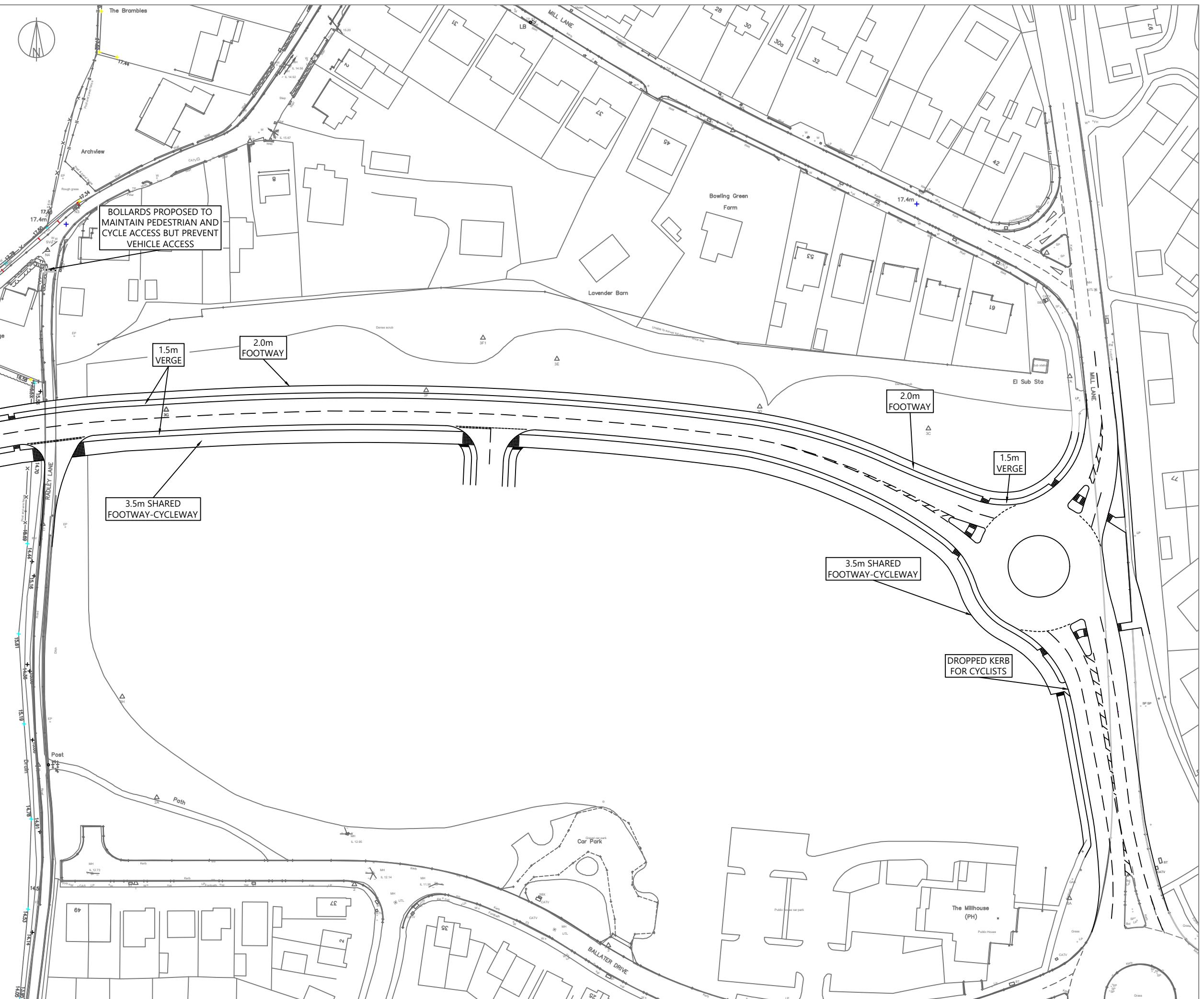
www.highgatetransportation.co.uk

First Floor, 43-45 Park Street
Bristol BS1 5NL
01179 349 121

© Highgate Transportation Limited

TITLE:
**PROPOSED ACCESS AT MILL
LANE**

DATE: 03/02/17 DRAWN BY: BL CHECKED: DT



NOTES:
Drawing based on Powers & Tiltman topographical survey 6297/01 dated 25/07/11 and Geomatic Surveys Ltd topographical survey 01532/01 dated 27/07/15.

©Crown copyright and database rights 2017 OS Licence 100056454.

ISSUE	REASON FOR REVISION	DATE

PROJECT:
**PEEL HALL,
WARRINGTON**

CLIENT:
**SATNAM MILLENNIUM
LTD**

PROJECT REFERENCE: **1107** DRAWING NUMBER: **10/N** SCALE: **1:1,000 @ A3**

Highgate Transportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS1 5NL
01179 349 121
© Highgate Transportation Limited

TITLE: **PROPOSED MAIN SITE ACCESS AT BLACKBROOK AVENUE**

DATE: **17/01/18** DRAWN BY: **FB** CHECKED: **DT**



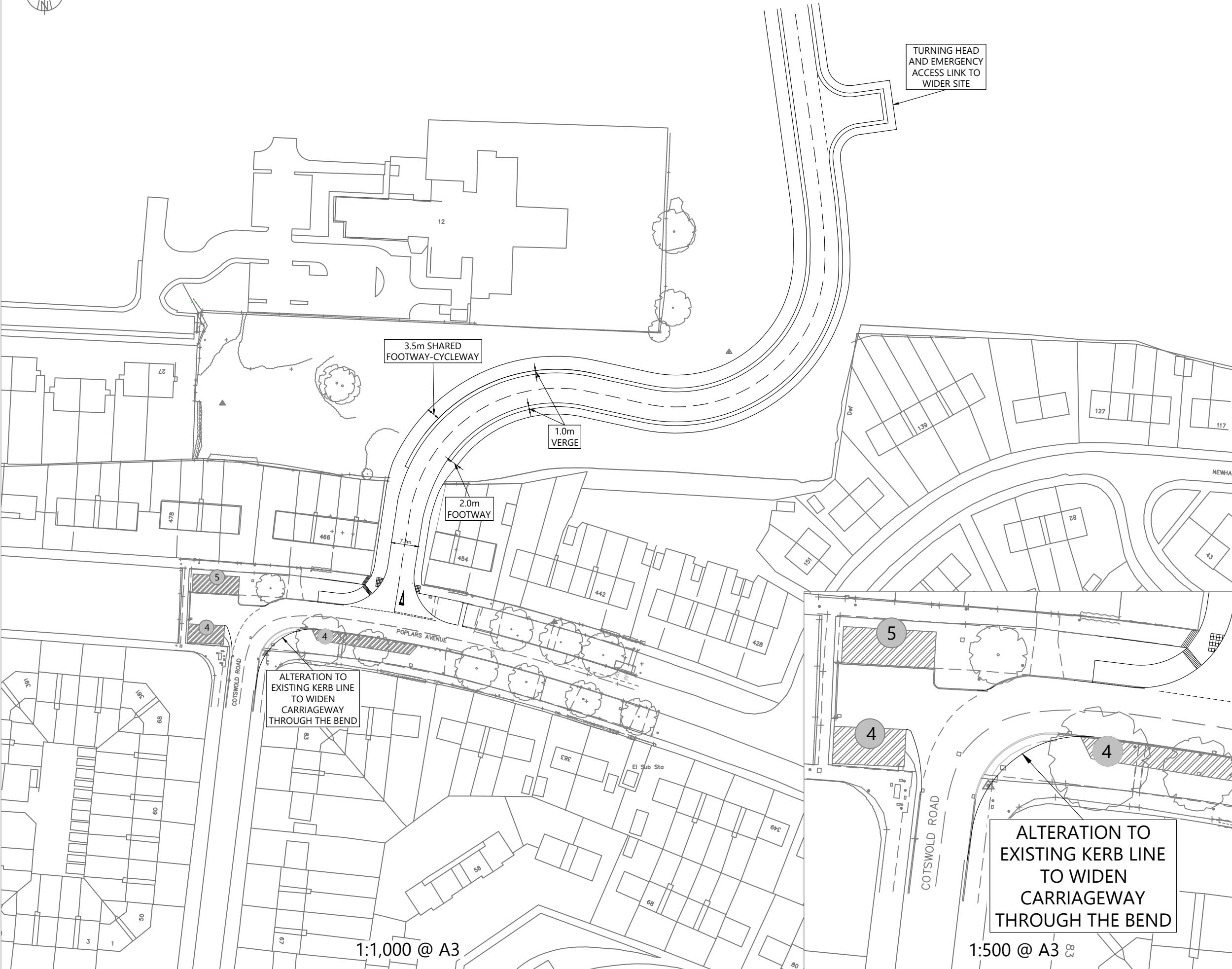
NOTES:
Drawing based on Geomatic Surveys Ltd topographical survey 01532/01
dated 27/07/15.

©Crown copyright and database rights 2017 OS Licence 100056454.

KEY:

Parking Areas (number of cars that can be accommodated)

6



PROJECT:
**PEEL HALL,
WARRINGTON**

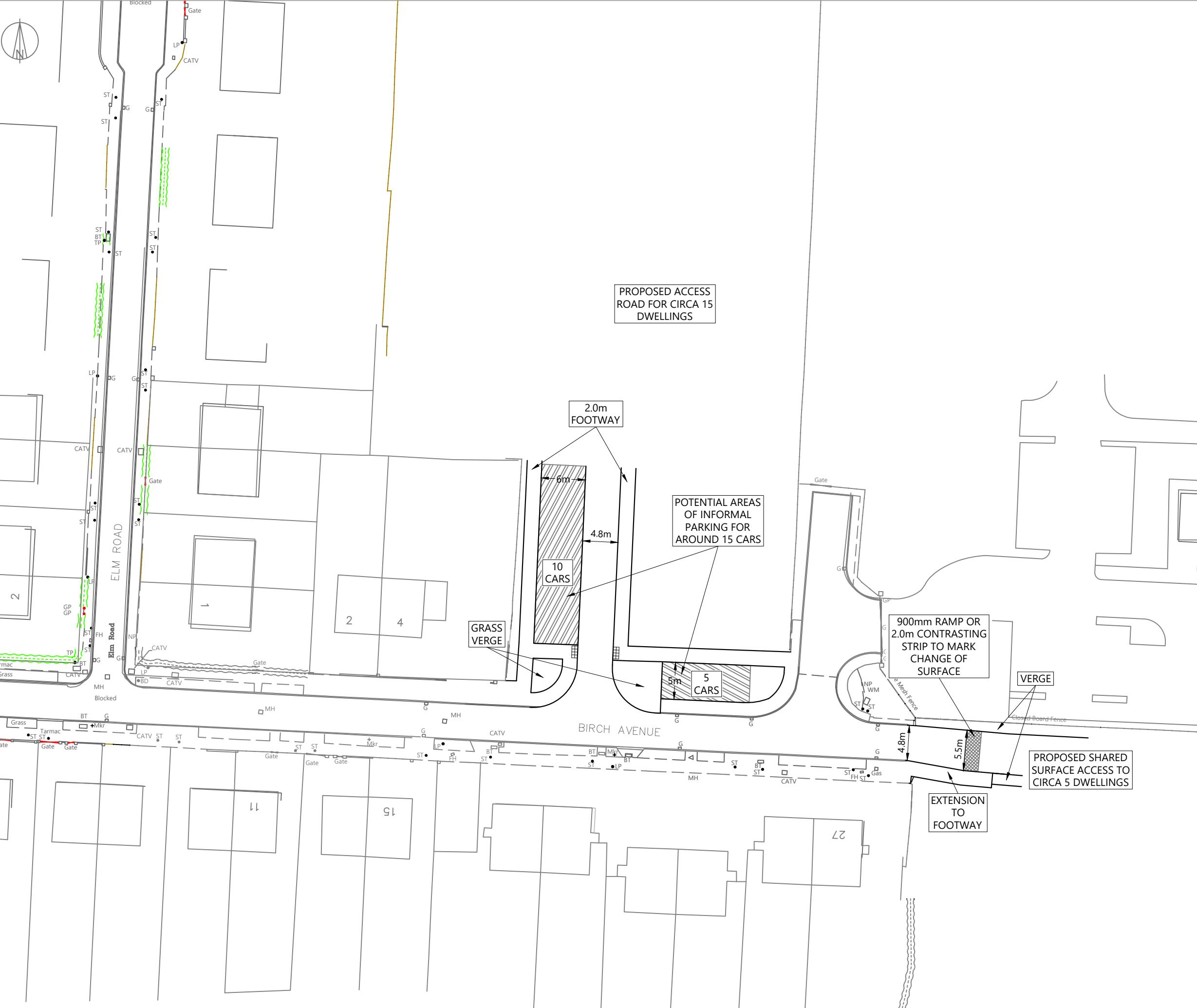
CLIENT:
SATNAM MILLENNIUM LTD

PROJECT REFERENCE: 1107 DRAWING NUMBER: 09/M SCALE: AS SHOWN

Highgate Transportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS1 5NL
01179 349 121
© Highgate Transportation Limited

