Sumner Consultancy Ltd

Civil Engineering & Transportation Consultant

ACCESS ASSESSMENT

**FOR A PROPOSED DEVELOPMENT
OFF THE
A456 BURFORD**

FOR

FRANK P MATTHEWS LTD

REPORT VERIFICATION

SITE ADDRESS	A456 Burford
REPORT TITLE	Access Assessment
JOB NUMBER	522-19
PREPARED BY	JRS

ISSUE NO.	DATE	STATUS	REPORT VERSION	ISSUED BY
1	11-03-20	For Planning	01	JRS

INDEX

1. BRIEF 3

2. SITE INFORMATION 3

4. VISIBILITY SPLAYS 3

5. CONCLUSION 5

APPENDICES

Appendix 1 Site Location Plan

Appendix 2 Proposed Access drawing 522-19-05

Appendix 3 Vehicle Speed Measurement

Appendix 4 Speed & Visibility Splay Calculations

1. BRIEF

1.1. Sumner Consultancy has been appointed by Frank P Matthews Ltd to provide an Access Assessment in connection with potential development site. The proposal is to construct a new access off the A456 to the west of Burford.

2. SITE INFORMATION

2.1. The Site is located on the western side of Burford on the southern side of the A456 at Grid Reference X358654 Y268327 with the nearest post code of WR15 8HF. The Site Location Plan is in Appendix 1.

2.2. The optimum location for a proposed access is midway along the site road frontage, which is shown on the Proposed Access drawing 522-19-05 in Appendix 2.

2.3. Adjoining the proposed access location the A456 is 6.4m wide with a 1.45m wide footway on the southern side.

2.4. At the location of the proposed access is a public footpath stile for two footpaths, one going directly south and the second in a southwest direction, as shown on the Site Location Plan is in Appendix 1.

2.5. The first streetlight on the approach to Burford is 125m to the west of the proposed access.

2.6. The centreline road markings are 6.0 x 3.0m hazard lines with reflecting road studs.

2.7. The A456 in the vicinity of the proposed access is subject to the national speed limit of 60mph.

3. VISIBILITY SPLAYS

3.1. The Department for Transport publication, Manual for Streets (MfS) specifies the visibility requirements for new streets and existing streets subject to re-design.

3.2. Measurements for visibility splays are generally taken from a point where the centreline of the minor road meets the channel of the major road, Point A. This is normally at the 'give way' line (or an imaginary 'give way' line if no such markings are provided). The distance back along the minor arm to Point B, from which visibility is measured is known as the X distance. This distance is normally measured along the centreline of the minor arm for simplicity, but in some circumstances (for example where there is a wide splitter island on the minor arm) it will be more appropriate to measure it from the actual position of the driver.

3.3. The appropriate X distance for this access would depend on the extent of the proposed development, so it could be either 2.4m or 4.5m back from the road edge.

3.4. The Y distance represents the distance that a driver who is about to exit from the minor arm can see to his left and right along the main alignment. For simplicity it is measured along the nearside kerb line of the main arm to Point C, although vehicles will normally be travelling a distance from the kerb line. Therefore a more accurate assessment of visibility splays is made by measuring to the nearside edge of the vehicle track. The measurement is taken from the point where this line intersects the centreline of the minor arm, Point A, (unless, as above, there is a splitter island in the minor arm).

3.5. Currently there are two standards for determining visibility splays, which are defined in Manual for Streets (MfS), and TD 42/95 – Geometric Design of Major/Minor Priority Junctions.

3.6. MfS focuses on lightly trafficked residential streets, but many of its key principles may be applicable to other types of street, for example high streets and lightly-trafficked lanes in rural areas. Generally this is limited to locations with traffic speeds less than 40mph. MfS does not apply to the Trunk Road Network.

3.7. TD42/95 is generally applicable to trunk roads where traffic speeds are 40mph and above.

3.8. However there are some Highway Authorities, one of which is Shropshire who are prepared to consider visibility splays derived by Dorset County Council for speeds in excess of 40mph. These visibility splays are based on the formula outlined in MfS.

3.9. It's understood that the Planning Inspectorate is also allowing appeals for visibility splays for speeds in excess of 40mph based on the formula outlined in MfS.

3.10. The determination of the Y distance for the visibility splays is based on the actual speed of vehicles along the road and not the speed limit.

3.11. The assessment of Vehicle speeds is generally done by an Automatic Traffic Count (ATC). An ATC speed survey is normally carried out by fixing rubber tubes to the road surface which are connected to a road side recorder box. These tubes can measure both speed and number of vehicle movements and in some cases the weight of vehicles passing over, e.g. cars or HGV's.

