

Technical Note

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Project Title	Rother Valley Railway A21 Level Crossing	Job number	239025-00
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Subject	239025-ARP-XX-XX-TN-CH-0001 - CD109 A21 Overtaking Assessment [Rev A]		

This technical note covers an assessment of the existing and proposed overtaking provision in both directions on the A21 in the vicinity of the proposed RVR level crossing location. The assessment has been carried out in accordance with CD 109 Section 9.

The assessment has been undertaken assuming that the full overtaking sight distance (FOSD) requirements for the existing corridor would be 580m. This distance corresponds to a 100A design speed due to the posted speed limit for the route to the south of the level crossing being 60mph (National Speed Limit).

A21 Southbound

Table 1 - Existing Southbound Overtaking Assessment

Start Chainage	End Chainage	Distance (m)	Feature	FOSD Achieved?
0	50	50	Obstruction (Robertsbridge Roundabout)	-
50	280	230	Overtaking Section A	No
280	425	145	FOSD/4	-
425	680	255	Obstruction (Redlands Lane Junction)	-
680	866	186	Overtaking Section B	Yes
866	1011	145	FOSD/4	-
1011	1349	338	Obstruction (George Hill Junction)	-
1349	1654	305	LH Curve	-
1654	2164	510	Overtaking Section C	Yes
		2164	Total Route Length (m)	
		926	Total Existing Overtaking Length (m)	
		42.79%	Existing Overtaking Value	

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This assessment defines the datum point (Ch0) as the ICD on Robertsbridge Roundabout and the distances specified in Table 1 are ascending southbound from this point. The total length assessed has been to the end of the feature closest to the 2km distance outlined in CD 109.

The overtaking value is the length of overtaking sections expressed as a percentage of the route. The assessment highlights that the existing A21 southbound overtaking provision for the 2.1km route to the south of the Robertsbridge Roundabout is 42% and this value is greater than the required minimum 30% value defined by CD 109 9.2. The existing provision can therefore be deemed compliant.

However, the overtaking section immediately to the south of Robertsbridge Roundabout (Overtaking Section A) does not comply with the requirements of CD 109 9.8 in respect of FOSD. The 380m FOSD provided by the existing alignment (and road marking provision) is less than the 580m minimum requirement for a 100A design speed road (CD 109 Table 2.10).

The proposed installation of the level crossing as a feature within the highway corridor would necessitate the removal of Overtaking Section A due to the level crossing creating an obstruction within the existing overtaking section. The removal would be through the revision of road markings to redefine the overtaking opportunities in this section of the A21. The resultant length of overtaking section and consequently the proposed Overtaking Value is calculated in Table 2 below.

Table 2 - Proposed Southbound Overtaking Provision

Distance (m)	Feature
2164	Total Route Length (m)
696	Total Proposed Overtaking Length (m)
32.16%	Proposed Overtaking Value

The Proposed Overtaking Value following the proposed works is 32.16%. This value is greater than the required minimum 30% value defined by CD 109 9.2. The proposed southbound overtaking provision can therefore be deemed compliant.

A21 Northbound

This assessment defines the datum point (Ch0) as the ICD on Robertsbridge Roundabout and the distances specified in Table 1 are ascending southbound from this point. The total length assessed has been to the end of the feature closest to the 2km distance outlined in CD 109.

The existing overtaking section to the south of Redlands Lane junction (Overtaking Section D) has been assumed as an existing overtaking length due to the presence of deflection arrow markings to TSRGD diagram 1014. It has not been included in the calculation of the Total Existing Overtaking Length however as it does not have the required FOSD provision.

The section of existing carriageway between Redlands Lane junction and Robertsbridge Roundabout includes a left-hand curve (R=730m) and a short section of straight prior to the FOSD/4 distance back from the roundabout defined in CD 109 9.21. This section is not appropriate for overtaking in the northbound direction in its existing form. The proposed installation of the level crossing requires that the road markings in this location be revised to prohibit overtaking on the approach to the level crossing.

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Table 3 - Existing Northbound Overtaking Assessment

Start Chainage	End Chainage	Distance (m)	Feature	FOSD Achieved?
0	145	145	FOSD/4	
145	373	228	LH Curve	
373	628	255	Obstruction (Redlands Lane Junction)	
628	773	145	FOSD/4	
773	957	184	Overtaking Section D	No
957	1295	338	Obstruction (George Hill Junction)	
1295	1440	145	FOSD/4	
1440	2478	1038	Overtaking Section E	Yes
2478	2591	113	Overtaking Section F	No
		2591	Total Route Length (m)	
		1038	Total Existing Overtaking Length (m)	
		40.06%	Existing Overtaking Value	

Whilst the combined overtaking length to the south of George Hill junction (comprising both Overtaking Sections E and F) is 1151m, the 580m FOSD requirement is only maintained for a distance of 1038m (Overtaking Section E) and this is the value that has been used to calculate the Total Existing Overtaking Length.

The Proposed Overtaking Value following the proposed works remains unchanged (40.06%). This is greater than the required minimum 30% value defined by CD 109 9.2. The proposed northbound overtaking provision can therefore be deemed compliant.

Conclusion

The installation of the level crossing requires the removal of the existing southbound overtaking section (Overtaking Section A) located immediately to the south of Robertsbridge Roundabout. The resultant southbound Overtaking Value is 32.16% for the 2.16km length assessed in this document.

The northbound overtaking provision remains unchanged following the revisions to the road markings at the proposed level crossing location to formally prohibit inappropriate overtaking manoeuvres in the northbound direction.

The proposed scheme complies with the requirements of CD 109 in respect of overtaking provision.