

The Hurlstone Partnership

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Our Ref: JPH/jph/190904

19 December 2019

Dear Nick

19/05967/FUL - BRINKWORTH, SN15 4JY - ACCESS VISIBILITY REQUIREMENTS

Further to your recent instructions, we write to confirm the findings of the review of vehicle speeds and associated visibility splay requirements on the C108 at Grittenham.

We note that the Highway Authority raised an objection due to inadequate visibility splays being provided at the site access, based on its requirements of for 2m x 120m, which are underpinned by an assumption that traffic speeds would be 40 mph in both directions along the lane, despite the relatively sharp bend to the north of the site.

At the outset, it is apparent that the requirement of 120m specified by the Highway Authority of based on a 40 mph traffic speed correlates with the standards contained within the Design Manual for Roads and Bridges (DMRB), which are specifically written for the Trunk Road Network, forming part of the National Strategic Road Network (SRN). The SRN forms the highest status of routes within the road hierarchy and includes Motorways and major A roads; neither of which correspond with the characteristics of the C108. The basis of the visibility splays contained within DMRB provides for continuous traffic speeds on the priority route. They are not related to the ability of a vehicle to slow down and stop safely. The 120m distance actually correlates with the default provision within DMRB for a Design Speed of 70 kph (43.5 mph).

By referring to Table 10.1 of Manual for Streets 2, it is apparent that there are two sets of DMRB based criteria for calculating stopping distances where 85th percentile speeds exceed 60 kph. The desirable minimum is based upon a 2 second perception-reaction time and a deceleration rate of 0.25g; whilst the absolute minimum is based on the same perception-reaction time but a faster deceleration rate of 0.375g. The former deceleration rate is used for the default splay lengths within DMRB and the latter is used within DMRB when calculating the length of right turning lanes in the middle of the carriageway, within which it is assumed vehicles will slow down and stop safely; hence their provision.

By way of comparison at 40 mph, the desirable minimum visibility splay length is calculated to be 100.95m, which reduces to 79.22m if considering the ability of vehicles to stop following the 2 second perception-reaction time adopted within DMRB.

On a lane such as the C108, from which the site is accessed, there is no reason to conclude that safety would be unacceptably compromised, providing sufficient visibility is maintained to allow approaching vehicles to slow down and stop safely, if necessary.

In order to confirm approaching vehicle speeds and flows, we instructed Axiom Traffic to install two Automatic Traffic Counters (ATCs); one to the north and one to the south of the proposed access position.

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The ATCs recorded directional traffic volumes and speeds between Tuesday 19th and Monday 25th November 2019 inclusive. The results summaries are enclosed for information and confirm that at Site 1, to the north of the access near the bend, the southbound 85th percentile speed was 31.1 mph from a sample of 1572 vehicles; whilst the northbound speed was 32.5 mph from a sample of 1738 vehicles.

The average daily traffic flow over the 7 day survey period was 473 vehicles, which increased to 540 vehicles when calculated between Monday – Friday inclusive. The proportion of large vehicles during the survey was found to be 2.63%.

The AM peak hour between Monday – Friday inclusive was found to fall between 08:00 – 09:00, with an average flow of 65 movements from daily totals of between 59 (Monday) and 75 (Friday), giving a day to day variation of 16 vehicle movements. The comparable PM peak hour occurred between 17:00 – 18:00 with an average of 50 movements from daily flows of between 34 (Friday) and 61 (Wednesday), giving a day to day variation of 27 movements.

At Site 2, to the south of the site access, the northbound 85th percentile speed was found to be 42.5 mph from a sample of 1576 vehicles, whilst the southbound 85th percentile speed was 40.7 mph from a sample of 1538 vehicles.

The average daily traffic flow over the 7 day survey period was 445 vehicles, which increased to 509 vehicles when calculated between Monday – Friday inclusive. The proportion of large vehicles during the survey was found to be 2.63%.