3.12. An ATC is generally done over the period of a week. They are therefore inconspicuous to drivers of vehicles, and provide more detailed information than a manual survey, which is generally only over a number of hours or at most a day and involves the survey being carried out by someone on the side of the road with a radar gun, sometimes in a high visibility jacket.

3.13. When the results of a speed reading either by an ATC or manually are obtained the vehicle speeds along the road are defined by the 85th Percentile. Basically as an example, if 100 readings are taken the top 15 are discounted and the next reading is the 85th Percentile. This speed is then adjusted to take into account of speeds in wet weather.

3.14. To give an initial indication on the vehicle speeds passed the proposed access, speeds were taken inconspicuously using a hand held radar gun over 25 minutes, and the speeds westbound were found to be 51.4mph and eastbound 54.0mph. A copy of the Vehicle Speed Measurement is in Appendix 3.

3.15. Based on the formula in MfS, for a westbound speed of 51.4mph, adjusted for wet weather to 48.9m, the required visibility splay to the east is 111.0m, and for an eastbound speed of 54.0mph, adjusted for wet weather to 51.5mph it is 120.4m to the west.
The Speed & Visibility Splay Calculations are in Appendix 4.

3.16. Based on the formula in MfS for a vehicle speed of 60mph without an adjustment for wet weather, the visibility distance would be 153.8m, and 143.6m with the wet weather adjustment.

3.17. MfS states that in determining the Y distance a more accurate assessment of visibility splays is made by measuring to the nearside edge of the vehicle track. This has normally been taken to be 1.0m from the road channel.

3.18. The potential visibility splays which can be achieved form the proposed access as measured on site are shown on the Proposed Access drawing 522-19-05 in Appendix 2.

3.19. Depending on the size of the proposed development, visibility splays from 2.4m and 4.5m to 215m can be achieved in both directions within the existing highway or land owned or controlled by Frank P Matthews Ltd.

3.20. Visibility for right turning vehicles was measured on site to be 175m.

3.21. There is sufficient area along the site road frontage to construct a ghost island junction.

3.22. If the total width of the ghost island junction is 10.25m, comprising 2 x 3.33m through lanes and a 3.65m wide turning lane, then the visibility splays in excess of 215m can be achieved in both directions from a distance of 4.5m.

4. CONCLUSION

4.1. The location for the proposed access and existing road configuration is not considered detrimental to the safety and free flow of traffic along the A456.

4.2. The appropriate X distance for this access would depend on the extent of the proposed development, so it could be either 2.4m or 4.5m back from the road edge.

4.3. There is sufficient area along the site road frontage to construct a ghost island junction.

4.4. If the total width of the ghost island junction is 10.25m, comprising 2 x 3.33m through lanes and a 3.65m wide turning lane, then the visibility splays in excess of 215m can be achieved in both directions from a distance of 4.5m.

4.5. To give an initial indication on the vehicle speeds passed the proposed access, speeds were taken inconspicuously using a hand held radar gun over 25 minutes, and the speeds westbound were found to be 51.4mph and eastbound 54.0mph.

4.6. From the initial speed readings and based on the formula in MfS, for a westbound speed of 51.4mph, adjusted for wet weather to 48.9m, the required visibility splay to the east is 111.0m, and for an eastbound speed of 54.0mph, adjusted for wet weather to 51.5mph it is 120.4m to the west.

4.7. Based on the formula in MfS for a vehicle speed of 60mph without an adjustment for wet weather, the visibility distance would be 153.8m, and 143.6m with the wet weather adjustment.

4.8. Visibility for right turning vehicles was measured on site to be 175m

4.9. The potential visibility splays from the proposed access and for right turning vehicles are therefore considered to be more than adequate and commensurate with the vehicle speeds along the A456.