TITLE:
PROPOSED ACCESS TO EMPLOYMENT LAND AT POPLARS AVENUE

DATE: 03/02/17 DRAWN BY: FB CHECKED: DT



NOTES: Drawing based on Geomatic Surveys Ltd topographical survey 01532/01 dated 27/07/15. ©Crown copyright and database rights 2017 OS Licence 100056454.		
ISSUE	REASON FOR REVISION	DATE

PROJECT:
**PEEL HALL,
WARRINGTON**

CLIENT:
**SATNAM MILLENNIUM
LTD**

PROJECT REFERENCE: 1107 DRAWING NUMBER: 08/P SCALE: 1:500 @ A3

Highgate Transportation
www.highgatetransportation.co.uk
 First Floor, 43-45 Park Street
 Bristol BS1 5NL
 01179 349 121
 © Highgate Transportation Limited

TITLE:
**PROPOSED ACCESS TO RESIDENTIAL
LAND AT BIRCH AVENUE**

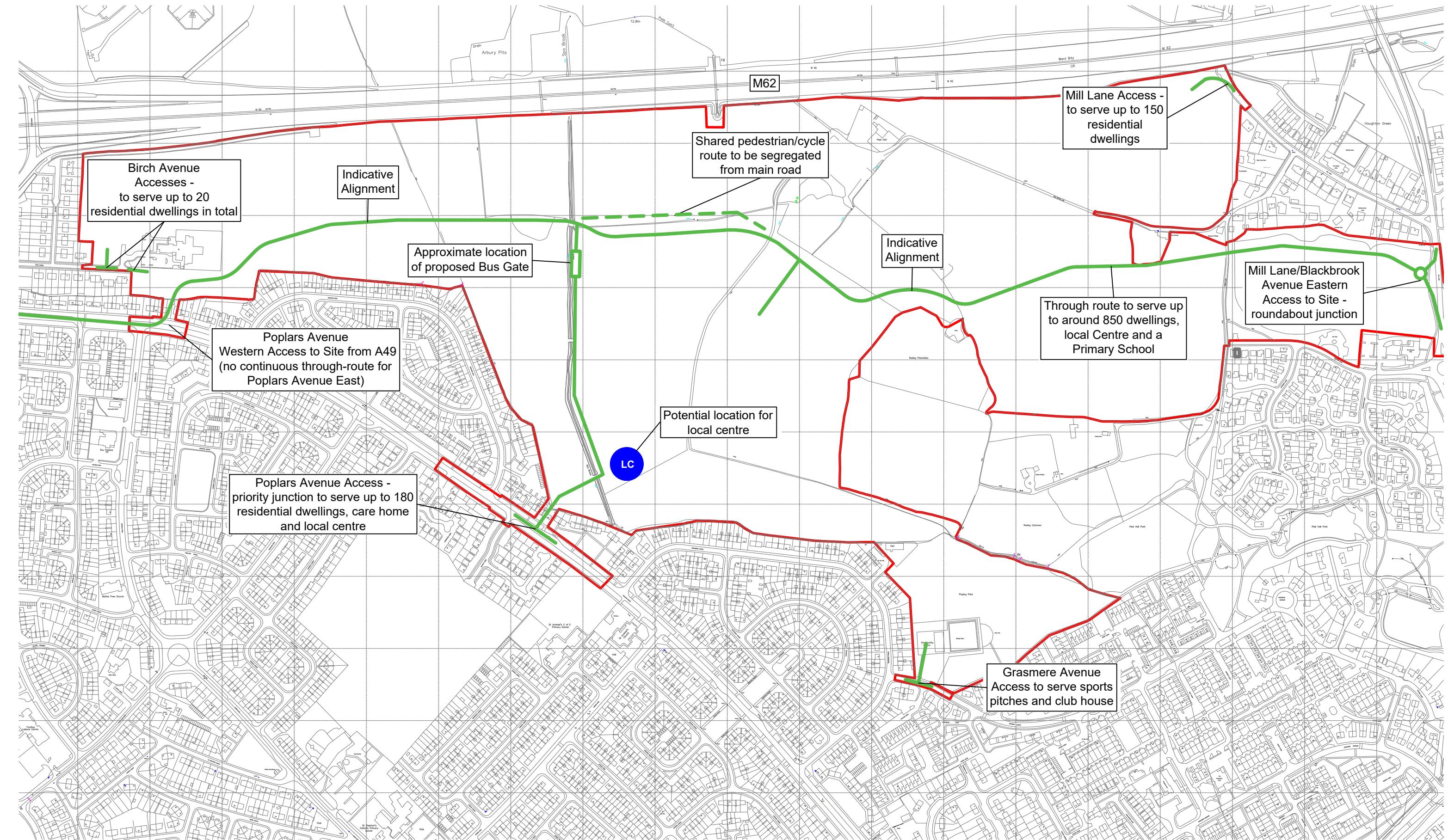
DATE: 03/02/17	DRAWN BY: FB	CHECKED: DT
----------------	--------------	-------------



Appendix 2

Option B

Overview and Access Drawings



NOTES:
© Crown Copyright 2019 OS 100056454

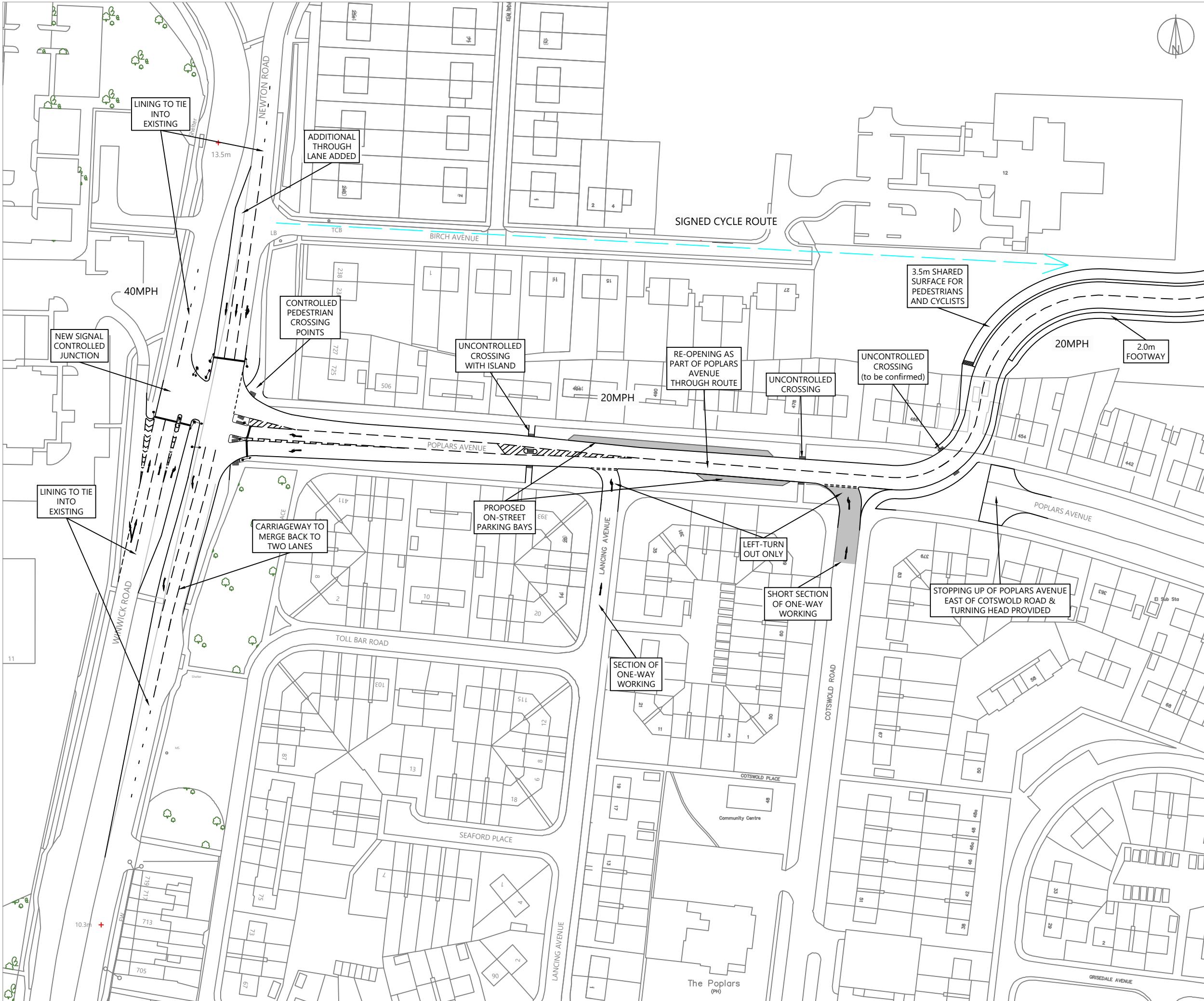


ISSUE	REASON FOR REVISION	DATE
DATE:	18/04/19	DRAWN BY: FB CHECKED: DT

PROJECT:
PEEL HALL, WARRINGTON
CLIENT:
SATNAM MILLENNIUM LTD

TITLE:
INDICATIVE THROUGH ROUTE AND ACCESS POINTS
PROJECT REFERENCE: 1901 DRAWING NUMBER: 01 SCALE: Not to scale

HighgateTransportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS1 5NL
07973 375 937 / 07595 892 217
© Highgate Transportation Limited



NOTES:
Drawing based on Appletons Opportunities & Constraints plan 1820_21 dated 21/10/14.