The AM peak hour between Monday – Friday inclusive was found to fall between 08:00 – 09:00 with an average flow of 60 movements from daily totals of between 55 (Monday) and 70 (Friday), giving a day to day variation of 15 vehicle movements. The comparable PM peak hour occurred between 17:00 – 18:00 with an average of 48 movements from daily flows of between 33 (Friday) and 58 (Wednesday), giving a day to day variation of 25 movements.

As is apparent from the traffic survey results, the flows along the C108 are low, in terms of both daily and peak hourly traffic volumes. It is also apparent that the range of day to day variation during the full day and peak hour periods extends significantly beyond the quantum of vehicular traffic that is expected to be associated with the proposed development of a single pitch gypsy/traveller site. As a result, the traffic impact of the proposed development would not be significant in the local context.

In terms of the visibility requirements, it is apparent by comparing the northbound and southbound traffic speeds between the two ATC sites, that vehicle speeds are not constant along the route in the vicinity of the site. As a result, there is no logical reason or practical benefit in seeking to apply the DMRB Y distance parameters predicated upon maintaining continuous speed along the priority route.

Based on the observed northbound speed from Site 2 (42.5 mph / 68.4 kph) and the southbound speed from Site 1 (31.1 mph / 50.04 kph), when compared with Table 10.1 of Manual for Streets 2, these speeds cross the 60 kph threshold at which the parameters change from Manual for Streets (1.5 seconds perception-reaction time and 0.45g / 0.375g deceleration rate depending upon vehicle type) to the DMRB based parameters detailed previously.

There is no doubt that the southbound speed falls within the Manual for Streets criteria, which requires a stopping distance of 45.148m for light vehicles and 49.526m for large/heavy vehicles. Based on the same parameters being applied to the northbound speed of 42.5 mph, the calculated stopping distances are established to be 71.782m for light vehicles and 79.959m for large/heavy vehicles. However, as confirmed at paragraph 10.1.8 of Manual for Streets 2 the large vehicle stopping distance should not need to be assessed when such traffic represents less than 5% of the overall traffic flow, subject to local circumstances.

When assessed in practical terms, the nature of the lane does not change substantially over the limited distance between the two ATC locations. It is therefore illogical to conclude that the perception-reaction time of the driver would change by 0.5 seconds when travelling around 220 – 230m between the two points on the road, just because the speed at the southern

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site is above the 60 kph threshold provided in Table 10.1 of Manual for Streets 2. It is also noted that neither DMRB, nor the Highway Code apply different driver perception-reaction times based upon vehicle speed.

However, for completeness, should the Highway Authority insist that as a result of exceeding 60 kph the DMRB perception reaction time of 2 seconds must be applied, the corresponding stopping distance for northbound traffic becomes 87.058m.

Based on the findings of the review undertaken we consider visibility splays extending 2.0m x 45.148m to the north and 71.782m to the south would be appropriate and acceptable in this case, based on the local context and traffic flow composition.

However, it may be that the Highway Authority would insist on the provision of the longer calculated splays, which would extend 2.0m x 49.526m to the north and 87.058m to the south.

We trust the foregoing and enclosed are acceptable and answer the query raised. However, should you require any clarification, or require any further assistance, please do not hesitate to contact the undersigned.

Yours sincerely

Jeremy Hurlstone
for THE HURLSTONE PARTNERSHIP

Encl.

