

Technical Note 01A

Project: Planning Application DC/23/2279: Land North of the Rosary, Partridge Green

Subject: Review of Additional Footway Provision Technical Note (Motion, 03 Oct 2024)

Client: Local Residents

Prepared by: Bruce Bamber **Date:** 22 November 2024

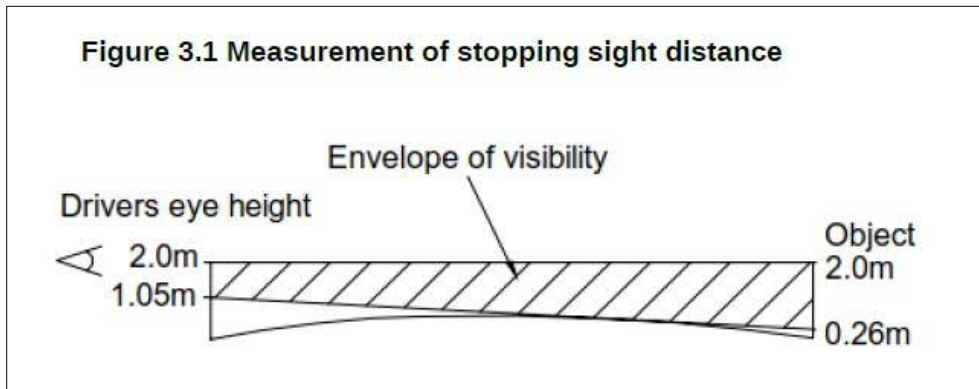
INTRODUCTION

1. Railton TPC Ltd has been instructed by local residents to review additional information submitted by the applicant following the 17th September 2024 Planning Committee Meeting that considered the above application.
2. The committee resolved to '*delegate [to Officers] with a view to approve in consultation with Local Members and the Cabinet Members for Planning to explore and seek to achieve a pedestrian footway on the northern part of the site access*' (final page of Meeting Transcript).
3. Notwithstanding the issue of whether the Committee was acting within its powers to delegate to Officers in this way, this Technical Note reviews additional information regarding a potential footway on the northern side of the site's vehicle access
4. It should be noted that the safety issues associated with the failure to provide any footways at the site's vehicle access was raised in Railton's initial Transport and Highways Review (Railton TPC Ltd, July 2024) that was submitted as a consultation response to the application on behalf of local residents.

Reason for Providing no Pedestrian Footway

5. To provide a vehicle access with no footway provision for pedestrians is an unorthodox highway arrangement. The lack of footways in this instance is particularly striking since there is a footway on the opposite side of Church Road and the most convenient route between the site and local destinations for many residents (particularly with the removal of the previously proposed northern pedestrian access point) would be via the vehicle site access and onto the opposite footway. As was pointed out in the previous Railton report and was obvious to Members at the Committee, pedestrians would use the vehicle access and without footways, pedestrians are put at risk.
6. Given the overwhelming likelihood that pedestrians would use the vehicle access, the question that needs to be asked is why no footways have been proposed at the vehicle access.
7. The reason is likely to be that it was recognised at the outset that visibility to a potential pedestrian crossing was poor. The following diagram is taken from CD 109 Highway Link Design, part of the Design Manual for Roads and Bridges (Highways England, March 202). It shows the relevant visibility envelope. Although this is not explicitly for pedestrian crossings it establishes the principle that objects with heights as little as 0.26m (i.e. a person lying within the carriageway) should be visible to an approaching driver:

Figure 1: Visibility Envelope to Establish Stopping Sight Distance



source: CD 109, DMRB, March 2020

8. The minimum object height of 0.26m is applied consistently throughout DMRB¹. It is entirely reasonable to assess the safety of a potential person who trips and falls at a pedestrian crossing point.
9. Bearing in mind the object height requirements, visibility for drivers approaching from the south is restricted by the vertical profile of the road. This deficiency is discussed further below.
10. Visibility to a pedestrian on the eastern side of the road, which is the inside of a bend, is constrained by the embankment behind the footway on the eastern side of the road combined with the hill crest. The following photo shows the view of a driver approaching the proposed site access (on the right hand side of the road):

Photo 1: View of Southbound Driver Approaching Site Access



¹See, for example, paragraph 3.17 of TA 90/05 The Geometric Design of Pedestrian, Cycle and Equestrian Routes, paragraph 6.22 of TD 54/07 Design of Mini-Roundabouts, paragraph 4.18 of TD 22/06 Layout of Grade Separated Junctions

11. The area where a pedestrian would be about to step off the footway on the eastern side of the road (indicated on the photo above) is obstructed by the embankment and crest of the hill. The photo is taken 60.8m from the proposed pedestrian crossing point. A person lying within the carriageway or even a small child would not be visible to a driver 60.8m from the crossing. A very slight increase in the distance would result in an adult being invisible to the driver.
12. For these reasons, the applicant has never proposed providing footways at the site access and has, instead, sought to provide alternative provision at the northern and southern ends of the site. This reason was not raised, acknowledged or discussed at the Committee Meeting.