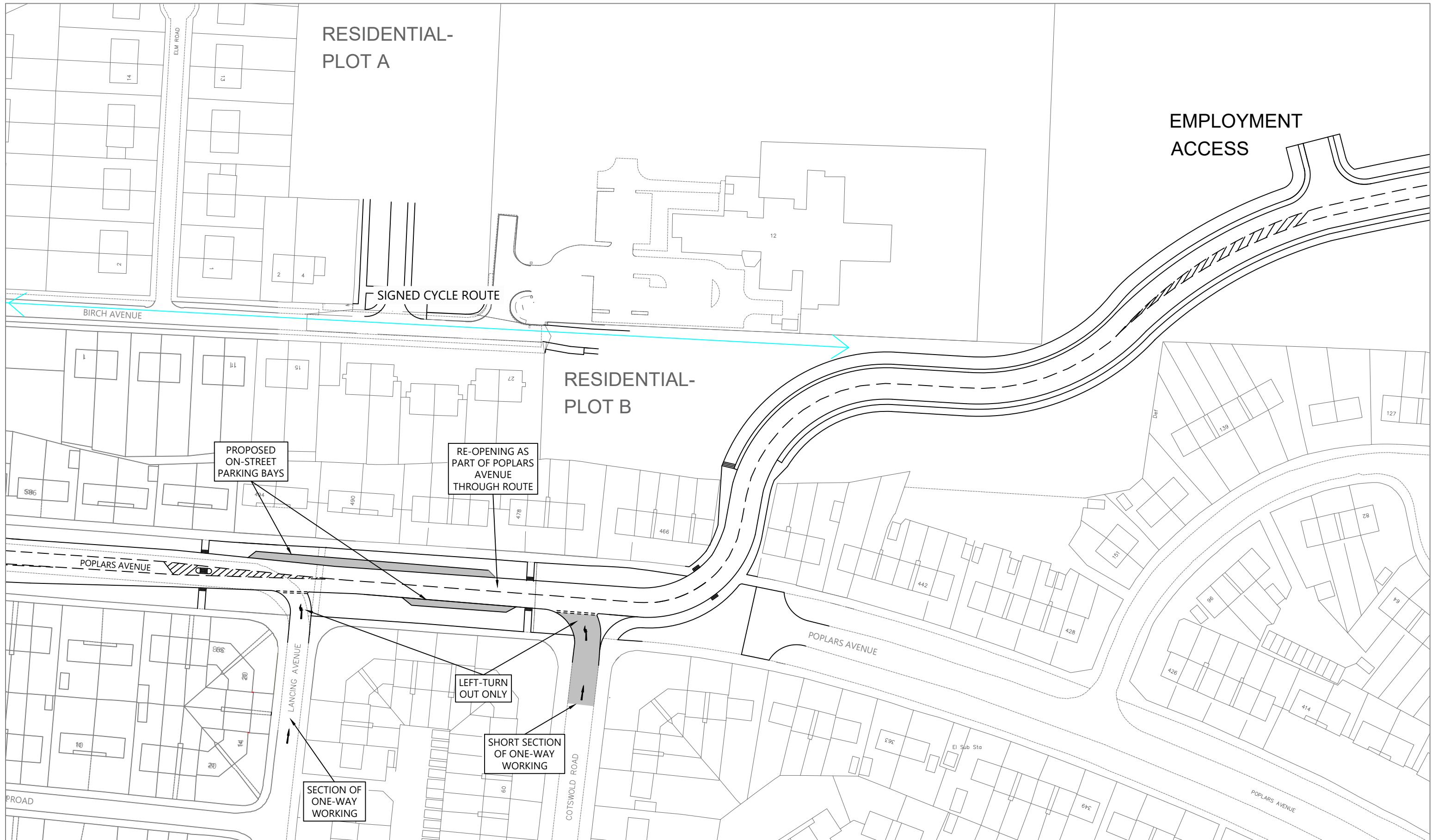
KEY:

New on-street parking bays

ISSUE	REASON FOR REVISION	DATE
-------	---------------------	------

PROJECT: PEEL HALL, WARRINGTON
CLIENT: SATNAM MILLENNIUM LTD
PROJECT REFERENCE: 1107 DRAWING NUMBER: 52/F SCALE: 1:1,250 @ A3

Highgate Transportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS8 1ES
07973 375 937 / 07595 892 217
© Highgate Transportation Limited
TITLE: PEEL HALL PROPOSED ALIGNMENT FOR THROUGH ROUTE TO A49
DATE: 26/01/18 DRAWN BY: BL CHECKED: FB



NOTES:
© Crown Copyright 2017 OS 100056454

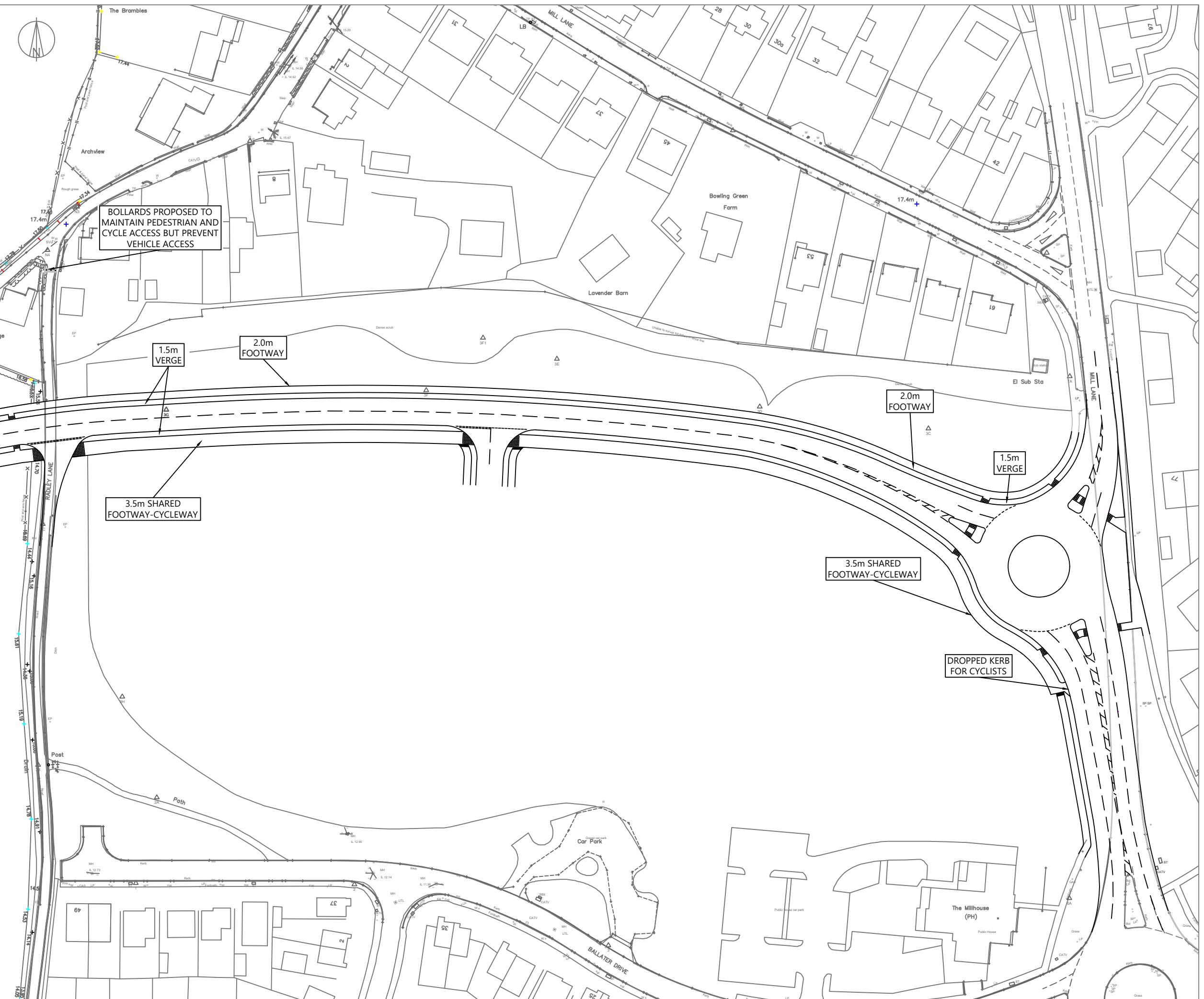


ISSUE	REASON FOR REVISION	DATE
DATE:	26/01/18	DRAWN BY: FB CHECKED: DT

PROJECT:
PEEL HALL, WARRINGTON
CLIENT:
SATNAM MILLENNIUM LTD

TITLE:
WESTERN ACCESS AT POPLARS AVENUE - THROUGH ROUTE
PROJECT REFERENCE: 1107
DRAWING NUMBER: 46/B
SCALE: 1:1,000 @ A3

HighgateTransportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS1 5NL
07973 375 937 / 07595 892 217
© Highgate Transportation Limited



NOTES:
Drawing based on Powers & Tiltman topographical survey 6297/01 dated 25/07/11 and Geomatic Surveys Ltd topographical survey 01532/01 dated 27/07/15.

©Crown copyright and database rights 2017 OS Licence 100056454.

ISSUE	REASON FOR REVISION	DATE

PROJECT:
**PEEL HALL,
WARRINGTON**

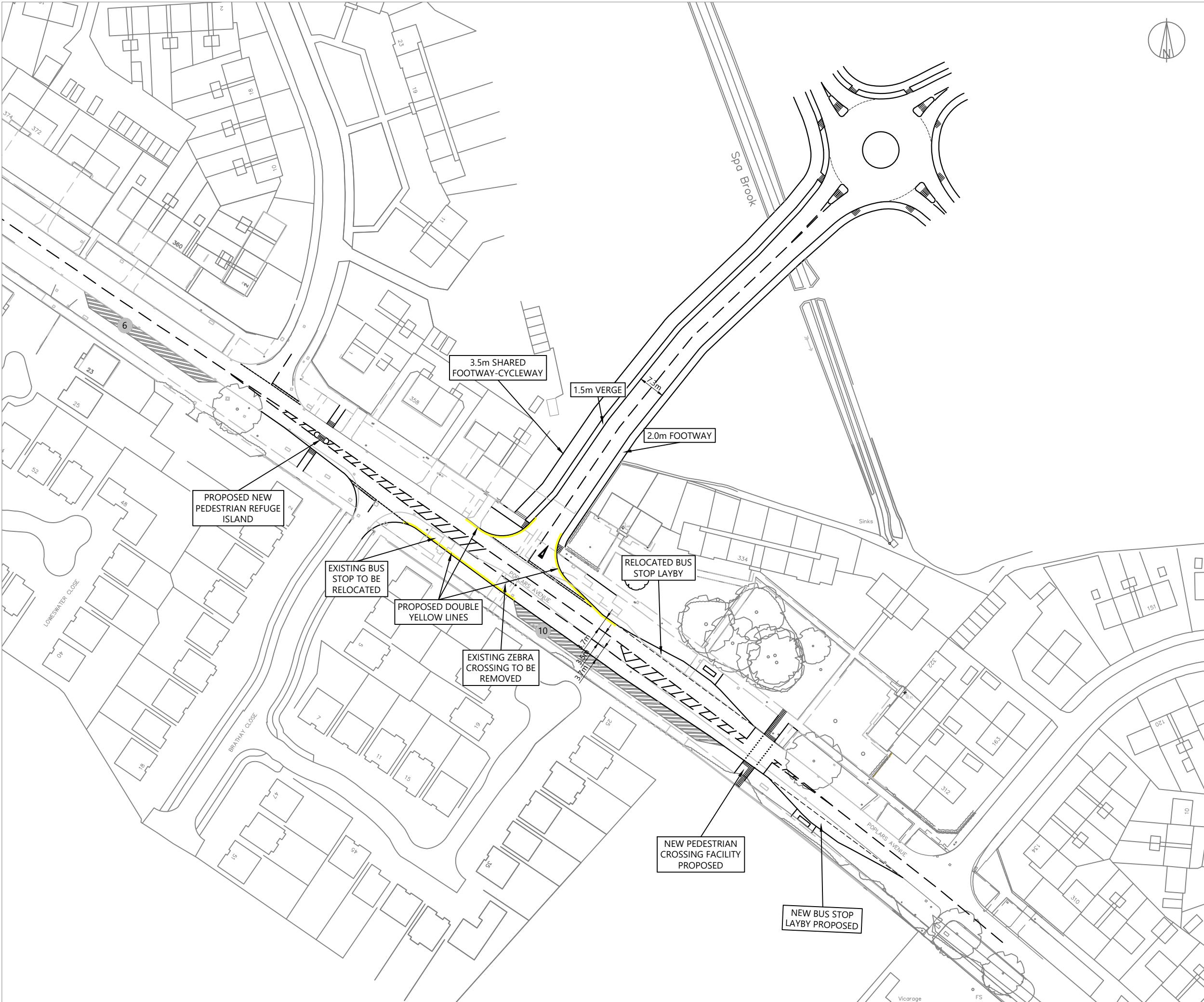
CLIENT:
**SATNAM MILLENNIUM
LTD**

PROJECT REFERENCE: **1107** DRAWING NUMBER: **10/N** SCALE: **1:1,000 @ A3**

Highgate Transportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS1 5NL
01179 349 121
© Highgate Transportation Limited

TITLE: **PROPOSED MAIN SITE ACCESS AT BLACKBROOK AVENUE**

DATE: **17/01/18** DRAWN BY: **FB** CHECKED: **DT**





Drawing based on Powers & Tiltman
topographical survey 6297_01 dated
25/07/11.