24802		GRITTENHAM									
		NOVEMBER 2019				Posted Speed Limit (PSL)	Total Vehicles	5 Day Ave.	7 Day Ave.	Average 85%ile Speed	Average Mean Speed
Site	Location	Direction	Start Date	End Date							
Site No: 24802001	Site 1, Unnamed Road, Grittenham (TG Pole) SU 01811 82615	Channel: Northbound	Tue 19-Nov-19	Mon 25-Nov-19	60	1738	284	248	32.5	28.0	
		Channel: Southbound	Tue 19-Nov-19	Mon 25-Nov-19		1572	256	225	31.1	27.0	

24802	GRITTENHAM		Site No: 24802001		Location		Site 1, Unnamed Road, Grittenham (TG Pole)			
	Channel: Northbound									

24802	GRITTENHAM		Site No: 24802001		Location		Site 1, Unnamed Road, Grittenham (TG Pole)		
	Channel: Southbound								
	Tue	Wed	Thu	Fri	Sat	Sun	Mon	5-Day	7-Day
TIME PERIOD	19/11/19	20/11/19	21/11/19	22/11/19	23/11/19	24/11/19	25/11/19	Av	Av
Week Begin: 19-Nov-19									
00:00	0	0	1	1	0	1	0	0	0
01:00	0	0	0	0	0	1	0	0	0
02:00	0	0	0	0	0	0	0	0	0
03:00	1	1	1	1	0	0	3	1	1
04:00	1	0	0	0	0	0	1	0	0
05:00	1	1	1	0	0	0	3	1	1
06:00	4	4	7	4	0	1	3	4	3
07:00	9	17	17	27	2	2	26	19	14
08:00	23	27	16	25	11	8	22	23	19
09:00	13	16	21	17	14	10	15	16	15
10:00	12	18	18	14	13	9	13	15	14
11:00	14	15	12	11	18	15	13	13	14
12:00	15	7	17	14	20	16	15	14	15
13:00	14	27	17	19	9	11	13	18	16
14:00	19	14	21	26	13	11	9	18	16
15:00	19	26	23	25	16	15	25	24	21
16:00	19	17	25	31	17	19	27	24	22
17:00	35	34	31	20	11	5	26	29	23
18:00	14	11	10	17	2	6	13	13	10
19:00	16	7	6	6	3	3	5	8	7
20:00	8	10	4	4	4	0	5	6	5
21:00	0	13	2	1	0	4	3	4	3
22:00	4	9	2	1	0	1	3	4	3
23:00	1	3	0	2	0	0	1	1	1
12H,7-19	206	229	228	246	146	127	217	225	200
16H,6-22	234	263	247	261	153	135	233	248	218
18H,6-24	239	275	249	264	153	136	237	253	222
24H,0-24	242	277	252	266	153	138	244	256	225

24802	GRITTENHAM			Site No: 24802001		Location	Site 1, Unnamed Road, Grittenham (TG Pole)		
	Channel: Combined								
	Tue	Wed	Thu	Fri	Sat	Sun	Mon	5-Day	7-Day
TIME PERIOD	19/11/19	20/11/19	21/11/19	22/11/19	23/11/19	24/11/19	25/11/19	Av	Av
Week Begin: 19-Nov-19									
00:00	0	0	1	1	0	2	1	0	0
01:00	0	0	0	0	0	1	0	0	0
02:00	1	0	0	0	0	0	0	0	0
03:00	2	2	1	2	1	0	4	2	2
04:00	3	3	2	2	2	0	3	2	2
05:00	4	2	2	1	0	1	3	2	2
06:00	12	15	19	10	1	3	14	14	10
07:00	23	48	42	58	10	6	55	45	34
08:00	63	60	66	75	16	17	59	65	51
09:00	40	35	45	37	39	21	39	39	36
10:00	30	43	33	28	40	20	24	32	31
11:00	26	41	25	25	35	30	30	29	30
12:00	28	21	33	30	38	32	39	31	32
13:00	25	44	32	35	27	26	24	32	31
14:00	40	35	47	46	32	21	26	39	35
15:00	36	47	45	49	27	28	48	45	40
16:00	43	34	54	56	27	23	47	47	40
17:00	51	61	53	34	19	10	50	50	40
18:00	23	20	18	29	11	11	19	22	18
19:00	26	14	7	9	7	4	11	13	12
20:00	10	18	10	10	6	2	8	11	9
21:00	3	30	4	6	3	6	6	10	8
22:00	8	14	4	6	1	3	7	8	6
23:00	1	3	0	2	1	0	1	1	1
12H,7-19	428	489	493	502	321	245	460	474	420
16H,6-22	479	566	533	537	338	260	499	523	459
18H,6-24	488	583	537	545	340	263	507	532	466
24H,0-24	498	590	543	551	343	267	518	540	473

