MIAG and McI PC written submissions from oral presentation;

Issue Specific Hearings;

28th February, 2023 (am);

Traffic; Junction 24;

Representations made by Andrew Harding;

Traffic; Issue Specific - Junction 24;

The ExA attention was drawn to the repeated failings of NH to consult, and the confirmation bias of the statistics and traffic flows used by NH. These criticisms are seen in all expert reports and analysis from IP's and the only resistance to the truth of these failings continues to be NH.

That is criticism and dispute from; ECC, EH, CCC LIR, MIAG, Systra, TPA and individual IP's and representative groups.

MIAG and McI PC believe this DCO to be premature in application for grant. There is clear evidence that NH have failed the Gunning principles of proper consultation, are exhibiting a determined false narrative and have succumbed to 'poor input poor outcome' (qv Mr Humphries KC, ECC).

MIAG and McI PC are deeply concerned that NH are using deadline dates as 'targets' and are not responding by any given deadline date set by the ExA but are instead choosing to respond 'at' that date. This means increasingly little time is being made available to reach any possible agreement on matters.

This is the case with the SOCG and the MIAG report from Transport Planning Associates. MIAG and McI PC responded very rapidly to NH, in fact, well before any deadlines.

NH have not responded except to say 'they will'.

With regard to the SOCG, there has been no communication except to offer to 'meet' between lawyers. Based on WMD offer of playing 'ping pong', MIAG and McI PC see NH, and its representatives, as simply soaking away time and expense without real effort to consult, negotiate or achieve even an outline agreement as requested by the ExA.

It is clear that **The Main Alternative** represents a solution to the multiple failings and continued myopia exhibited by NH.

At this point MIAG and McI PC referred to a new roundabout design, presented to them at 22.47 the previous evening (27.02.2023), and upon which NH were now intending to base their false plan.

It was apparent that although NH had released the plan to ECC some 48 hours earlier, the ExA and indeed the NH own legal team were completely unaware of this. ECC, by their own admission, are 'stretched' and 'officer time' is simply not available. It should be recorded that MIAG and McI PC expressed gratitude to ECC for getting this new plan to them, despite the late hour.

1. The plan incorporates many of the suggestions made by experts employed by MIAG and McI PC;

2. NH had made no comment that they had changed this plan nor extended any note of appreciation for the help of MIAG and McI PC experts;

3. Up to this sudden volte face NH continued to deny any errors in their plan;

4. Despite not having more than 6 hours to review this plan, MIAG and Mcl PC already note the incorrectly designed SLTL has been removed.

5. It is noted that the northern arm of the roundabout connecting to Inworth Road has an SSD that falls below 33m as a result of the existing wall surrounding Park Farm, which extends into the verge and would prevent visibility of the 'low object' of 0.26m height.

6. The roundabout does not conform to EDG in terms of both design and posted speeds in that no speed restraint measures have been proposed to be provided.

7. MIAG and McI PC attach hereto a full review of this 'new plan' as Appendix 1;

8. ECC comment extensively on the 'likelihood' of speeding (exceedances) and MIAG McI PC note this with considerable concern. Once again NH offer no answers nor solutions and acknowledge simply that in many instances there are no mitigations possible;

9. An expert from NH opined that a modest increase in speed limit restriction (a reduction) would aid the solution. In fact, this modest distance is barely 30m. This *suggestio falsi* of distance and problem resolution is, in our view, yet another attempt to hide the failings of design by NH. NH make the assumption that the posted speed limit will be the 'design speed'. In fact, the design speed for a rural highway should be determined from its Alignment and Layout constraints.

At this point MIAG and McI PC noted for the ExA that everyone in the ISH had been paid for by tax payers. The campaign groups had effectively paid twice, as their experts and professional representatives were now being paid for again by those same tax payers.

On the basis that our recommendations in regard to this roundabout design were repeatedly ignored or marginalised by NH, only for them to accept some of our revisions, we respectfully ask the ExA to consider the equanimity of such a situation.

MIAG and McI PC also noted that both ECC and NH were refusing to take responsibility for the inevitable consequences of the Hinds Bridge crossing. It is perfectly clear that this narrow bridge will become a major hazard to road safety and traffic flow. Both NH and ECC are pointing at each other and neither will respond to questions and concerns.