Current Footway Proposal

13. In response to the comments and concerns raised at the Committee, the applicant has submitted a Technical Note² that purports to demonstrate that it is possible to provide a footway on the northern side of the site access that allows pedestrians to reach the footway on the eastern side of Church Road.
14. The plan that is attached to the Technical Note is reproduced as **Appendix 1**.
15. The Technical Note includes the following cryptic statement:

'At this extent [60.8m from crossing], the visibility splay is located at the same distance onto the verge as existing telegraph poles and lighting columns, demonstrating that the vegetation and levels further onto the verge would not obstruct the splay in this direction' (Technical Note, para. 2.4)
16. Although the meaning of this statement is obscure, the fact is that a visibility splay of 60.8m is insufficient to allow a southbound driver to see a person lying within the carriageway or even a small child close to the crossing and any visibility splay in excess of 60.8m would be obstructed to such an extent that an adult would not be visible without reconfiguration of the highway verge.
17. The plan attached to the Technical Note is incorrect. It suggests that a driver's eye level is at 0.6m above the carriageway and that the height of an object on the pedestrian crossing is 1.05m. As has been shown above with reference to technical standards, these figures are incorrect. A driver's eye should be taken as 1.05m above the carriageway surface and the object height at the crossing should be taken as between 0.26m and 2.0m³. This error has serious implications for visibility for drivers approaching from the south.
18. **Figure 1** attached is based on the long section of Church Road included in the plan attached to the Technical Note. The correct driver's eye level and object height on the pedestrian crossing have been added.
19. With the correct heights the forward visibility to an object 0.26m in height is shown to be 38.7m. This distance falls far short of the 72.4m identified in the Technical Note. It also falls far short of the correct visibility splays that are discussed in the following section. The conclusion is that the Technical Note is flawed and provides incorrect information that could lead to a highly dangerous arrangement, if approved.

²See *Additional Footway Provision* Technical Note, Motion, 03 October, 2024

³ See paragraph 3.1 of CD 109 Revision 1, Design Manual for Roads and Bridges, March 2020

Required Visibility Splays

20. The applicant's calculation of visibility from the site access is based on the use of Manual for Streets 2 (MfS2) parameters assuming that existing vehicle speeds are 60kph or lower. As has been explained in Railton's previous report, surveyed vehicles speeds are the following:

Table 1: Observed Vehicle Speeds

Direction	85 th percentile speed	With dry weather adjustment (+4kph)*
From the north (to the left)	61.3kph	65.3kph
From the south (to the right)	65.4kph	69.4kph

* see Highway Authority email dated 27 July 2024

21. The observed 85th percentile speed of vehicles approaching the access from both directions is in excess of 60kph. The correct parameters to be used⁴ are those set out in MfS2 for speeds in excess of 60kph.
22. The Highway Authority has also acknowledged that rather than reducing vehicle speeds by 4kph to allow for wet weather, surveyed speeds should be **increased** by 4kph to allow for dry weather in accordance with CA185 (part of the Design Manual for Roads and Bridges (DMRB)). **Appendices 2A** and **2B** provide the calculations for visibility splays using MfS parameters for both speeds of 60kph and under and over 60kph. The results are summarised in the following table:

Table 2: Visibility Splays

Direction	If speeds are 60kph or under	If speeds are over 60kph	
		desirable min.	absolute min.
Southbound drivers	62.4m	92.6m	77.1m
Northbound drivers	71.6m	111.0m	88.9m