24802 GRITTENHAM				Site No: 24802001		Location		Site 1, Unnamed Road, Grittenham (TG Pole)			
Tue 19-Nov-19 to Mon 25-Nov-19				Channel: Northbound							
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Tue 19-Nov-19	256	7	2.7	207	80.9	33	12.9	7	2.7	2	0.8
Wed 20-Nov-19	313	6	1.9	257	82.1	42	13.4	7	2.2	1	0.3
Thu 21-Nov-19	291	1	0.3	243	83.5	42	14.4	5	1.7	0	0.0
Fri 22-Nov-19	285	3	1.1	229	80.4	45	15.8	8	2.8	0	0.0
Sat 23-Nov-19	190	6	3.2	162	85.3	15	7.9	7	3.7	0	0.0
Sun 24-Nov-19	129	9	7.0	108	83.7	9	7.0	3	2.3	0	0.0
Mon 25-Nov-19	274	1	0.4	227	82.9	41	15.0	4	1.5	1	0.4
Total Vehicles											
[--]	1738	33	2.4	1433	82.7	227	12.3	41	2.4	4	0.2

24802 GRITTENHAM				Site No: 24802001		Location		Site 1, Unnamed Road, Grittenham (TG Pole)			
Tue 19-Nov-19 to Mon 25-Nov-19				Channel: Southbound							
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Tue 19-Nov-19	242	6	2.5	193	79.8	38	15.7	4	1.7	1	0.4
Wed 20-Nov-19	277	1	0.4	225	81.2	44	15.9	7	2.5	0	0.0
Thu 21-Nov-19	252	2	0.8	199	79.0	46	18.3	5	2.0	0	0.0
Fri 22-Nov-19	266	1	0.4	218	82.0	39	14.7	8	3.0	0	0.0
Sat 23-Nov-19	153	3	2.0	128	83.7	19	12.4	3	2.0	0	0.0
Sun 24-Nov-19	138	10	7.3	113	81.9	12	8.7	3	2.2	0	0.0
Mon 25-Nov-19	244	4	1.6	190	77.9	39	16.0	11	4.5	0	0.0
Total Vehicles											
[--]	1572	27	2.1	1266	80.8	237	14.5	41	2.5	1	0.1



24802		GRITTENHAM								
NOVEMBER 2019					Posted Speed Limit (PSL)	Total Vehicles	5 Day Ave.	7 Day Ave.	Average 85%ile Speed	Average Mean Speed
Site	Location	Direction	Start Date	End Date						
Site No: 24802002	Site 2, Unnamed Road, Grittenham (TG Pole) SU 01746 82397	Channel: Northbound	Tue 19-Nov-19	Mon 25-Nov-19	60	1576	257	225	42.5	36.0
		Channel: Southbound	Tue 19-Nov-19	Mon 25-Nov-19		1538	252	220	40.7	34.8