In the EH report, much is made of the negative assessment of all four 'DS' options. Vitally, if the traffic were to be assessed using more appropriate tools (EAST), then **The Main Alternative** would be much better positioned to satisfy these criteria for adoption. This is turn would solve multiple issues that confront NH, seemingly without their ability to resolve them.

Appendix 1;

MIAG – Comments on re-designed Inworth Road Roundabout 01-03-2023

MIAG received this design update at 22:47 on 27th February 2023 from Essex County Council and as of 28th February 2023 this re-design had not been issued to the Planning Inspectorate.

This re-design removes the largely redundant Segregated Left Turn Lane, which did not comply with Design Manual for Roads and Bridges standards in any case. There is also a variation in the geometry of the Inworth Road north approach arm. The centreline horizontal radius of 67.5 m has been increased to 75.0 m compared to the design submitted in the DCO application.

Visibility

National Highways (NH) have stated that Inworth Road Roundabout arms (with the exception of the new link to Junction 24) have been designed to Manual for Street standards, with regard to horizontal radii and stopping sight distance (SSD). The reason given for this is in order to give road users the impression that they are entering a village environment and will therefore drive more cautiously. MIAG are of the view that Manual for Streets (MfS) standards are not appropriate for roundabout approach roads in this rural location where there are open fields, with no built frontage that would give road users the impression of being in a village. Essex Highways are also of the view that the Design Manual for Roads and Bridges (DMRB) is the appropriate standard to be used for the roundabout approach road designs in this case.

It is expected that Essex Highways will adopt this roundabout (with the exception of the link road to Junction 24) and therefore the correct design standards to be used should be those of The Essex Design Guide. The Essex Design Guide makes reference to other design standards, including MfS and DMRB. There are however some supplemental requirements in The Essex Design Guide which modify the requirements of the other documents referenced. One of these requirements relates to the use of the Table 7.1 “Derived SSDs for Streets” from MfS. Due to the very short lengths of SSD given by Table 7.1, The Essex Design Guide states that for any layout promoting these values they should be accompanied by appropriate speed restraint measures. No such speed restraint measures appear to have been proposed in the NH design for Inworth Road Roundabout.

MIAG are concerned about the low values of SSD on the approach to and exit from the roundabout. The arm connecting to Inworth Road north of the roundabout is of particular concern and MIAG do not feel confident that even the value of 43m SSD has been achieved for this arm. In fact, the proposed back of verge and earthworks appear to encroach into the Park Farm boundary. SSD checks carried out by NH only continue to as far as the tie in of the new works with the existing Inworth Road. This does not show the full effect of the new works on SSD. If SSD checks are continued further along Inworth Road a 43m SSD line would be obscured by the existing brick wall on the boundary of Park Farm (Figure 1.). Over this length visibility values, at 5m intervals were measured, the results were as follows: 40.5m, 37.2m, 34.2m, 32.3m, 33.2m (Figure 2.). This would indicate a length of about 30m of the alignment where the claimed 43m SSD is not achieved. What makes this more worrying is that there is an entrance to Park Farm immediately following this reduction in available visibility. This would make access and egress extremely hazardous for residents of Park Farm when vehicles approaching after leaving the roundabout will have very little forward visibility.

Exit visibility for Kelvedon Road, the eastern arm of the roundabout, does not seem to have been considered. In this case values of SSD would fall to as low as 26 m, with the 43 m long visibility line crossing the DCO boundary into the adjacent property (Figure 3.).

Oddly for approach roads that are supposedly designed to MfS standards with regard to visibility, NH have shown what at first sight appear to be DMRB standard forward visibility lines on the approach to the give way lines (Figure 4.). Forward visibility lines of approximately 70 m length (suitable for a 50 kph design speed) have been shown for the Inworth Road arms to the north and south of the roundabout and for the Kelvedon Road approach. This degree of visibility would not be compliant with DMRB standards however since this length of forward visibility would not be available from 1.5 x SSD distance in advance of the give way lines for these arms, as required by CD 109 paragraph 2.13

(6) (DMRB). The reason for showing this information is therefore unclear since it does not appear to relate to any particular standard.