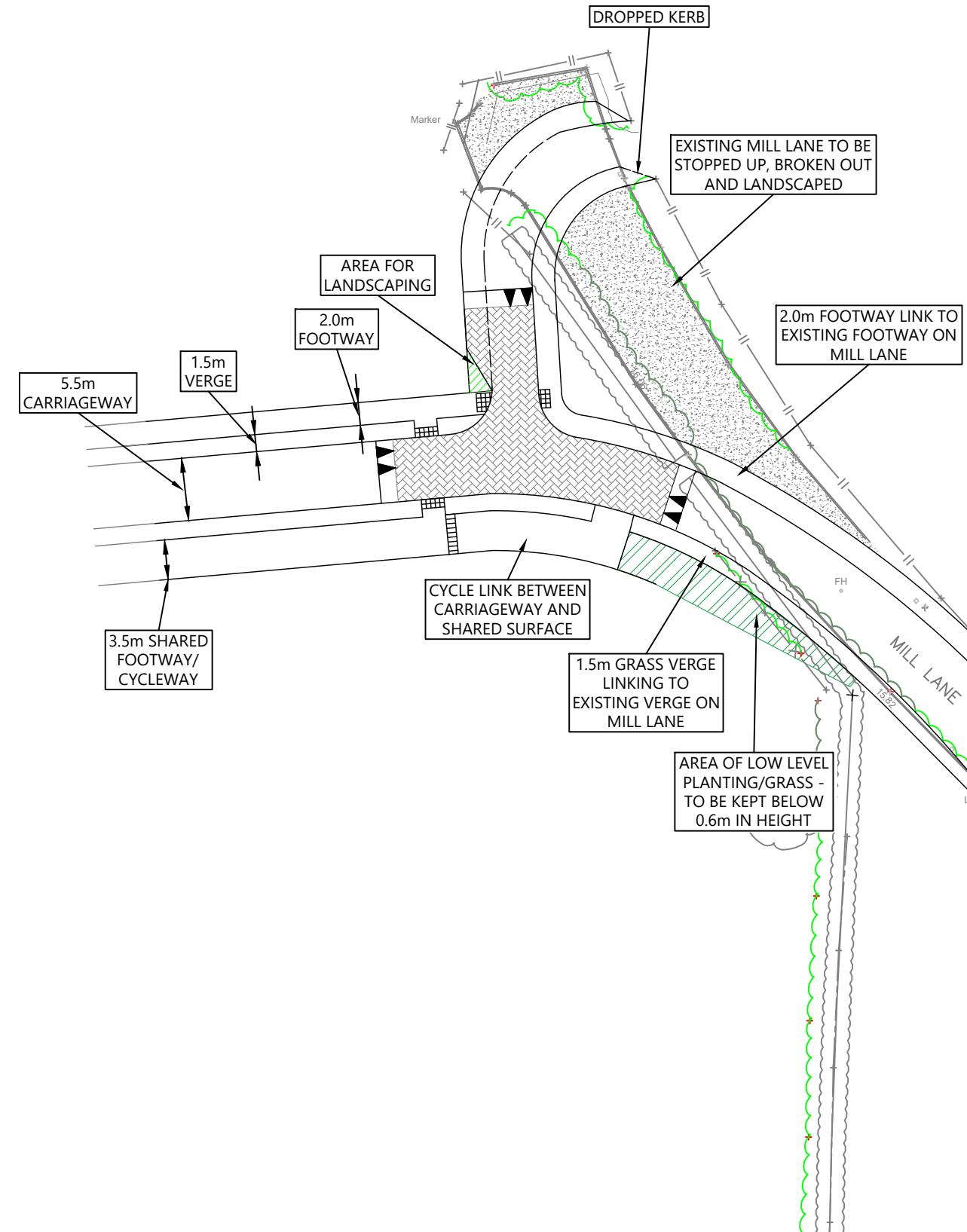
PROJECT:

PEEL HALL,
WARRINGTON

CLIENT:

SATNAM MILLENNIUM
LTD

PROJECT REFERENCE: 1107 DRAWING NUMBER: 11/L SCALE: 1:500 @A3



Highgate *Transportation*

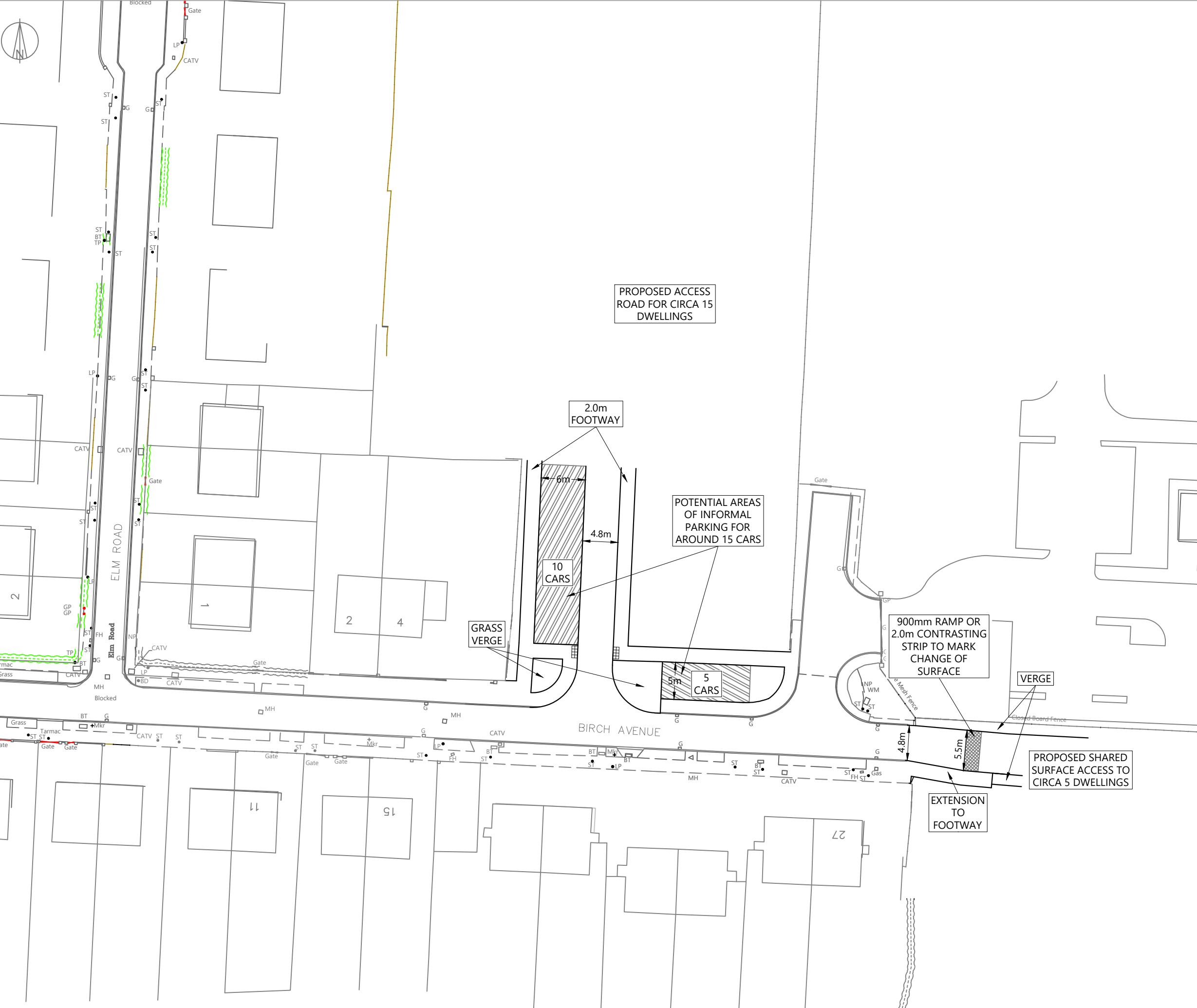
www.highgatetransportation.co.uk

First Floor, 43-45 Park Street
Bristol BS1 5NL
01179 349 121

© Highgate Transportation Limited

TITLE: PROPOSED ACCESS AT MILL
LANE

DATE: 03/02/17 DRAWN BY: BL CHECKED: DT



NOTES:
Drawing based on Geomatic Surveys Ltd topographical survey 01532/01 dated 27/07/15.
©Crown copyright and database rights 2017 OS Licence 100056454.

ISSUE	REASON FOR REVISION	DATE
-------	---------------------	------

PROJECT:
**PEEL HALL,
WARRINGTON**
CLIENT:
**SATNAM MILLENNIUM
LTD**
PROJECT REFERENCE: 1107 DRAWING NUMBER: 08/P SCALE: 1:500 @ A3

Highgate Transportation
www.highgatetransportation.co.uk
First Floor, 43-45 Park Street
Bristol BS1 5NL
01179 349 121
© Highgate Transportation Limited
TITLE:
**PROPOSED ACCESS TO RESIDENTIAL
LAND AT BIRCH AVENUE**
DATE: 03/02/17 DRAWN BY: FB CHECKED: DT



Appendix 3

Section 8.0 of TA/01/A

8.0 Development Trip Generation and Discounting

- 8.1 This Transport Assessment considers all modes of transport and the demands that the proposed development will place on the existing transport infrastructure.
- 8.2 A vehicular trip generation and attraction assessment has been carried out for the proposed development based on the development profile set out in **paragraph 4.6**, using multi-modal TRICS surveys.
- 8.3 The trip generation assessment has been carried out generally mirroring the Omega approach, as requested in 2016 by WBC and HE. If anything, the Peel Hall trip rates are more robust, with the privately-owned housing residential trip rates covering all tenure houses and apartments as well as retirement accommodation.
- 8.4 The number of development trips associated with each use and each access was calculated using the TRICS database in 2016. These rates were set out in detail in Technical Notes HTp 1107 series of reports TN/02/A, TN/02/A/Addendum, TN/06 and TN/12 that have previously been provided to WBC highway officers. The trip rate tables are provided in this section of the report and the TRICS output reports are contained in **Appendix 40** for ease of reference.
- 8.5 The trip rates, discounting and distribution (**Section 9.0**) have been provided and reviewed further to WBC's consultation response (**Appendix 5**), various meetings held with WBC and HE between January 2016 and March 2017 and correspondence since January 2016 regarding the highways and transportation elements of the scheme.
- 8.6 It should be noted that 85th percentile trip rates are not available for every use class, but in our judgement what has been used is robust and more so than the Omega approach previously accepted by WBC. 85th percentile rates are only available for residential use, which is the predominant use proposed in any event. Nevertheless, it should be noted that the TRICS database is owned and run by a consortium of councils and is therefore a reliable and properly managed dataset, which is subject to an appropriate level of scrutiny. The selection process provides an accurate and reliable average trip rate for developments across the country. If the 85% percentile trip rates were relied upon for all land uses, particularly for a site as large as Peel Hall and with a mixed-use profile, this would represent an unreasonable and significant overestimate of the likely development impact on the highway network; pushing up the burden of highway infrastructure improvement costs onto the developer. Furthermore, this mixed-use site and the excellent bus service proposed will reduce car trips, therefore minimising the impact of development traffic on the local and wider highway network.
- 8.7 The residential and care home trip rates mirror that agreed for use within the Omega application. However, higher trip rates for the food store were used in the Peel Hall assessment than compared to the Omega application.