24802	GRITTENHAM		Site No: 24802002		Location		Site 2, Unnamed Road, Grittenham (TG Pole)		
	Channel: Northbound								
TIME PERIOD	Tue 19/11/19	Wed 20/11/19	Thu 21/11/19	Fri 22/11/19	Sat 23/11/19	Sun 24/11/19	Mon 25/11/19	5-Day Av	7-Day Av
Week Begin: 19-Nov-19									
00:00	0	0	0	0	0	1	1	0	0
01:00	0	0	0	0	0	0	0	0	0
02:00	1	0	0	0	0	0	0	0	0
03:00	1	1	0	1	1	0	1	1	1
04:00	2	3	2	2	2	0	2	2	2
05:00	3	1	1	1	1	1	0	1	1
06:00	8	11	10	6	0	2	11	9	7
07:00	14	27	26	28	7	5	29	25	19
08:00	35	28	42	43	5	7	35	37	28
09:00	26	15	21	19	23	11	23	21	20
10:00	15	24	11	14	24	11	10	15	16
11:00	11	23	12	13	16	15	19	16	16
12:00	11	14	14	13	17	14	20	14	15
13:00	10	13	12	14	14	12	10	12	12
14:00	18	19	25	18	15	10	15	19	17
15:00	13	20	17	21	11	11	18	18	16
16:00	21	15	24	18	7	5	19	19	16
17:00	16	25	20	13	8	4	23	19	16
18:00	9	9	8	12	9	5	6	9	8
19:00	10	8	1	3	3	1	6	6	5
20:00	2	7	6	6	2	2	3	5	4
21:00	2	16	2	5	3	2	3	6	5
22:00	4	5	2	5	1	2	4	4	3
23:00	0	0	0	0	1	0	0	0	0
12H,7-19	199	232	232	226	156	110	227	223	197
16H,6-22	221	274	251	246	164	117	250	248	218
18H,6-24	225	279	253	251	166	119	254	252	221
24H,0-24	232	284	256	255	170	121	258	257	225

24802	GRITTENHAM				Site No: 24802002	Location	Site 2, Unnamed Road, Grittenham (TG Pole)		
	Channel: Southbound								
	TIME PERIOD	Tue 19/11/19	Wed 20/11/19	Thu 21/11/19	Fri 22/11/19	Sat 23/11/19	Sun 24/11/19	Mon 25/11/19	5-Day Av
Week Begin: 19-Nov-19									
00:00	0	0	1	1	0	1	0	0	0
01:00	0	0	0	0	0	1	0	0	0
02:00	0	0	0	0	0	0	0	0	0
03:00	1	1	1	1	0	0	3	1	1
04:00	1	0	0	0	0	0	1	0	0
05:00	1	1	1	0	0	0	4	1	1
06:00	4	4	7	4	0	1	3	4	3
07:00	9	16	17	26	2	2	25	19	14
08:00	22	28	16	27	11	9	20	23	19
09:00	13	14	21	17	13	9	14	16	14
10:00	13	17	17	13	12	9	14	15	14
11:00	14	15	12	10	17	13	13	13	13
12:00	15	8	15	13	19	14	15	13	14
13:00	13	28	16	19	7	11	12	18	15
14:00	17	15	20	24	12	12	9	17	16
15:00	17	24	22	26	15	15	24	23	20
16:00	19	17	26	31	17	20	28	24	23
17:00	35	33	29	20	10	5	26	29	23
18:00	12	11	10	17	2	6	13	13	10
19:00	15	7	6	6	3	3	5	8	6
20:00	9	10	4	4	4	0	5	6	5
21:00	0	13	2	1	0	4	3	4	3
22:00	4	7	2	1	0	1	3	3	3
23:00	1	5	0	2	0	0	1	2	1
12H,7-19	199	226	221	243	137	125	213	220	195
16H,6-22	227	260	240	258	144	133	229	243	213
18H,6-24	232	272	242	261	144	134	233	248	217
24H,0-24	235	274	245	263	144	136	241	252	220