23. Even if the more generous but incorrect MfS2 parameters for vehicle speeds of 60kph and below are applied, the visibility splay for southbound drivers is more than that suggested in the applicant's latest Technical Note (60.8m). The available 38.7m forward visibility for northbound drivers falls far short of 60.8m. It appears likely that even if the incorrect MfS2 parameters are adopted, the visibility to the proposed pedestrian crossing for southbound drivers would be unachievable without reconfiguration of the existing highway verge and for northbound drivers a safe visibility is impossible due to the vertical profile of the road.
24. If the correct calculation is undertaken, the desirable minimum visibility for southbound drivers is 92.6m. This is 52% higher than the 60.8m identified by the applicant. A driver at this distance would have no view of a pedestrian standing at the proposed crossing on the eastern side of the road. Further, it may be impossible to achieve this visibility even with significant works to the highway verge since the crest in the road may well obscure the sight line.
25. If the **absolute** minimum parameters are applied the safe visibility for southbound drivers is 77.1m, over 10m more than that proposed by the applicant. Again, the bend in the road, the

⁴ See Table 10.1 of MfS2

crest and the embankment will ensure that pedestrians are not visible to an approaching southbound driver at this distance.

26. The available 38.7m visibility for northbound drivers represents **less than half** the **absolute** minimum visibility required (88.9m).
27. In summary, a careful examination of visibility splays in both directions at the proposed pedestrian crossing confirms that the proposals would not be safe. The proposal is not, therefore, acceptable on highway safety grounds. It appears likely that the applicant's highway consultant was aware of this safety deficiency and this explains the reason why, contrary to conventional design practice, no footways were previously proposed at the site vehicle access road.