Below are copies of tables of Stopping Sight Distances from Manual for Streets 1 and The Essex Design Guide which demonstrate the additional requirement (paragraph 6.125) of The Essex Design Guide.

Extract from Manual for Streets 1:

Table 7.1 Derived SSDs for streets (figures rounded).

Speed	Kilometres per hour	16	20	24	25	30	32	40	45	48	50	60
	Miles per hour	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. See 7.6.4		11	14	17	18	23	25	33	39	43	45	59
		Additional features will be needed to achieve low speeds										

Extract from The Essex Design Guide:

6.125 The table below is reproduced from Manual for Streets (2007). It shows stopping site distances at speeds up to 37mph and is included here as a guide to visibility recommendations in new layouts. Appropriate speed-restraint measures must accompany any layout promoting the use of these values. Streets with speeds above 37mph should be designed to DMRB criteria.

6.126 Derived stopping sight distances (SSD) for streets:

Kilometres per hour	16	20	24	25	30	32	40	45	48	50	60
Miles per hour	10	12	15	16	19	20	25	28	30	31	37
SDD (metres)	11	14	17	18	23	25	33	39	43	45	59

6.127 The minimum forward visibility required is equal to minimum SSD, based on the design speed at the location being considered. It is checked by measuring between points on a curve along the centreline of the inner traffic lane.

Figure 1; demonstrates that a 43m long Stopping Sight Distance (SSD) cannot be accommodated within the DCO boundary.

Figure 2; SSD achieved without crossing the DCO boundary at Park Farm. (Note also the position of the property access).