- 8.8 Furthermore, although average trip rates were used for the B1(c) land uses, sensitivity tests were carried out (as set out below) and the highest rates subsequently used. It is therefore considered that a robust approach has been adopted to forecast development traffic.
- 8.9 Many of the vehicular trips will be contained within the development and will not impact on the wider transport network due to the inclusion, location and accessibility of the local centre and food store facilities as well as the primary school. As previously set out (**Section 5.0**), the local centre car park has been designed to be split in two, with two points of vehicular access (Option A), but designed so that a through route is not created that could allow traffic to bypass the bus gate on the new local distributor road. Therefore, the local centre car park can be accessed from within the development by car without having to drive on the local highway network under the Option A scenario.
- 8.10 For the purposes of the traffic assessments the peak hour has been taken as 0800-0900 and 1700-1800, with peak periods of 0700-0930 and 1600-1830 used in the VISSIM modelling, which were subsequently transferred to the SATURN model. This has previously been agreed with highway officers at WBC and HE. The peak period trip rates report 1107/TN/02/A/Addendum is contained in **Appendix 41** for reference, and an updated extract for the family pub/restaurant is set out in **paragraphs 8.43 to 8.45** further to the change in GFA of this proposed land use, which was contained in HTp report 1107/TN/12 (see **Appendix 42**).
- 8.11 Following the trip rate tables in this section of the report, each of the access strategy options will be set out in terms of trip loading at each access point.
- 8.12 Trip discounting and sensitivity tests (i.e. M62 test) are set out in this section, along with the development trips for an intermediate assessment year of 2025 (with a phased build out) and an end year of 2030 (full build out). Saturday and Sunday trips are also discussed, further to the peak hour traffic flow review set out in **Section 3.0**.
- 8.13 The resultant development trips have been reflected in the SATURN modelling carried out by AECOM.

Trip Rates – Residential, Care Home and Employment

- 8.14 It was agreed with WBC at the March 2016 meeting (**Appendix 4**) that the starting point for trip rates was to follow those trips rates set out in the AECOM technical note for the Omega South application (extract provided in **Appendix 43**).
- 8.15 The trips rates used for assessing the impact of the Peel Hall development have previously been set out in HTp 1107 Technical Notes TN/02/A (March 2016, **Appendix 44**) and TN/12 (April 2016, **Appendix 42**). These trip rates were collated in TN/13 (July 2016, **Appendix 45**).
- 8.16 A summary of the peak hour trip rate data for the Peel Hall development and the resultant trips for each land use are set out below (taken from 1107/TN/02/A, **Appendix 44**).

- 8.17 The residential trip rates mirror those agreed by WBC from the AECOM review of the Omega residential trip rates inserted into the HE's VISSIM model, and these are set out below in **Table 8.1** for the proposed 1,200 residential dwellings.

Table 8.1 – Residential vehicular trip rate and generation summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
85 th Percentile Trip Rates (per unit)	0.225	0.523	0.495	0.307
Residential Trips (1,200 units)	270	628	594	368

- 8.18 Within the 1,200 dwellings proposed there will be up to 60 retirement apartments, which have significantly lower weekday peak hour trip rates than those set out in **Table 8.1** above. It should be noted that no allowance has been made for this discount within these trip rate calculations.
- 8.19 Residential apartments and social housing will also make up a proportion of the 1,200 dwellings proposed on site. No discount has been made to reflect this.
- 8.20 Therefore, it is considered that this approach is robust and gives confidence to the overall figures used in the assessment.
- 8.21 The care home trip rates also mirror those agreed by WBC used in the Omega Transport Assessment that were inserted into the VISSIM model. An extract of the AECOM technical note containing these trip rates is contained in **Appendix 43**. The resultant trip rates for a 100-bedroomed care home are set out in **Table 8.2** below.

Table 8.2 – Care Home vehicular trip rates and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per bedroom)	0.068	0.068	0.083	0.113
Care Home Trips (100-beds)	7	7	8	8

- 8.22 It is considered that this approach is suitable and as these trip rates mirror that set out in the Omega assessment, gives confidence to the overall figures used in the assessment.
- 8.23 It is proposed that the development scheme will include an employment zone of up to around 7,500sqm GFA of B1(c) light industry.
- 8.24 TRICS has been used to provide an indication of the number of AM and PM peak hour vehicular that are likely to be attracted by an employment zone of this size.

- 8.25 An assessment was first made in early 2016 using the TRICS 7.2.4 database for B1(c) Industrial Units; TRICS Land Use Code 02/C highlighted for B1(c) land classifications. The dataset was reviewed based on multi-modal surveys from sites within England, on weekdays for up to 10,000sqm GFA. Sites within Greater London were excluded at that time due to their unrepresentative trip rate as a result of greater public transport opportunities. Sites within suburban and edge of town locations were available. Four of these sites were then manually removed from the dataset as they did not contain operations classed as B1(c) land uses. This returned two surveys and the trip rates demonstrate that 22 arrivals and 11 departures in the AM peak hour and 4 arrivals and 25 departures in the PM peak hour may result from a development of 7,500sqm GFA. The TRICS data is contained at **Appendix 40**.
- 8.26 A sensitivity test of all surveys within TRICS for this category was then carried out, excluding those in Greater London. This returned five surveys but there was negligible difference between the two sets of average trip rates.
- 8.27 However, it was considered that these trip rates could be too low for the proposed development at Peel Hall if, for example, there were 75 units of 100sqm GFA operating as starter-type units, and so a further sensitivity test was carried out.
- 8.28 The TRICS 7.2.4 database was next interrogated for surveys of B1(c) units within Industrial Estates; TRICS Land Use Code 02/D. The dataset was reviewed based on multi-modal surveys from sites within England, on weekdays for up to 10,000sqm GFA. Sites within Greater London were again excluded. An Edge of Town Centre site was manually excluded based on the conflict of location between this and the Edge of Town setting.
- 8.29 Further to this, three sites were also manually removed from the dataset as they did not contain operations classed as B1(c) land uses, and another four sites were removed as they only had very low proportions of B1(c) activity on site (i.e. B8 with generally much lower trip rates per square metre GFA). This returned four surveys. Due to the range of sites available within the TRICS database for this land use category, 85th percentile figures were not able to be assessed.
- 8.30 A sensitivity test of all surveys within TRICS for this category (02/D) was then carried out, excluding those in Greater London, which returned exactly the same survey results.
- 8.31 The average trip rate data for industrial estates of B1(c) land uses from the search identified in **paragraph 8.25** above is summarised in **Table 8.3** below and the TRICS data is contained at **Appendix 40**.

Table 8.3 – Employment vehicular trip rates and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per 100sqm GFA)	0.919	0.514	0.260	0.621
Employment Trips (7,500sqm GFA)	69	39	20	47
HGV %Proportion	7%	10%	10%	4%

- 8.32 In terms of **Table 8.3** above, the use of B1(c) trip rates has been further substantiated in HTp Technical Note response to HE Review 1107/TN/13, which is contained in **Appendix 45** for reference. It should be noted that the developer would be prepared to accept a planning condition restricting the land use to B1(c) activities to ensure suitability with the location next to existing and proposed housing.
- 8.33 The level of interrogation on the TRICS database to find specific sites to mirror the proposed development has led to a robust assessment of potential impact of the employment land use and this gives confidence to the overall figures used in the assessment.

Trip Rates – Neighbourhood Centre

- 8.34 The proposed development will include a neighbourhood centre comprising a food store of up to 2,000sqm GFA, plus up to a further 600sqm GFA of local centre type facilities as well as a family pub and restaurant facility of up to 800sqm GFA.
- 8.35 A comparison was previously carried out between the trip rates from the Discount Food Stores category (01/C) within the TRICS 7.2.4 database and the generic food stores (Food Superstore 01/A) category. It should be noted that the sub land use category of 'Superstore' is misleading as the dataset includes stores from 800sqm to 12,642sqm GFA (for surveys carried out between 01/01/07 and 29/11/14 across the whole of the UK).
- 8.36 The peak hour trip rates from the Discount Food Stores dataset are set out in **Table 8.4** below, based on all weekday multi-modal surveys of sites within England, excluding Greater London, in Suburban Areas, Edge of Town and Neighbourhood Centre locations. Due to the low number of surveys returned, 85th percentile data was not reliable and so the average dataset has been used. The resultant TRICS report is contained in Appendix 4 of 1107/TN/02/A (**Appendix 44**). It should be noted that these trip rates are mirrored in the AECOM technical note as those used within the Omega Transport Assessment and subsequent VISSIM modelling; an extract of which can be found in **Appendix 43** for reference.

Table 8.4 – Discount food store vehicular trip rate and generation summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per 100sqm GFA)	0.660	0.321	2.799	3.280
Discount Food Store Trips (2,000sqm GFA)	14	7	56	66

- 8.37 It was considered that the trip rates set out in **Table 8.4** above were too low. Therefore, further to discussions with the highway officers following the March 2016 meeting (see **Appendix 4**), the peak hour trip rates and generation from the TRICS Food Superstores dataset are set out in **Table 8.5** below; based on all weekday multi-modal surveys of sites within England, excluding Greater London, in Suburban Areas and Edge of Town locations. Again, due to the low number of surveys returned, 85th percentile data was not reliable and so the average dataset has been used. The TRICS data is also contained in **Appendix 40**.

Table 8.5 – Food store vehicular trip rate and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per 100sqm GFA)	4.615	3.030	9.056	9.550
Food Store Trips (2,000sqm GFA)	92	61	181	191

- 8.38 As a sensitivity test, TRICS was also interrogated for all multi-modal site surveys within the UK-wide Food Superstore dataset, using the same parameters as set out in **paragraph 8.37**. This returned one additional site in the Isle of Anglesey which slightly reduced the average trip rates shown in **Table 8.5**. Therefore, although the lower discount food store trip rate figures have been agreed for use by Omega in their modelling for the same sized store (2,000sqm GFA), we have used the higher trip rate figures set out in **Table 8.5** to reflect a robust approach and give confidence to the overall figures used in the assessment.
- 8.39 The proposed development includes a 600 square metre GFA local centre. The local centre may be comprised of, for example, a chemist, dry cleaners, estate agent, take-away, café and/or health care facilities.
- 8.40 TRICS was again used to provide an indication of the number of AM and PM peak hour vehicular that are likely to be attracted by a local centre of this size, based on the category 'local shops' for all sites within England, with multi-modal weekday surveys, for Suburban Area, Edge of Town and Neighbourhood Centre locations. Average trip rates were used due to the survey sample size available.

- 8.41 Sites within Greater London were excluded due to their unrepresentative trip rate as a result of greater public transport opportunities. The full TRICS reports are contained in **Appendix 40** to this report, and the peak hour vehicular trip rates and generation for the local centre are set out in **Table 8.6**.

Table 8.6 – Local centre vehicular trip rate and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per 100sqm GFA)	5.025	4.780	6.039	6.495
Local Centre Trips (600sqm GFA)	30	29	36	39

- 8.42 It is considered that this approach is suitable.
- 8.43 The size of the proposed family pub/restaurant was changed in April 2016 as the scheme evolved, reducing to 800sqm GFA. The change in floor area was set out in Technical Note 1107/TN/12 (**Appendix 41**) and the resulting trips are represented in **Table 8.7** below.