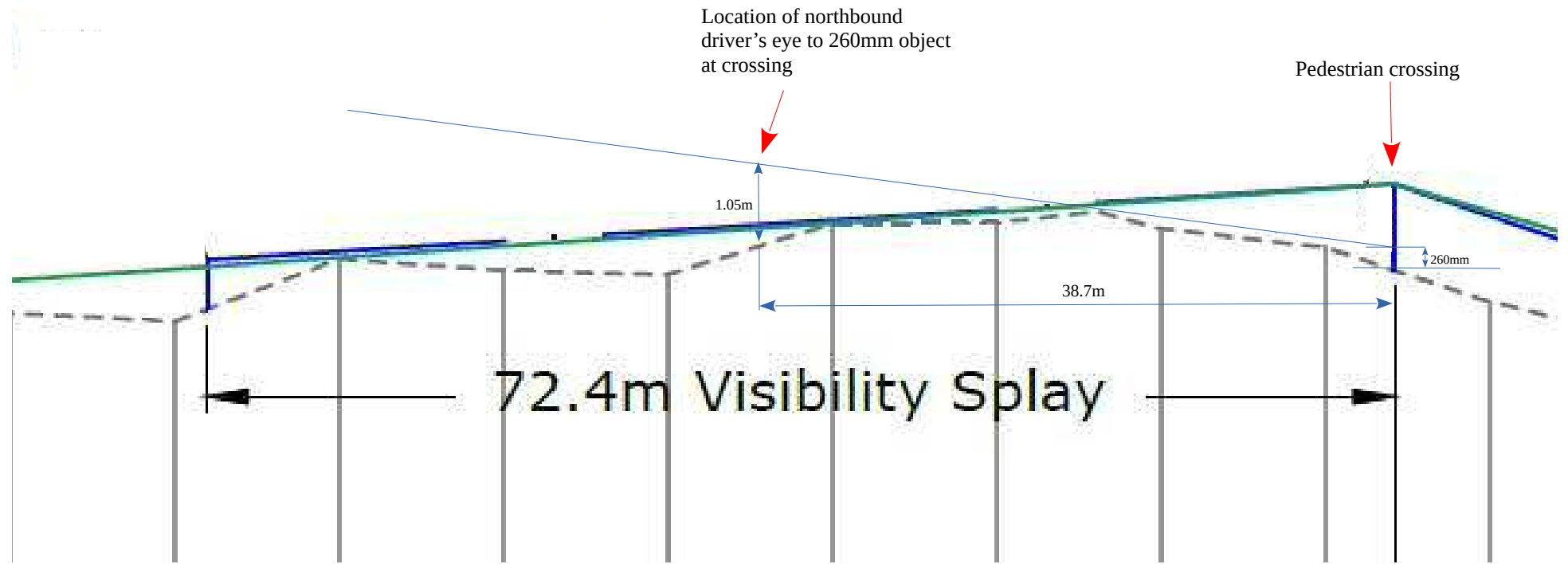
Conclusion

28. The planning committee that considered this application resolved to seek to achieve a pedestrian footway on the northern side of the proposed vehicle access. The highway safety concern about a lack of footway at a location that would be used by pedestrians echoes highway safety concerns that were raised in Railton's original objection to the proposals.
29. The applicant has submitted a Technical Note that purports to demonstrate that it is possible to introduce the footway with an associated pedestrian crossing point north of the access.
30. Scrutiny of the details of the technical work that has been submitted reveals that the assumptions about the height of a driver's eye and the height of a person using the crossing are incorrect. The assessments are therefore flawed and the conclusions of the Technical Note unreliable.
31. A person lying within the carriageway or even a child standing on the eastern side of Church Road by the proposed crossing point would not be seen by southbound drivers at a point 60.8m from the crossing (the applicant's proposed visibility splay) due to a combination of the crest and bend in the road and the embankment on the eastern verge. A slight increase in the visibility splay would render an adult invisible to a driver.
32. The use of incorrect driver's eye and pedestrian heights obscures the fact that a northbound driver would have a forward visibility of only 38.7m to a person lying in the carriageway at the crossing. This is **less than half** the absolute minimum forward visibility required for drivers travelling at the observed speeds along Church Road (88.9m).
33. The applicant's calculation of visibility splays is incorrectly based on MfS2 parameters that should only be applied when vehicle speeds are 60kph or under. Surveys show that the 85th percentile vehicle speed southbound is 61.3kph and northbound, 65.4kph. The Highway Authority has also acknowledged that these speeds should be increased by 4kph to adjust for dry weather (65.3kph southbound and 69.4kph northbound). Despite the clear evidence, the applicant continues to apply the incorrect MfS2 parameters.
34. The use of the correct parameters reveals that the desirable minimum visibility to the north should be 92.6m rather than the proposed 60.8m. At this distance an adult on the eastern side of Church Road would not be visible to a southbound driver. It is also possible that it would be impossible to achieve this visibility within available highway land due to the bend in the road and the crest of the hill.

35. Even if the absolute minimum visibility is applied (77.1m), an adult at the crossing would not be visible to a driver approaching from the north without significant works to the highway verge.
36. As already stated, the shortfall in visibility from the south is even more extreme and the deficiency cannot be rectified with any works to the highway verge.
37. It is concluded that it is not possible to provide a safe pedestrian crossing at the proposed vehicle access. It appears likely that the reason for the applicant not proposing any footways on the site access road, contrary to conventional practice is that the prevailing constraints to visibility to the north at this point have always been known.

Figure 1: Forward Visibility to Proposed Pedestrian Crossing

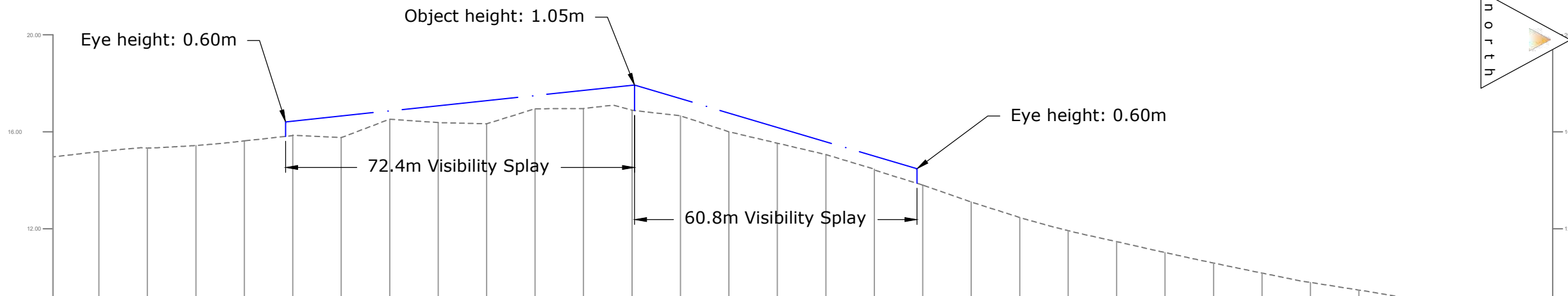
Figure 1: Forward Visibility to Pedestrian Crossing (northbound)