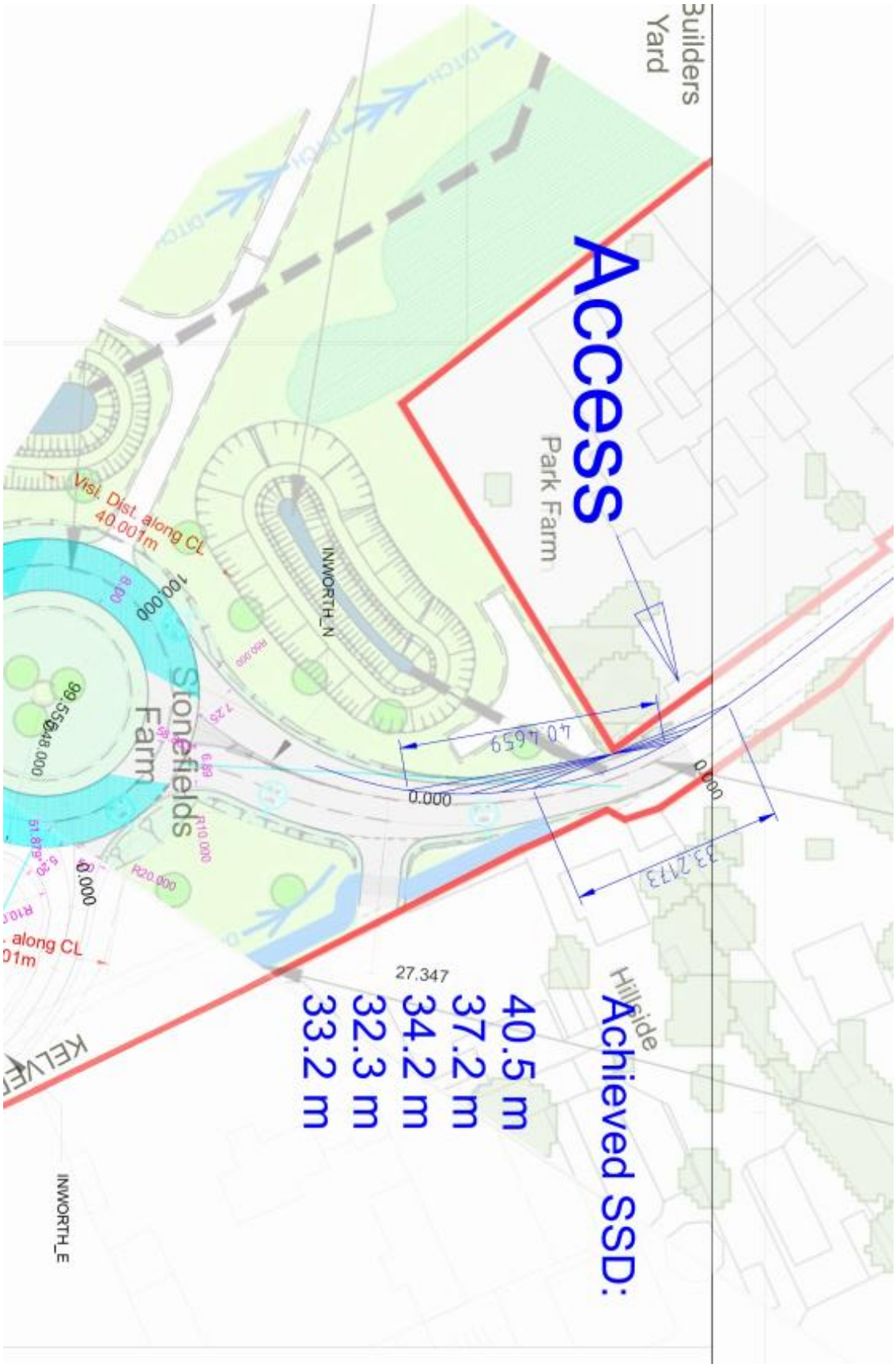
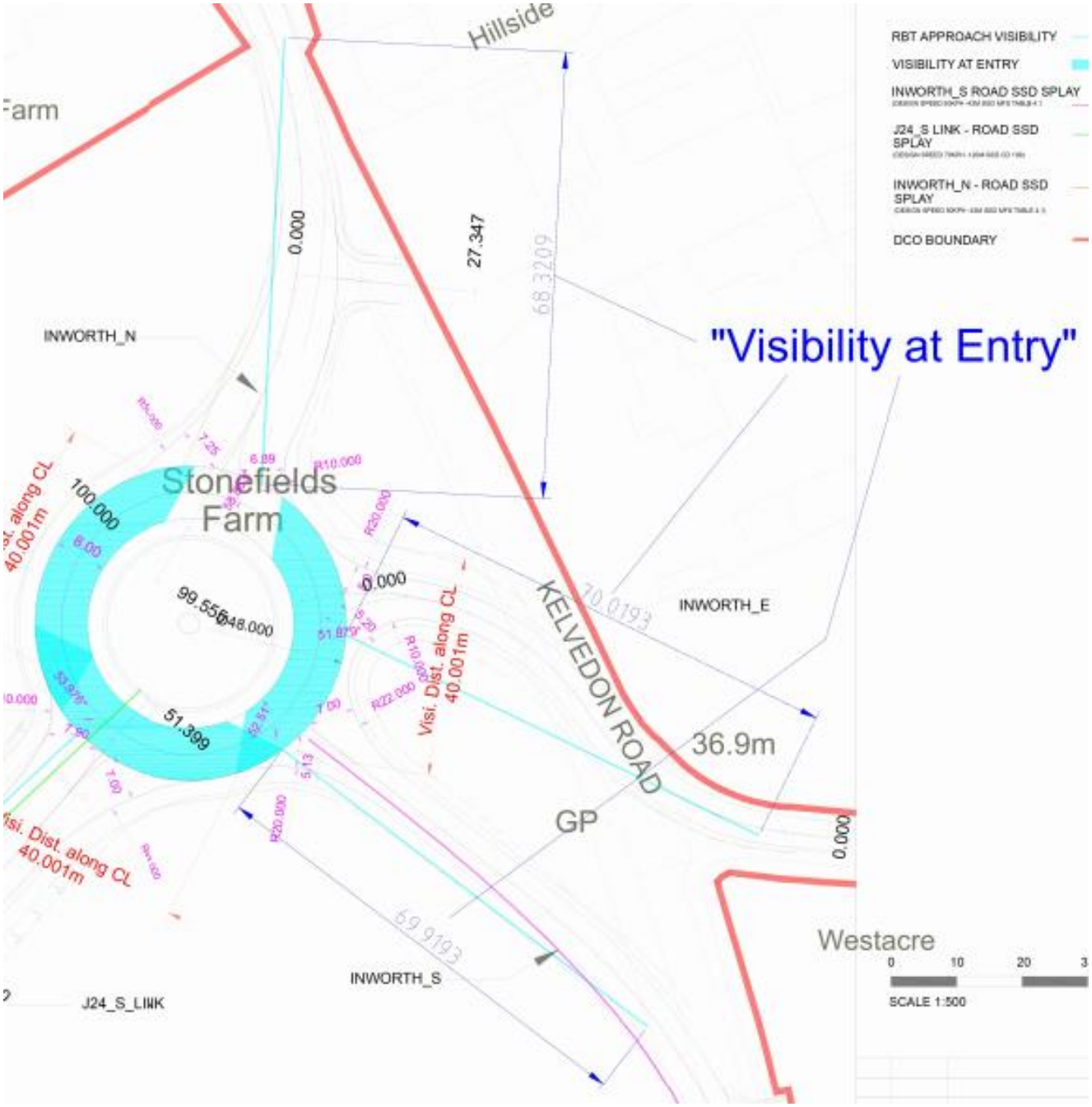