Table 8.7 – Family pub/restaurant vehicular trip rate and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per 100sqm GFA)	-	-	2.847	1.845
Family Pub/Restaurant Trips (800sqm GFA)	-	-	23	15

- 8.44 For reference the peak period trip rates and trip generation figures for the revised family pub/restaurant GFA of 800sqm is set out in **Table 8.8** below, taken from HTp/1107/TN/12 (**Appendix 41**). This supersedes the data for a family pub/restaurant contained in HTp Technical Note on peak period trip rates 1107/TN/02/A/Addendum (**Appendix 41**).

Table 8.8 – Family pub/restaurant (800sqm)

Hour	Trip Rates (per 100sqm)		Trips	
	Arrival	Departure	Arrival	Departure
1600-1700	1.828	1.195	15	10
1700-1800	2.847	1.845	23	15
1800-1900	3.023	2.513	24	20
1800-1830*	1.512	1.257	12	10

- 8.45 It is considered that this approach is fair and reasonable given the location of the family pub/restaurant in each development scenario (Option A and Option B).

Trip Rates – Primary School

- 8.46 The proposed development scheme includes for up to a two-form entry new primary school, which could have up to around 420 pupils. The proposed primary school is not intended as a replacement educational establishment.
- 8.47 From previous discussions with WBC the indication is that the development of 1,200 houses would result in a demand for around 360 primary school places. This Transport Assessment will therefore assume that 360 places from the on-site 420 primary school intake would come from within the proposed development, with the remaining 60 pupil places being made-up from those residents living within the area of Poplars and Hulme immediately surrounding the site.
- 8.48 TRICS has been used to provide an indication of the number of AM and PM peak hour vehicular trips that are likely to be attracted by a primary school on this site, and an assessment has been made from the TRICS 7.2.4 database based on average data, due to the number of surveys available. The data sets were reviewed based on multi-modal surveys from sites within England for primary schools with up to 450 pupils, on weekdays. The actual range of pupil numbers for the schools surveyed was between 147 and 414.
- 8.49 The location types returned were Suburban Area, Edge of Town and Neighbourhood Centre. The Edge of Town Centre survey location was discounted in accordance with the TRICS Good Practice Guide due to its conflict in location type with Neighbourhood Centre. The full TRICS reports are contained in **Appendix 40** to this report.
- 8.50 The peak hour vehicular trip rates and generation for the primary school are set out in **Table 8.9**.

Table 8.9 – Primary school vehicular trip rate and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Trip Rates (per pupil)	0.269	0.189	0.045	0.063
Primary School Trips (all 420 pupils)	113	79	19	27

- 8.51 The school has been included in the assessment as a two-form entry and as 100% of the residential trips are used on the external highway network in this assessment, it is therefore considered that this approach is robust and gives confidence to the overall figures used in the assessment.

Trip Rates – Sports Pitches

- 8.52 The proposed development at Peel Hall will include the existing open space and local authority community buildings and sports area on the land off Windermere Avenue and Grasmere Avenue to the southeast of the site. This will be linked to the site and new sports pitches will be provided to replace those currently located on the HCA land to the east of the site, off Mill Lane. It is confirmed that the existing playing fields at Mill Lane are to be moved and provided on a like for like basis in terms of number of pitches and site area in the southern part of the site.
- 8.53 This relocation will be provided to a higher standard than the current provision, with enhancements such as the addition of changing facilities and improved drainage, and will be linked to the improved provision on the council owned Radley Common recreation area at Windermere Avenue
- 8.54 The new facilities will likely include full-sized grass pitches, a multi-use games area, junior grass pitches and changing facilities for up to four teams. The expectation is that these proposals will also include a clubhouse/function room for community use.
- 8.55 The sports pitches will predominantly be used at the weekends and it was agreed at the 2013 Public Inquiry (Appeal ref: APP/M0655/A/13/2192076) that this element of the development proposals would not need to be included within the weekday modelling. Furthermore, there will be an offset in trip generation from the current on-site uses at the existing location and from the sports pitches on the HCA land, which are to be relocated.
- 8.56 It is likely that the proposed clubhouse facilities will be used by the local community, for example, by a mother and toddler group, and also that the sports pitches may be used during the evening after 1800 hours. Therefore, it was agreed at the 2013 Inquiry that the clubhouse facilities for local community use may attract up to 15 car movements over two-hour time slots during the day between the hours of 0900 and 1800. As this is cannot be accurately modelled within our one hour peak AM and PM time periods, the 15 movements have been concentrated into each peak hour. This is set out on **Table 8.10** below.

Table 8.10 – Sports pitches and ancillary facilities vehicular trip rate and attraction summary

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Community Use Trips	10	5	7	8

- 8.57 This approach has been agreed by the previous inspector and therefore it is considered that this approach is suitable and gives confidence to the overall figures used in the assessment.

Summary

- 8.58 The vehicle trips associated with each land use are tabulated below for ease of reference in **Table 8.11**. Please note that no trip discount has been applied to these figures.

Table 8.11 – Peel Hall vehicular trip generation summary (no discounts applied)

Development Traffic	AM Peak Hour		PM Peak Hour	
	Arrival	Departure	Arrival	Departure
Residential Trips	270	628	594	368
Care Home Trips	7	7	8	8
Employment Trips*	69	39	20	47
Food Store Trips**	92	61	181	191
Local Centre Shop Trips	30	29	36	39
Family Pub/Restaurant Trips	-	-	23	15
Primary School Trips	113	79	19	27
Community Uses	10	5	7	8
Total Trips	591	848	888	703

* See Table 8.3 for HGV proportion of peak hour traffic

** Reference Table 8.5 for avoidance of doubt

- 8.59 In summary, there could be up to around 1,591 vehicle trips on the local highway network associated with the Peel Hall development in the busiest peak hour when considering the development overall if no discounting were to be applied, and not taking into account Travel Plan measures, the proposed bus mitigation and trips contained within the site itself. It should be noted that internal connectivity for sustainable travel modes i.e. walking, cycling and bus travel is shown within the Parameters Plans and would be secured through future reserved matters applications. This will provide excellent connectivity for all sustainable modes of travel.

M62 – Trip Discounting Sensitivity Test

- 8.60 Following the receipt of the 2016 WBC consultation response (**Appendix 5**) and a meeting with HE in January 2017 (**Appendix 4**), it was decided to provide an assessment of the previously proposed trip rate discounts of residential 20%; food store 60%; local centre 70%; primary school 75% AM (50% PM); family pub/restaurant (25% PM) compared to a new approach, which was subsequently adopted, of accounting for 100% of the residential trips and discounting the following only:
- i. Food store 70% discounted and 30% pass-by trips to mirror the Omega approach.
 - ii. Primary school 50% discount in both peaks only.
 - iii. Local centre 100% discounted to mirror the agreed Omega approach.
 - iv. Family pub 0% discounted.
- 8.61 Our summary report provided to HE for review, HTp Technical Note 1107/TN/15 (contained in **Appendix 46**), also provided a summary on the impact of the Peel Hall development on the M62 network.
- 8.62 From this it was concluded that there was no material difference in trip rate reduction strategy. However as set out above, the discounting for development trips taken forward with the SATURN model has been based on the preference of highway officers at WBC for 0% reduction in residential trips.
- 8.63 It was also concluded from the VISSIM modelling at that time that the actual level of development vehicular trips on the M62 network north of the Peel Hall site is shown to be relatively low in the AM peak hour, with up to around 50 vehicular trips, which was considered to be within the daily variation of flow on the M62 and Junction 9 and Junction 10 of the M62. Furthermore, it was shown that there may be up to around 120 vehicular trips on the M62 as a result of the Peel Hall development in the PM peak hour, which is around an additional two vehicles per minute. This is not considered to constitute a severe impact.
- 8.64 The next part of this section will review the access strategies and set out in more detail the level of discounting for vehicular trips that was adopted.

Access Strategy - Option A

- 8.65 The access strategy for Option A has not changed from that previously set out, in that whilst the whole site will be fully permeable for pedestrians and cyclists the parcels of land for residential development correspond directly to a single point of vehicular access only. This is set out in **Table 8.12** below and on the access strategy plan contained in **Appendix 30**.

Table 8.12 – Quantum of development served off each access (Option A)

Access	Units/sqm
Mill Lane	150 Dwellings
Mill Lane/ Blackbrook Avenue	700 Dwellings
	Primary School (up to 420 pupils)
Poplars Ave. (Central)	330 Dwellings
	Food Store (2,000sqm)
	Local Centre (600sqm)
	Family Pub/ Restaurant (800sqm)
	100-Bed Care Home
Poplars Ave. (West)	Employment (7,500sqm)
Birch Avenue	20 Dwellings
Grasmere Avenue	Sports Pitches and Community Facilities

- 8.66 For assessment purposes, it is assumed that first occupation will be in 2021, with 120 dwellings being occupied per year through to 2030. This has been agreed with officers at WBC. Therefore, the number of vehicle trips at each access point considering full build out (i.e. a future year of 2030) has been provided below in **Table 8.13** using the trip rates set out above for the whole Peel Hall development. Again, no discounts have been applied to these figures.

Table 8.13 – Summary of 2030 peak hour vehicle trip numbers at each access location (Option A)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	330 dwellings	74	173	163	101
	care home	7	7	8	8
	food store	92	61	181	191
	local shops	30	29	36	39
	family pub	0	0	23	15
	<i>Total</i>	203	270	411	354
Poplars Avenue (West)	employment land	69	39	20	47
Mill Lane	150 dwellings	34	79	74	46
Mill Lane/Blackbrook Avenue	700 dwellings	158	366	347	215
	primary school	113	79	19	27
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total		592	849	888	703

*Note splitting the residential parcels results in discrepancies in rounding; the minor differences in total flows set out in Table 8.11 and 8.13 are not a cause for concern.

- 8.67 It can be seen from the above that when considering the total number of vehicle trips at each access location there may be up to around 1,441 vehicle movements arising from the Peel Hall development profile in AM peak hour and 1,591 in the PM peak hour, when no adjustments are made for internal trips or discounting.
- 8.68 However, it is considered appropriate to apply a trip discount to these figures, as the above represents double counting of vehicular trips when considering, for example, that the vehicular trip associated with a resident travelling to the local centre will be represented as both a trip departing from the dwellings and a trip arriving at the local centre. Furthermore, that a trip to the local centre from a residential dwelling within the main areas of the site would not actually travel onto the local highway network in any event and therefore should not be assessed for impact.

- 8.69 Further to discussions with WBC, it is proposed that no discounting of trips will occur with the residential, care home, community uses, and family pub/restaurant or employment land uses.
- 8.70 The food store trips are to be discounted by 100% in the SATURN modelling in terms of new trips on the network, to mirror the agreed approach for Omega, but 30% of these trips will be redistributed from existing traffic on the network passing by the Poplars Avenue access. Again, in line with the Omega process agreed and accepted by WBC. These pass-by trips will have no material impact on the operation of the wider highway network.
- 8.71 It is proposed that the local centre car park will be split into two sections with a physical barrier to prevent through-traffic between both sections of the site, whilst facilitating access to the local centre from both Poplars Avenue in the south and Blackbrook Avenue/Mill Lane in the east. This arrangement results in 86% of the 1,200 dwellings having vehicular access to the local centre and as such will be contained within the Peel Hall site i.e. not travelling onto the local highway network. An indicative layout of the local centre car park is shown on the extract contained at **Figure 5.9** of this report.
- 8.72 It should also be noted that the local centre car park will also facilitate school drop off and pick up for all pupils due to the split sections i.e. facilitating access for drop off/collection associated with the school from Poplars Avenue as well as Blackbrook Avenue/Mill Lane in the east. This has been designed with the intention of further reducing the traffic impact of the Peel Hall development on the local highway network and avoid the local residential roads becoming congested with parked cars associated with dropping-off/picking-up of school pupils. The high standard and level of provision of cycle and pedestrian links throughout the development will also help to reduce car use and car miles travelled.
- 8.73 Furthermore, it has previously been set out in HTp Technical Note 1107/TN/13 (**Appendix 45**) that the proposed primary school is not intended as a replacement facility and that primary school trip discounts should be based on internal trip containment; the number of pupils expected to be generated by the development based on the calculation factor supplied by WBC, and comparing this to the number of children expected in a school with up to two-form entry i.e. up to 30 children in each class (therefore 60 children per year group from reception to year 6 i.e. 420 children).
- 8.74 The information for primary school places issued by WBC was based on census data and the following calculation:
- $$0.3 \text{ pupil places per dwelling} \times \text{number of dwellings}$$
- $$0.3 \times 1,200 = 360 \text{ (85\% of 420 primary school places)}$$
- 8.75 The calculation indicates that the development may generate around 360 primary school places. In consideration that not all of the primary school aged pupils will use the new on-site facility and that not all of the 1,200 dwellings will have primary school aged children, it is considered appropriate to apply a 50% discount to the primary school trips rates rather than an 85% discount.