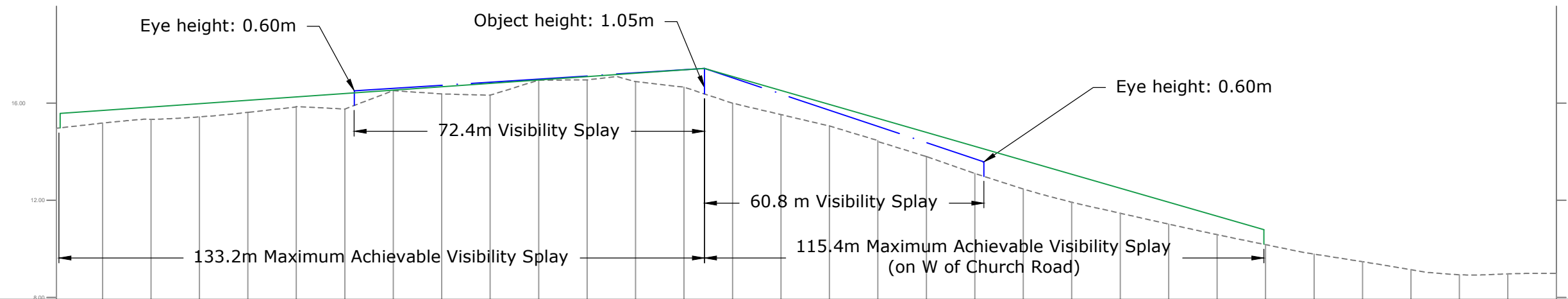
Source: Motion Drawing 2401036-02 Rev D

Appendix 1: Plan Showing Proposed New Footway

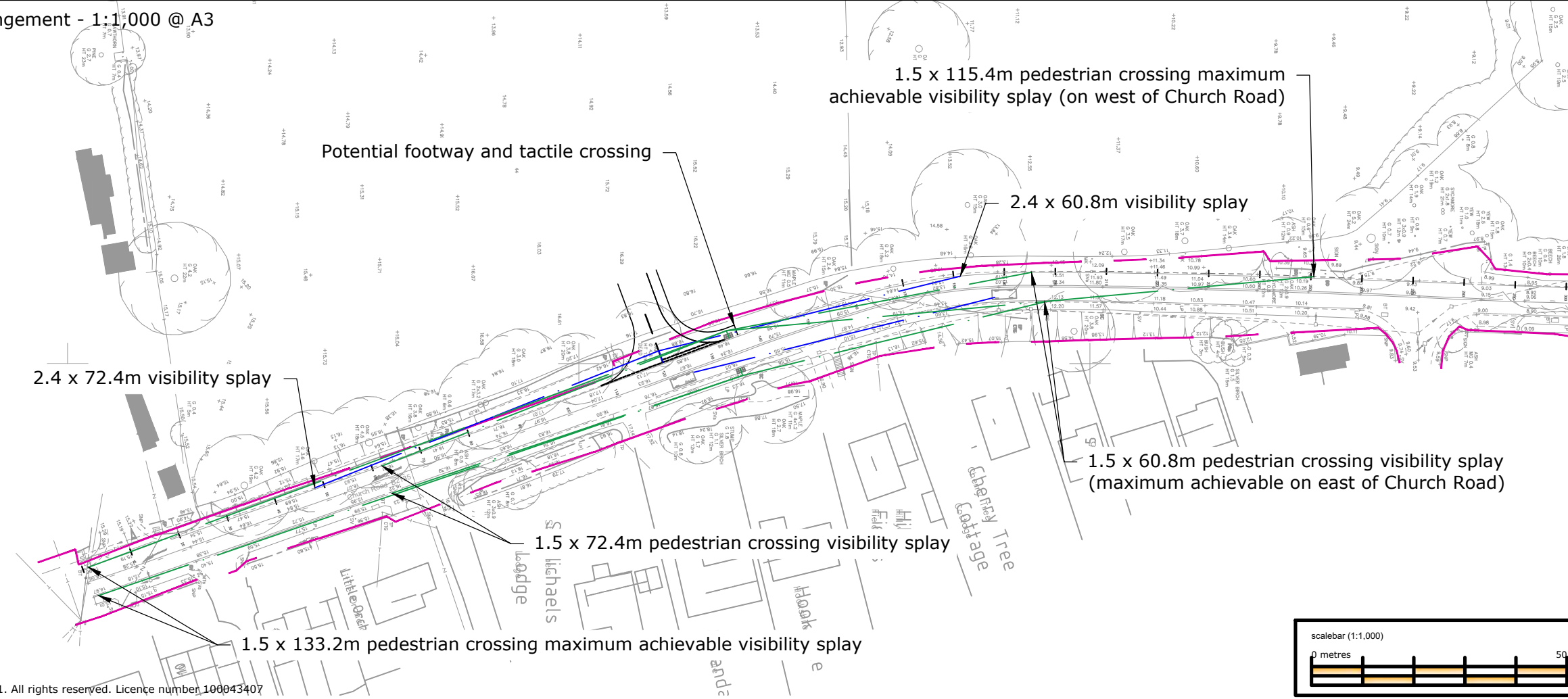
Site Access Long Section - 1:1,000 @ A3



Tactile Crossing Long Section - 1:1,000 @ A3



Access Arrangement - 1:1,000 @ A3



Rev:	Description:	Date:	Rev By:	Chk'd:
A	Updated Visibility Splays	03/07/24	MF	LF
B	Forward Vis Added	31/07/24	DR	MF
C	Added Footway and Tactile Paving	23/09/24	DR	MF
D	Added Pedestrian Visibility	03/10/24	DR	MF