Figure 3; Exit visibility from roundabout into Kelvedon Road arm

Figure 4; Showing “Visibility at Entry” of approximately 70 m for Inworth Road north and south approaches and Kelvedon Road approach. These do not conform to DMRB standards.



Super-elevation

The application of super-elevation does not appear to have been considered for any of the arms of Inworth Road Roundabout. For the arms that use low values of horizontal radius the values of super-elevation would need to be the maximum advised value of 7% for a rural road (or 5% for an urban street). Radii of 75 m for Inworth Road north arm, 90 m for Inworth Road south arm have been used. DMRB standards would require the maximum value of 7% super-elevation to be applied to radii of 75 m and 90 m for a rural road. Application or changes in super-elevation would normally be provided over the length of transition curves connecting straight or circular curved elements of a horizontal alignment. In this design no transition curves have been provided, therefore the advice of DMRB is to apply between half and two thirds of the super-elevation on the approach straight and the remainder on the circular arc.

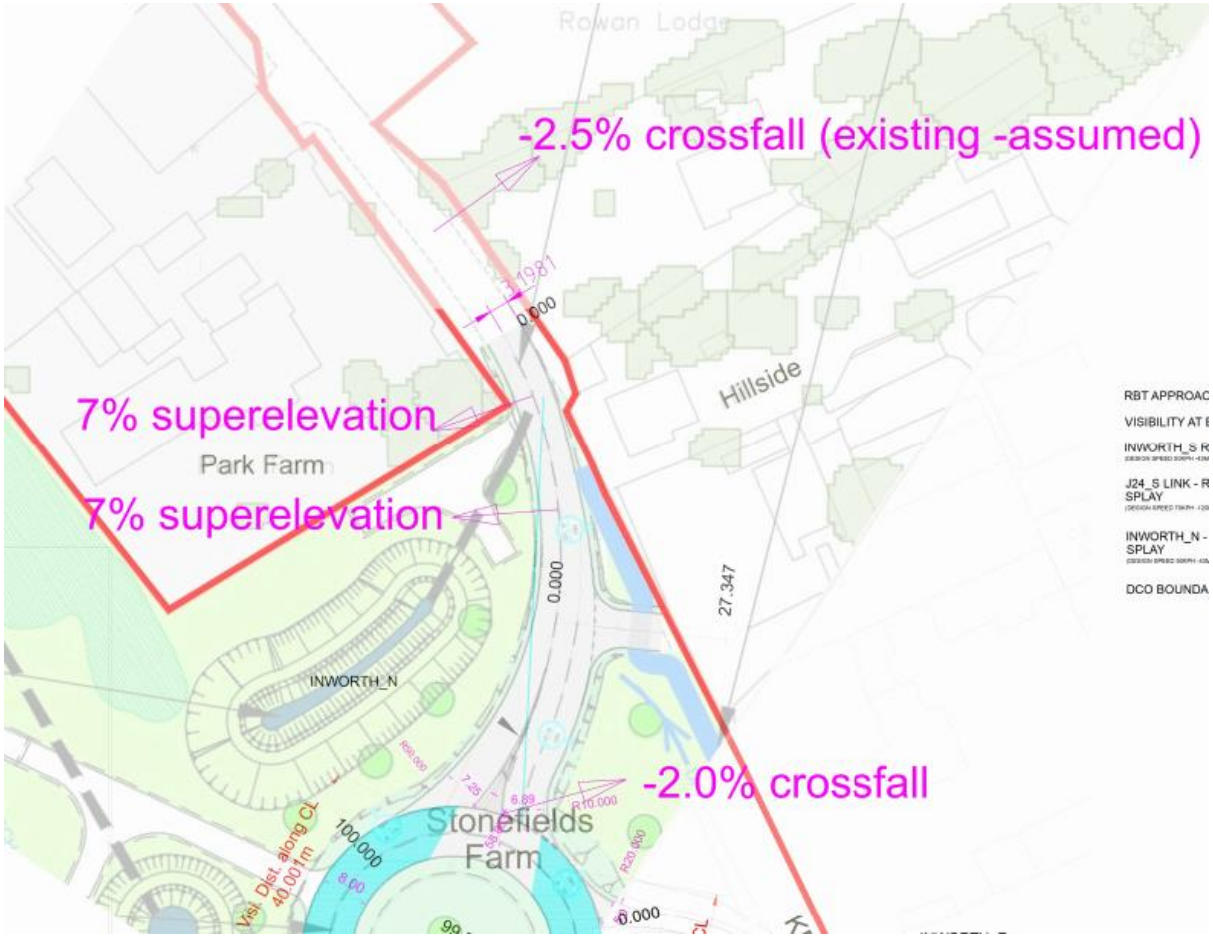
No approach straight has been provided for Inworth Road north arm at the tie in to the existing road. The minimum length of application of super-elevation was calculated to be 30.4 m, this being the shortest length of application and assumes a linear change in gradient of the outer channel and the road centre line of a constant 1% (a reverse curve profile could be used but would double the length of application to 60.8 m). Ideally an approach straight of about 20m length would need to be added to the alignment so that two thirds of the super-elevation can be applied before the beginning of the circular arc. Figure 5, below, shows the extents of the 7% super-elevation that can be applied on the approach to the roundabout.