8.76 Therefore, in summary trip discounts can be summarised as follows for both the AM and PM peak hours:

- i. Residential 0%
- ii. Care Home 0%
- iii. Employment 0%
- iv. Food Store 100% (70% discounted and 30% pass-by)
- v. Local Centre 100%
- vi. Family Pub/Restaurant 0%
- vii. Primary School 50%
- viii. Community uses 0%

8.77 These discounts have been applied to the figures contained in **Table 8.13** (taken from HTp Technical Note 1107/TN/19 contained in **Appendix 46** for reference) and a revised summary of the proposed Peel Hall development trips for access scenario Option A is set out on **Table 8.14** following.

Table 8.14 – Summary of 2030 peak hour vehicle trip numbers at each access location (Option A - with discounts applied)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	330 dwellings	74	173	163	101
	care home	7	7	8	8
	food store*	28	18	54	57
	local shops	0	0	0	0
	family pub	0	0	23	15
	<i>Total</i>	<i>109</i>	<i>198</i>	<i>248</i>	<i>181</i>
Poplars Avenue (West)	employment land	69	39	20	47
Mill Lane	150 dwellings	34	79	74	46
Mill Lane/Blackbrook Avenue	700 dwellings	158	366	347	215
	primary school	57	40	10	14
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total		442	738	716	517

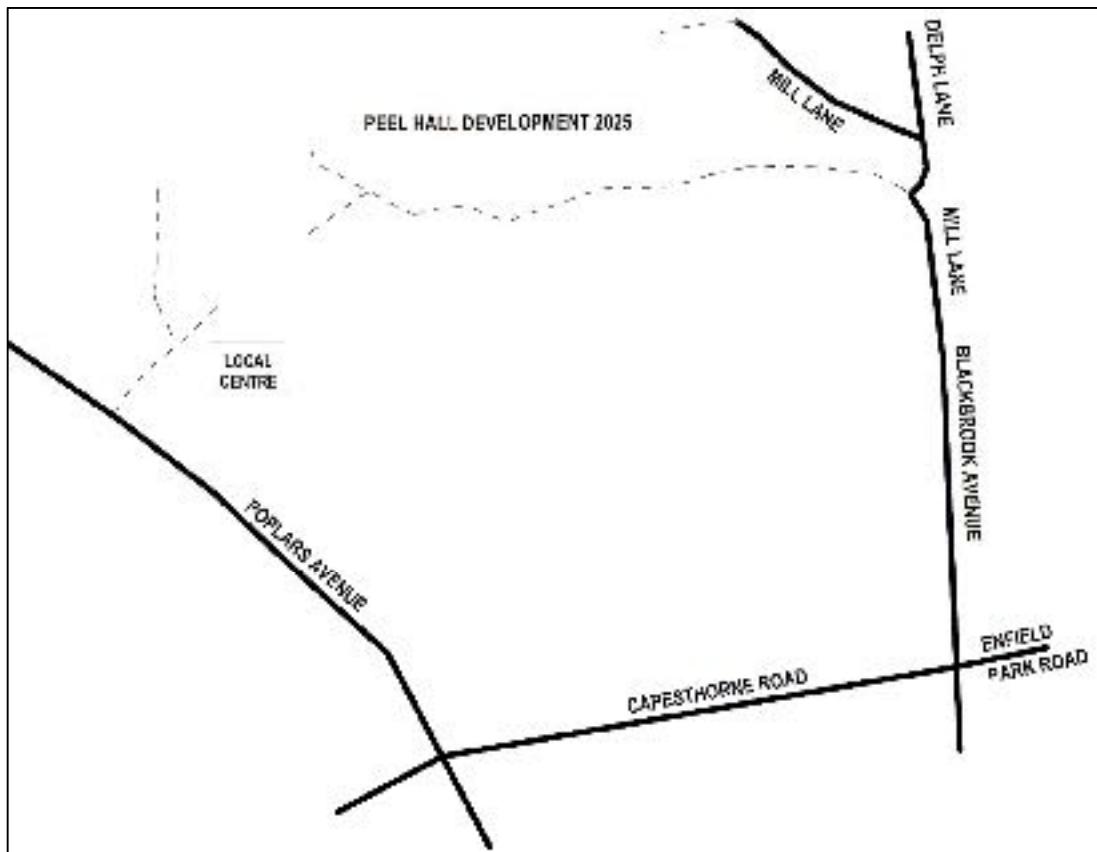
* pass-by trips only

- 8.78 It can be seen from the above that when considering the total number of vehicle trips at each access location there may be up to around 1,180 vehicle movements arising from the Peel Hall development profile in AM peak hour and 1,233 in the PM peak hour.
- 8.79 The figures from **Table 8.14** have been used in the SATURN modelling for the Option A Do Something scenarios for the future year of 2030.
- 8.80 WBC officers also required comfort in the analysis due to the length of the build and in the event that full build out may not be achieved to ensure that the operation of the network is safeguarded against any mid build out changes and risk is minimised. Therefore, a sensitivity test has been carried out for an intermediate year of 2025 for the Option A access strategy.

Access Strategy - Option A (intermediate assessment year of 2025)

- 8.81 Further to their December consultation response (**Appendix 5**), it has been agreed with WBC that an intermediate year of 2025 will be assessed in terms of the traffic impact on the local highway network before the internal link to the local centre is created. As such, all dwellings taking access from the Mill Lane/Blackbrook Avenue access will have to drive onto the surrounding local highway network in order to access the local centre by car. It is agreed that this will present a worst-case intermediate build out scenario, with no discounting of vehicular trips for any of the land uses.
- 8.82 The indicative highways build out programme is set out in **Table 7.1** and on the accompanying plan contained in **Appendix 38**, and this has informed the 2025 assessment in terms of the loading of development traffic (and for which land uses) at each respective access point from the existing local highway network.
- 8.83 The assessment for a future year of 2025 will be for 600 residential dwellings, the care home, employment land and local centre as well as the relocation of the sports pitches. However, there will be no connecting through route for dwellings accessed from the Mill Lane/Blackbrook Avenue access point (48% of the 600 dwellings), which is scheduled by the end of that year (as shown in **Figure 8.1** below). Therefore, these trips have been added onto the network for the 2025 scenario.

Figure 8.1 - Peel Hall network 2025 before road link to local centre



- 8.84 From **Table 7.1** the anticipated number of dwellings coming forward in each year from each part of the development, and hence off each access point, are set out. The table also demonstrates when the other land uses such as the local centre, school and employment land will come forward for development. It can be seen from this table that:
- i. The sports pitches will be relocated to the land off Grasmere Avenue in year one (i.e. 2021).
 - ii. The local centre and care home will come forward in year two (i.e. 2022).
 - iii. Employment land may come forward in year three (i.e. 2023).
 - iv. There will be circa 600 dwellings occupied by 2025, as follows:
 - Blackbrook Avenue/Mill Lane – 285 dwellings (main site access).
 - Poplars Avenue – 145 dwellings (local centre access).
 - Mill Lane – 150 dwellings.
 - Birch Avenue – 20 dwellings.
- 8.85 Therefore, based on the number of dwellings and other land uses coming forward by 2025 as set out above, the number of vehicle trips at each access point are provided in **Table 8.15** below using the trip rates set out as also provided above.

Table 8.15 – Summary of 2025 peak hour vehicle trip numbers at each access location (Option A)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	145 dwellings	33	76	72	45
	care home	7	7	8	8
	food store	92	61	181	191
	local shops	30	29	36	39
	family pub	0	0	23	15
	<i>Total</i>	<i>162</i>	<i>173</i>	<i>320</i>	<i>298</i>
Poplars Avenue (West)	employment land	69	39	20	47
Mill Lane	150 dwellings	34	79	74	46
Mill Lane/Blackbrook Avenue	285 dwellings	64	149	141	88
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total		344	456	572	493

- 8.86 It can be seen from the above **Table 8.15** that when considering the total number of vehicle trips at each access location there may be up to around 800 vehicle movements arising from the Peel Hall development profile in the AM peak hour and 1,065 in the PM peak hour in the intermediate assessment year of 2025.
- 8.87 No trip discounting for any of the land uses has been carried out for this intermediate build out assessment, and no pass-by trips have been taken into account for the food store and other local centre uses. Furthermore, as set out above, no discounting for internal trips to the local centre facilities have been made to account for those dwellings accessed from Poplars Avenue (145 dwellings) or linked trips between the non-residential land uses. It is therefore considered that this is a robust approach that gives confidence to the impact assessment arising.

Access Strategy - Option B (Through Route)

- 8.88 The trip rates will be the same for both access strategies. However, the proposed through route will carry local traffic as well as serve to facilitate access to the following elements of the development profile:
- i. Up to around 850 dwellings.
 - ii. Local centre (comprising a food store of up to 2,000sqm GFA plus up to a further 600sqm GFA of local centre type facilities plus a family pub and restaurant of up to 800sqm GFA).
 - iii. Up to two-form entry primary school.
 - iv. An area of employment land comprising up to 7,500sqm GFA of light industrial units.
- 8.89 For reference, the remaining development profile is proposed to be served as follows:
- i. Up to 20 dwellings off Birch Avenue.
 - ii. Up to 180 dwellings and a 100 bedroomeed care home off Poplars Avenue (central); with a bus gate to prevent general vehicular traffic travelling between the through route and the residential area of Poplars Avenue.
 - iii. Up to 150 dwellings off Mill Lane (north).
 - iv. Sports pitches and community uses served from Grasmere Avenue.
- 8.90 The development profile and respective vehicular trip levels (and discounts as set out in **paragraph 8.68 to 8.78**) are provided in **Table 8.16** for the Option B through route scenario (taken from 1107/TN/21 contained in **Appendix 48**).

Table 8.16 – Summary of 2030 peak hour vehicle trip numbers at each access location Option B (with discounts applied)

Access	Quantum of Development	AM Arrival	AM Departure	PM Arrival	PM Departure
Poplars Avenue (Central)	180 dwellings	41	94	89	55
	care home	7	7	8	8
	<i>Total</i>	<i>48</i>	<i>101</i>	<i>97</i>	<i>63</i>
Poplars Avenue (West) through to A49 & Mill Lane/Blackbrook Avenue	food store*	28	18	54	57
	local shops	0	0	0	0
	family pub	0	0	23	15
	850 dwellings	191	445	421	261
	primary school	57	40	10	14
	employment land	69	39	20	47
	<i>Total</i>	<i>345</i>	<i>542</i>	<i>528</i>	<i>394</i>
Mill Lane	150 dwellings	34	79	74	46
Birch Avenue	20 dwellings	5	11	10	6
Grasmere Avenue	community uses	10	5	7	8
Total		442	738	716	517

* pass-by trips only

- 8.91 The through route assessment for the Peel Hall SATURN model has been carried out with the above vehicle trips and loading. It can be seen from **Table 8.16** that there will be up to around an additional 1,200 vehicle trips on the local highway network in each of the weekday peak hours as a result of the Peel Hall development under the Option B through route access strategy in a future year of 2030 (as per **Table 8.14** for access strategy Option A in 2030).