Key:

Highway Boundary	
Vehicular Visibility Splay	
Pedestrian Visibility Splay	

Notes:



Project:	Church Road, Partridge Green
Title:	Proposed Access with Visibility Splays
Client:	Reside Developments Ltd
Drawing Status:	
Scale:	1:1,000 (@ A3)
Date:	13/03/24
Drawn:	MF
Checked:	LF
Approved:	LF
Drawing:	2401036-02
Revision:	D

Appendix 2A: Visibility Calculation (at or below 60kph)

Appendix 2A: Visibility Calculations (MFS 60kph and under)

Application ref. 23/2279 Land north of the Rosary, Partridge Green

Stopping Sight Distance (SSD) Calculations using Manual for Streets 2 Parameters

$$SSD = vt + \frac{v^2}{2(d + 0.1a)} \quad \text{source: Para. 10.1.5 of MfS2}$$

where v = speed (m/s)
 t = driver perception-reaction time (seconds)
 d = deceleration (m/s²)
 a = longitudinal gradient (%)

values*	60kph and below	above 60kph		
t (s)	1.5	2.0		
d **	0.45	0.375 absolute minimum SSD (g) 0.25 desirable minimum SSD (g)	RED	under 60kph
d (m/s ²)	4.41	3.67875 absolute minimum SSD (m/S ²) 2.4525 desirable minimum SSD (m/S ²)	GREEN	over 60kph

* see Table 10.1 of MfS2

** as proportion of gravitational acceleration, $g=9.81\text{m/s}^2$

Observed Speeds

	from right	from left
mph	43.1	40.6
kph	69.4	65.3

4 kph dry weather adjustment applied
as per Highway Authority requirement
(email dated 27 June 2024)

Calculation

Visibility to right

v (mph)	v (m/s)	t	d	a (%)	SSD (m)	with bonnet allowance
43.1	19.3	1.5	4.41	2	69.2	71.6

Visibility to left

v (mph)	v (m/s)	t	d	a (%)	SSD (m)	with bonnet allowance
40.6	18.1	1.5	4.41	6	60.0	62.4

Appendix 2B: Visibility Calculation (over 60kph)

Appendix 2B: Visibility Calculations (Mfs over 60kph)

Application ref. 23/2279 Land north of the Rosary, Partridge Green

Stopping Sight Distance (SSD) Calculations using Manual for Streets 2 Parameters

$$SSD = vt + \frac{v^2}{2(d + 0.1a)} \quad \text{source: Para. 10.1.5 of MfS2}$$

where v = speed (m/s)
 t = driver perception-reaction time (seconds)
 d = deceleration (m/s²)
 a = longitudinal gradient (%)

values*	60kph and below	above 60kph		
t (s)	1.5	2.0		RED 60kph and under
d **	0.45	0.375 absolute minimum SSD (g)		GREEN over 60kph
		0.25 desirable minimum SSD (g)		
d (m/s ²)	4.41	3.679 absolute minimum SSD (m/s ²)		
		2.453 desirable minimum SSD (m/s ²)		

* see Table 10.1 of MfS2

** as proportion of gravitational acceleration, $g=9.81\text{m/s}^2$

Observed Speeds

	from right	from left
mph	43.1	40.6
kph	69.4	65.3

4 kph dry weather adjustment applied as per Highway Authority requirement (email dated 27 June 2024)

Calculation

Visibility to right

	v (mph)	v (m/s)	t	d	a (%)	SSD (m)	with bonnet allowance
desirable minimum	43.1	19.3	2.0	2.45	2	108.6	111.0
absolute minimum	43.1	19.3	2.0	3.68	2	86.5	88.9

Visibility to left

	v (mph)	v (m/s)	t	d	a (%)	SSD (m)	with bonnet allowance
desirable minimum	40.6	18.1	2.0	2.45	6	90.2	92.6
absolute minimum	40.6	18.1	2.0	3.68	6	74.7	77.1