At the roundabout end of the alignment +7% super-elevation would need to be reduced to -2% before the roundabout give way line. As the carriageway is wider at this end of the alignment the length of application of super-elevation will increase. The length to apply a change from +7% super-elevation to –2% cross fall at the give way line was calculated to be 47 m. This change in superelevation would occur mostly where the centreline horizontal radius is 75m and would leave less than 20 m length of this curve with the required 7% super-elevation. This is always a problem when approach arms to a roundabout are not designed with straight or near straight horizontal alignments.

Kelvedon Road would also present problems with application of super-elevation, since its horizontal alignment comprises of back-to-back curves of opposite hand with no transition curves between them. In this case reduced values of super-elevation could most likely be justified, as vehicle speeds would be slower than along Inworth Road and with lower traffic volumes.

Inworth Road south would have sufficient length of straight either side of the 90 m radius to apply and remove the appropriate 7% super-elevation.

Figure 5. Extent of 7% super-elevation that could be applied on the approach to Inworth Road Roundabout from Inworth Road north. (But requires an extension of 20m to the alignment).



Widening for swept paths

Widening for the swept path of heavy goods vehicles has not been provided for the Kelvedon Road arm of the roundabout. By providing widening the geometry of the entry kerb radius for Kelvedon Road and the exit kerb radius for Inworth Road south would need to be amended (Figure 6.). Currently the channel line from Kelvedon Road to Inworth Road is not tangential with the roundabout Inscribed Circle Diameter (ICD). Retaining the same values for entry and exit kerb radii would push the channel line even further away from the roundabout ICD if Kelvedon Road was widened to cater for HGV swept paths. Either smaller values of entry and exit kerb radii would have to be used, although this would not be ideal since the entry kerb radius is currently at the minimum required value, or Inworth Road south arm would need to be realigned.

Figure 6; The yellow circled area would need to be reviewed if widening for heavy goods vehicles swept paths was applied to Kelvedon Road. Reducing the Kelvedon Road entry kerb radius and the Inworth Road south exit kerb radius would not be a satisfactory solution. It is more probable that Inworth Road south would need to be re-aligned.