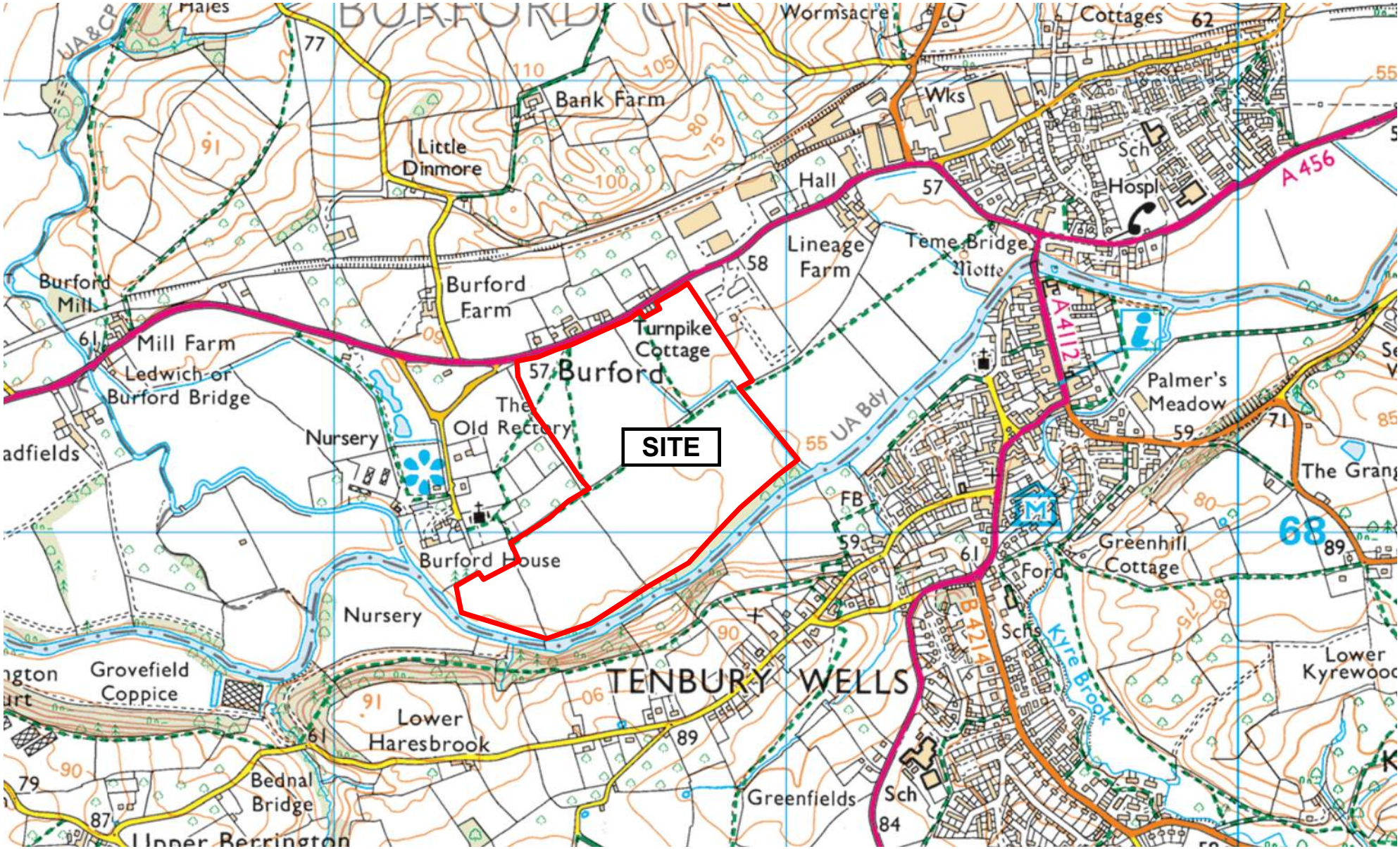
John Sumner IEng MICE
Director
Sumner Consultancy Ltd
March 2020

APPENDIX 1

SITE LOCATION PLAN

SITE LOCATION PLAN

Nearest Post Code WR15 8HF
Grid Reference X358654 Y268327



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Ordnance Survey Paper Mapping Licence Number 100059047

APPENDIX 2

PROPOSED ACCESS DRAWING 522-19-05

Notes

1. Do not scale from this drawing.
2. All drawings are to be checked by the contractor and setting out engineer and read in conjunction with one another to ensure they are mutually compatible with each other before any setting out or construction commences.
   In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Sumner Consultancy accepts no liability in the event of not being so notified and where construction work has commenced.
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   The LiDAR level information is to a resolution of 1m and has a vertical accuracy of +/-15cm.
   These contours and any level information must only be used as guide.

Revisions

Rev	Date	Description

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Project: BURFORD

Drawing Title: PROPOSED ACCESS

Scale: 1:500	Drawn by: JRS	Date: February 2020

Drawing Number: 522-19-05

Revision:

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Drawing Size: A1

APPENDIX 3

VEHICLE SPEED MEASUREMENT

VEHICLE SPEED MEASUREMENT

Site Location: **A456 BURFORD**

Grid Reference: **X358530 Y268420**

Nearest Post Code: **WR15 8HF** Weather: Dry

Speed readings taken on: Using a handheld radar gun Note: NOT wearing any high visibility clothing