Saturday and Sunday Trip Rates Review

- 8.92 A sensitivity test has been carried out further to the review of Saturday and Sunday peak hour traffic data (**Section 2.0**) to forecast the Peel Hall development traffic impact on weekends using trip rate data.
- 8.93 There is a limited number of weekend TRICS datasets for some of the land uses. For example, only one Saturday and two Sunday residential datasets were identified that satisfied the selection criteria. TRICS data was obtained for residential, food store and family pub/restaurant trips and this is contained in **Appendix 49** for reference.
- 8.94 Trip rates for the Care Home land uses have been taken from the busiest week day peak hour in order to provide a comparison (**Appendix 40**). Employment trips and primary school trips have been assumed to be negligible on a weekend (no TRICS surveys available) and therefore not included for within this comparison.
- 8.95 The community uses trip rates for weekends has been based on the calculations set out in the 2013 Mill Lane Appeal, which was based on forecast participation associated with the football facilities and the following key assumptions:
- i. Up to four matches could be played at any one time, although in reality the start times would be staggered.
 - ii. Up to 11 players per team for the three full-sized pitches, plus two substitutes per team ((11+2) x2 teams x3 pitches).
 - iii. Nine players per team for the junior pitches, plus two substitutes per team ((9+2) x2 teams x1 pitch).
 - iv. One referee per match only (4).
 - v. A conservative occupancy of 1.5 players per car and each one referee per car.
- 8.96 Therefore it is calculated that there could be up to around 71 vehicles to transport these players and referees. If accounting for all arrivals and departures occurring within the same hour to assess for the overlap of games, this is up to around 142 vehicular movements.
- 8.97 The resultant trip rates and forecast weekend trips are set out on **Table 8.17** below.

Table 8.17 – Peel Hall weekend vehicular trip generation summary

Development Traffic	Peak Hour 1100-1200			
	Arrival Trip Rates**	Departure Trip Rates	Arrival Trips	Departure Trips
Residential (1,200 dwellings)	0.193	0.280	232	336
Care Home (100 beds)	0.098	0.113	10	11
Food Store* (2,000sqm)	6.516	6.110	(39) 30%	(37) 30%
Family Pub/Restaurant (800sqm)	1.783	0.578	14	5
Community Uses	-	-	71	71
Total Trips			366	460

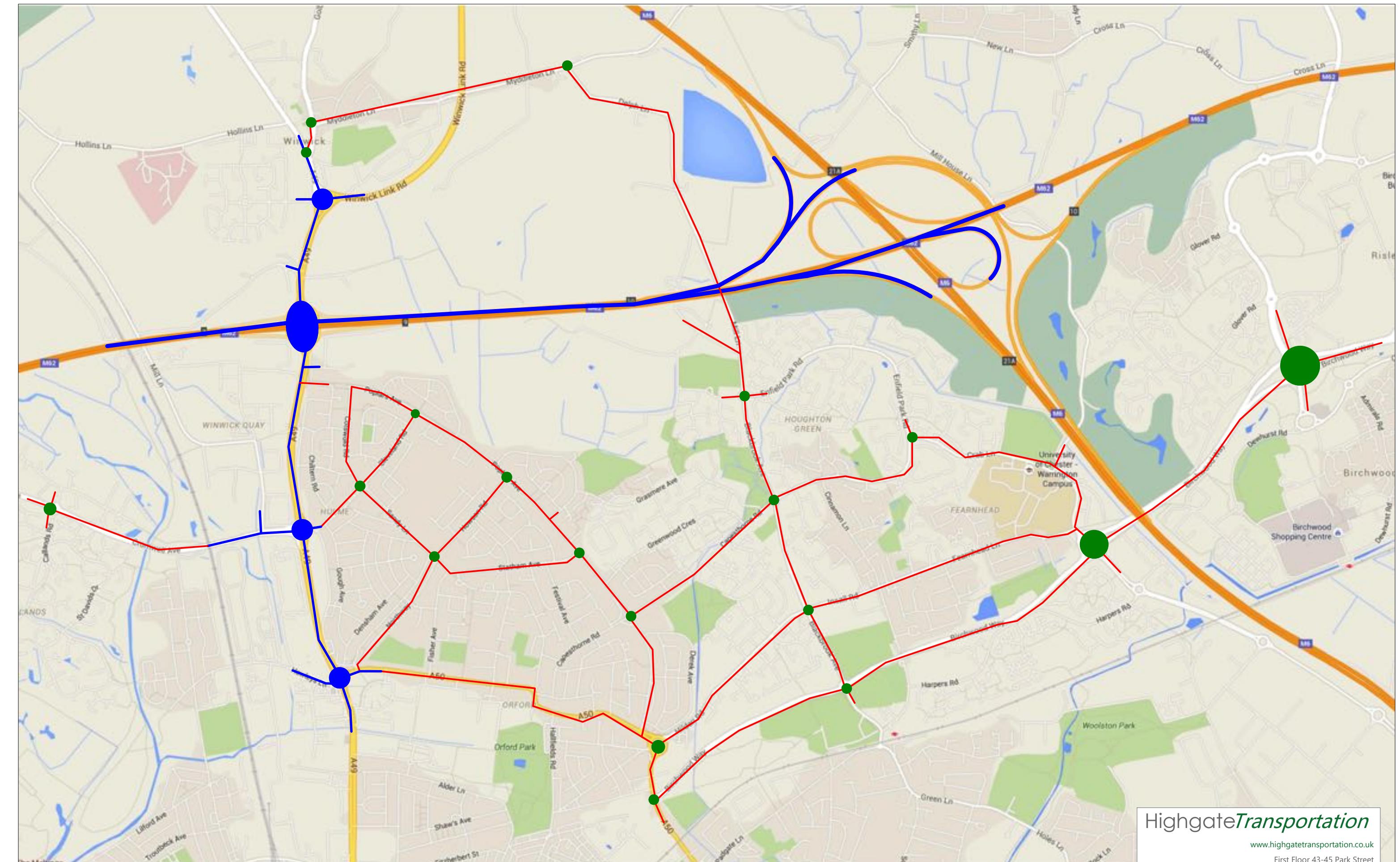
* 30% pass-by trips only

** per dwelling/bedroom/100sqm

- 8.98 It can be seen from **Table 8.17** that there may be up to around 826 vehicle trips on the local highway network during the weekend peak hour. This is in excess of 350 vehicle trips less than the quietest week day peak hour assessed for (1,180 in the AM peak hour and 1,233 in the PM peak hour, see **Table 8.16**).
- 8.99 Even considering 100% of food store traffic with no discounts applied (an additional 177 vehicle movements) this only brings the total peak hour development traffic to circa 1,000 vehicle movements in the weekend peak hour. Some 200 movements below that already assessed for.
- 8.100 It is therefore concluded that weekend peak period traffic assessments are not required as these would be broadly similar in magnitude or lower than the weekday peak hours included for within this assessment, even when taking into consideration the traffic flow data contained in **Section 2.0 (paragraphs 2.13 to 2.17)**.

Appendix 4

Peel Hall Study Area



PEEL HALL MODEL NETWORK

HighgateTransportation

www.highgatetransportation.co.uk

First Floor 43-45 Park Street

Bristol BS1 5NL

07973 375 937 / 07595 892 217

© Highgate Transportation Limited
© Crown copyright and database rights 2019 OS Licence 100056454

Appendix 5

WMMTM16 within Peel Hall Study Area

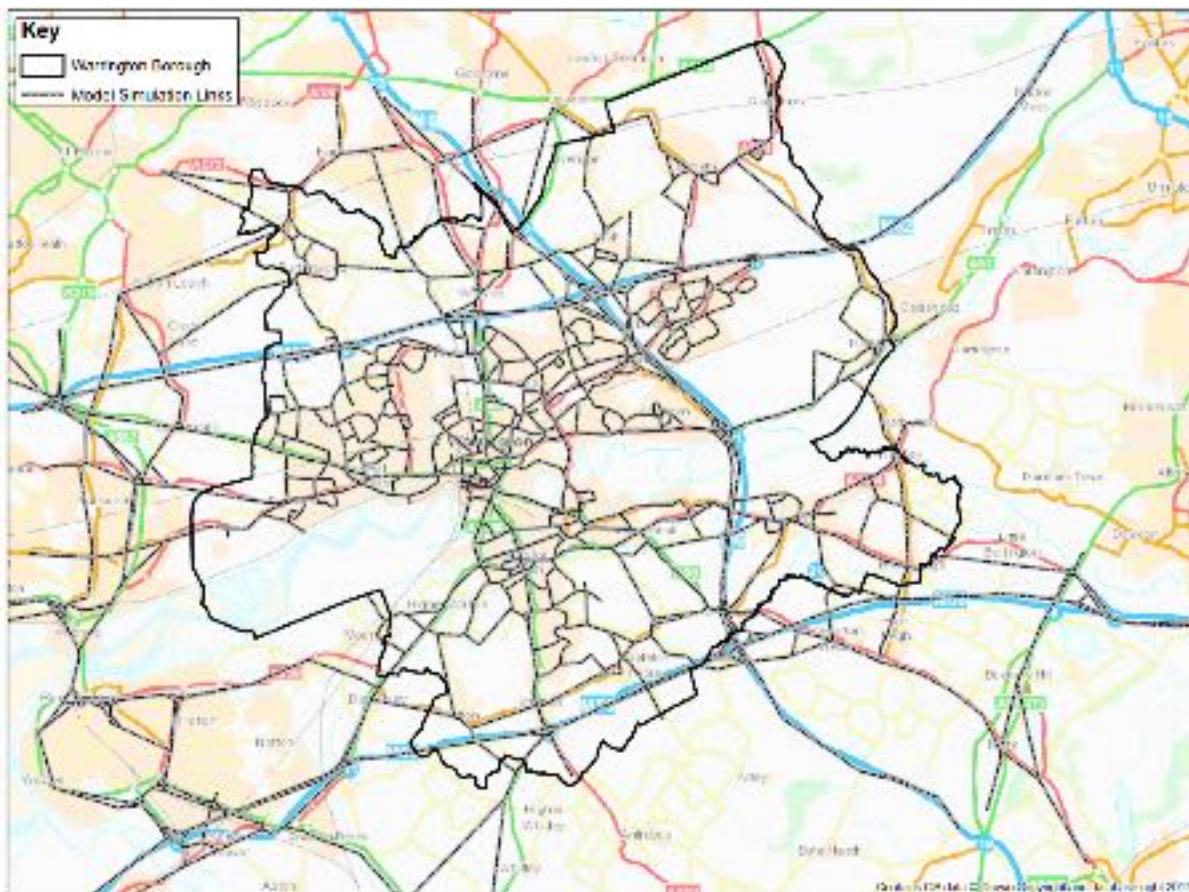
The minor roads represented have been identified through an inspection of the network and an assessment of the potential to serve through movements. These definitions were then reviewed by WBC and an independent auditor to verify that the network representation included routes of local concern where 'rat running' was observed or the potential was judged to exist. Table 1 summarises the association between each model area and the road types included.

Table 2 provides a summary of the key network features. Figure 2 displays the extent of the model simulation area and Figure 3 shows the simulation nodes within Warrington by junction type.

Table 1 Network Density and Detail

Area	Sub – Area	Network Density	Network Detail
Fully Modelled Area	Area of Detailed Modelling	Motorway A Roads B Roads	Simulation
		Key Minor Roads	
External Area	External Area	Motorway Some A Roads	Buffer

Figure 2 Extent of Model Simulation Area



Approximate Peel Hall study area indicated within red rectangle – Howson Road link missing

Figure 2 Extent of Model Simulation Area