24802	GRITTENHAM		Site No: 24802002			Location	Site 2, Unnamed Road, Grittenham (TG Pole)		
			Channel: Combined						
	Tue	Wed	Thu	Fri	Sat	Sun	Mon	5-Day	7-Day
TIME PERIOD	19/11/19	20/11/19	21/11/19	22/11/19	23/11/19	24/11/19	25/11/19	Av	Av
Week Begin: 19-Nov-19									
00:00	0	0	1	1	0	2	1	0	0
01:00	0	0	0	0	0	1	0	0	0
02:00	1	0	0	0	0	0	0	0	0
03:00	2	2	1	2	1	0	4	2	2
04:00	3	3	2	2	2	0	3	2	2
05:00	4	2	2	1	1	1	4	2	2
06:00	12	15	17	10	0	3	14	13	10
07:00	23	43	43	54	9	7	54	44	33
08:00	57	56	58	70	16	16	55	60	47
09:00	39	29	42	36	36	20	37	37	34
10:00	28	41	28	27	36	20	24	30	30
11:00	25	38	24	23	33	28	32	29	29
12:00	26	22	29	26	36	28	35	27	29
13:00	23	41	28	33	21	23	22	30	27
14:00	35	34	45	42	27	22	24	36	33
15:00	30	44	39	47	26	26	42	41	36
16:00	40	32	50	49	24	25	47	43	39
17:00	51	58	49	33	18	9	49	48	39
18:00	21	20	18	29	11	11	19	22	18
19:00	25	15	7	9	6	4	11	14	11
20:00	11	17	10	10	6	2	8	11	9
21:00	2	29	4	6	3	6	6	10	8
22:00	8	12	4	6	1	3	7	7	6
23:00	1	5	0	2	1	0	1	2	1
12H,7-19	398	458	453	469	293	235	440	443	392
16H,6-22	448	534	491	504	308	250	479	491	431
18H,6-24	457	551	495	512	310	253	487	500	438
24H,0-24	467	558	501	518	314	257	499	509	445

24802		GRITTENHAM		Site No: 24802002		Location		Site 2, Unnamed Road, Grittenham (TG Pole)			
Tue 19-Nov-19 to Mon 25-Nov-19				Channel: Northbound							
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Tue 19-Nov-19	232	7	3.0	176	75.9	42	18.1	6	2.6	1	0.4
Wed 20-Nov-19	284	6	2.1	220	77.5	51	18.0	6	2.1	1	0.4
Thu 21-Nov-19	256	1	0.4	202	78.9	47	18.4	6	2.3	0	0.0
Fri 22-Nov-19	255	2	0.8	192	75.3	48	18.8	13	5.1	0	0.0
Sat 23-Nov-19	170	9	5.3	139	81.8	18	10.6	4	2.4	0	0.0
Sun 24-Nov-19	121	9	7.4	98	81.0	11	9.1	3	2.5	0	0.0
Mon 25-Nov-19	258	1	0.4	208	80.6	45	17.4	3	1.2	1	0.4
Total Vehicles											
[--]	1576	35	2.8	1235	78.7	262	15.8	41	2.6	3	0.2

24802		GRITTENHAM		Site No: 24802002		Location		Site 2, Unnamed Road, Grittenham (TG Pole)			
Tue 19-Nov-19 to Mon 25-Nov-19				Channel: Southbound							
TIME PERIOD	TOTAL VEHICLES	MOTOR-CYCLES	MOTOR-CYCLES %	CARS	CARS %	LGV	LGV %	HGV	HGV %	BUS	BUS %
Daily Totals											
Tue 19-Nov-19	235	6	2.6	177	75.3	47	20.0	3	1.3	2	0.9
Wed 20-Nov-19	274	2	0.7	219	79.9	49	17.9	4	1.5	0	0.0
Thu 21-Nov-19	245	3	1.2	185	75.5	52	21.2	5	2.0	0	0.0
Fri 22-Nov-19	263	1	0.4	210	79.9	45	17.1	7	2.7	0	0.0
Sat 23-Nov-19	144	4	2.8	119	82.6	17	11.8	4	2.8	0	0.0
Sun 24-Nov-19	136	11	8.1	107	78.7	14	10.3	4	2.9	0	0.0
Mon 25-Nov-19	241	4	1.7	182	75.5	46	19.1	9	3.7	0	0.0
Total Vehicles											
[--]	1538	31	2.5	1199	78.2	270	16.8	36	2.4	2	0.1