Timespan: 12:50 to 13:15 Hours: 00:25

Traffic Direction West Bound

Start point for reading: Approximately 50m from the access

VEHICLE No.	SPEED mph	VEHICLE CLASS 1	2	3	4	5
1	**50**	■				
2	**52**	■				
3	**51**	■				
4	**41**	■				
5	**44**	■				
6	**44**	■				
7	**43**	■				
8	**48**	■				
9	**45**				■	
10	**52**	■				
11	**47**		■			
12	**49**	■				
13	**46**	■				
14	**52**	■				
15	**47**	■				
16	**50**	■				
17	**45**		■			
18	**39**	■				
19	**44**	■				
20	**53**		■			
21	**46**	■				
22	**41**	■				
23	**63**	■				
24	**54**	■				
25	**48**	■				

Traffic Direction East Bound

Approximately 50m from the access

VEHICLE No.	SPEED mph	VEHICLE CLASS 1	2	3	4	5
1	**41**	■				
2	**49**					
3	**49**					
4	**50**					
5	**41**		■			
6	**44**	■				
7	**48**			■		
8	**69**	■				
9	**50**	■				
10	**45**					
11	**43**	■				
12	**50**	■				
13	**47**	■				
14	**53**			■		
15	**46**	■				
16	**47**			■		
17	**42**	■				
18	**50**			■		
19	**54**	■				
20	**43**	■				
21	**55**			■		
22	**52**	■				
23	**52**	■				
24	**50**	■				
25	**45**	■				

Traffic Direction West Bound

VEHICLE No.	SPEED mph	VEHICLE CLASS 1	2	3	4	5
26	**42**				■	
27	**45**				■	
28	**46**			■		
29	**43**			■		
30	**47**	■				
31	**44**	■				
32	**45**			■		
33	**45**	■				
34	**43**	■				
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

Traffic Direction East Bound

VEHICLE No.	SPEED mph	VEHICLE CLASS 1	2	3	4	5
26	**51**			■		
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

	West	**Bound**	**East**	**Bound**
No. of Speed Readings	34	n	26	n
Sum of Speed Readings	1594	v	1266	v
Sum of Squares of Speeds	75454.0		62470.0	
Mean Speed	46.9	m	48.7	m
Standard Deviation	4.5	s	5.5	s
85th Percentile	**51.4**	**mph**	**54**	**mph**

Vehicle Class

1 Car

2 Light Goods

3 OGV 1

4 OGV 2

5 PSV

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Calculations taken from TA 22/81

APPENDIX 4

SPEED & VISIBILITY SPLAY CALCULATIONS

SPEED & VISIBILITY SPLAY CALCULATIONS

Manual for Streets (MfS)

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Civil Engineering & Transportation Consultant

Site Location	**A456 BURFORD**
Grid Reference	**X358530 Y268420**
Nearest Post Code	**WR15 8HF**
Speed Limit	**60mph**

Speed readings were taken on 07-02-20 for 25 minutes

Traffic Direction	Westbound	mph
	85th Percentile	51.4
Traffic Direction	Eastbound	mph
	85th Percentile	54.0

Speed in wet weather

TA 22/81 Vehicle Speed Measurement on All Purpose Roads
Speed reduction for wet weather 2.5 mph (4 kph for AP Single Carriageways)

Traffic Direction	Westbound	mph	
	85th Percentile	48.9	Speed is above 60kph. For min. SSD use t=2 & d=0.375
Traffic Direction	Eastbound	mph	
	85th Percentile	51.5	Speed is above 60kph. For min. SSD use t=2 & d=0.375

Visibility Distances From Manual for Streets

SPEED	Km/h	16	20	24	25	30	32	40	45	48	50	60
	mph	10	12	15	16	19	20	25	28	30	31	37
SSD (metres)		9	12	15	16	20	22	31	36	40	43	56
SSD adjusted for bonnet length		11	14	17	18	23	25	33	39	43	45	59

Traffic Direction **Westbound**

85th Percentile Visibility Splay 111.0 m Adjusted for speeds in wet weather

Traffic Direction **Eastbound**

85th Percentile Visibility Splay 120.4 m Adjusted for speeds in wet weather

Where:	Westbound	Eastbound
Stopping Sight Distance = $vt + v^2/2(d+0.1a)$		
v = Speed (m/s)		
t = Reaction Time (s) =	2	2
d = Deceleration Time (g) =	0.375	0.375
g = Gravity (m/s^2) =	9.81	9.81
Bonnet Length (m) =	2.4	2.4
a = Longitudinal Gradient (%)		
Westbound Gradient (%) =	0.0%	
Eastbound Gradient (%) =		0.0%

Note: The calculations above are based on the formula in Manual for Streets 2 for determining the Stopping Sight Distance

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