



IMPORTANT NOTICE
The Road Restraint design is the responsibility of the Designer; the RRRAP tool is an integral part of the design process which assists the Designer in determining at each specific site the need for VRS and its performance requirements.
Users of this program take full responsibility for verifying the data entered into this program and only using

Record Information

Record Name:	A483 Rhosrobin, Wrexham No Noise Barrier
Project Name:	Castle Green Residential Site, New Road, Rhosrobin
Record Description:	RRRAP assessment of existing scenarios without barrier/fence adjacent to residential site and abutting A483
Record Status:	Live
Record Last Updated:	16-Sep-2024 11:25:20
RRRAP Version Number:	3.3
RRRAP Issue Date:	15-Sep-2009

Common Details

Basic Details

Project Id or Pin	-
Highway Authority	Welsh Government
Designer Reference	3648
Contract Type	other
Contract Sub Type	N/A
Region	Clwyd
Country	Wales

Reason for Design

New Section of Road	No
Widening existing carriageway	No
Upgrade/improvement to existing carriageway	No
Downgrade existing carriageway	No
Replacement of existing restraint	No
New restraint on existing road	No
Temporary Works	No
Road furniture/ equipment improvement	Yes
Assess existing parapet	No
Other	

Section Details

Road Classification	All Purpose Road		
Road Number	A383		
Road Name	-		
Road Sub Type	D2AP		
Road Location	Mix		
To Current Geometric Standards	Yes		
From Junction Name			To Junction Name
From Junction No			To Junction No
From Marker Post			To Marker Post
From Section Label			To Section Label
From Chainage of section(m)	0.0	To Chainage of section(m)	327.7
Section/Direction being assessed	northbound		
Nearside or Offside Verge being assessed?	N/S Verge		
Does road have full-width (i.e. to standard) near side hardshoulder or hardstrip?	Hard strip >= 0.6m		
Are Environmental considerations likely to influence provision?	No		

Traffic Info

Permanent Speed Limit (mph)	50
Temporary Mandatory Speed Limit (HSR)	N/A
AADT (2-way unless motorway link or slip)	45000
Large Vehicles (%)	8.5
Medium Vehicles (%)	15.4
Model accident frequency (Nearside)	0.198
Model accident frequency (Offside)	

Scheme Duration and Barrier Costs

Start Year	2024
Use Default VRS Lifetime (20 years)?	Yes
Use the default Discount (i.e. inflation) Rate of 7.0% over the VRS lifetime?	Yes
Use default safety barrier and parapet costs?	Yes

600 Earthworks

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0001	Rising at 50%		0.0	2.0	10.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
5.0	50.0	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Long grass / scrub		Beyond width of slope		155.0	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	
Comment						

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0002	Rising at 3.3%		155.0	6.4	9.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
0.3	3.3	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		Beyond width of slope		20.0	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	
Comment						

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0003	Nominally at Grade		175.0	5.0	8.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
0.0	0.0	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		Beyond width of slope		5.0	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	
Comment						

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0004	Falling at 20%		180.0	7.3	2.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-0.4	-20.0	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Small bushes / trees		Beyond width of slope		60.0	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	

Comment

The earthworks slope between ch 175m and 327.7m falls away from the A483 and towards the newly installed noise barrier.

At the bottom of the earthworks the verge is heavily tree lined with the noise barrier and development beyond. The earthworks slope will create a point of no return for vehicles, but in our view this risk is acceptable because a vehicle leaving the road would come into contact with trees before the noise fence or the development beyond the fence boundary. The trees have been included in the RRRAP and they do not require a VRS, nor does the noise fence.

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0005	Falling at 23.2%		240.0	7.3	9.5	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-2.2	-23.2	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Small bushes / trees		Beyond width of slope		60.0	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	

Comment

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ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0008	Falling at 34.6%		300.0	4.124	13.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-4.5	-34.6	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Small bushes / trees		Beyond width of slope		27.0	2.0	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	No	Acceptable		19	
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
N2	W2	0.8	0.6	0.0	None	

Comment

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ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0006	Falling at 36.8%		327.0	2.0	12.5	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-4.6	-36.8	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Small bushes / trees		Beyond width of slope		0.7	2.0	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.93	No	Acceptable		22	
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
N2	W2	0.8	0.6	0.0	None	

Comment

The earthworks slope between ch 175m and 327.7m falls away from the A483 and towards the newly installed noise barrier.

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ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0007	Falling at 36.8%		327.7	2.0	12.5	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-4.6	-36.8	Good alignment	Mean speed exceeds speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Small bushes / trees		Beyond width of slope		End Earthwork for Section.	2.0	

1100 Kerbs and Edge of Pavement Details

ID	Nature	Start Chainage
1100.0001	Channel lined	0.0
Comment		

ID	Nature	Start Chainage
1100.0002	Channel lined	327.7
Comment		

1200 Traffic Signs or Signals

ID	Nature	Start Chainage	Length	Width	Offset from PSb
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1200.0001	Sign on p.s. post(s)	98.0	0.2	3.3	1.6
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Cluster of hazards	Height / Depth	Mounting height	Designed for collision loading?	Width of sign face	Aggressiveness	Local Alignment
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Individual hazard	>3m	>1.5m mounting ht	No	3.5	0.25	Good alignment
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Speed	Sleep	Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable
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Mean speed exceeds speed limit	A	W	1.0	0.93	Yes
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Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
							0.0	None

Is calculated risk level accepted for hazard that could give rise to a significant secondary

No

Comment

Hazard Issue(s) [1200.0001]

This hazard could give rise to a secondary incident should it be impacted. The calculated risk level does not cover the secondary risk. If you consider the risk level of a secondary incident to be significant, you may wish to consider moving the hazard, or use a higher level of containment, or both.

Trees

ID	Nature	Start Chainage	Length	Width	Offset from PSb
8700.0001	Tree >= 250 mm girth expected in lifetime	0.0	327.7	0.5	6.0

Cluster of Hazards	Aggressiveness	Local Alignment	Speed	Sleep
Cluster of hazards	2.0	Good alignment	Mean speed exceeds speed limit	A

Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond
W	1.0	0.93	Yes			

Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
				0.0	None

Comment

Hardshoulder / hardstrip width & Verge width details

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
0.0	2.0	1.0	0.0	9.3	1.0	9.3
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
327.7	2.0	1.0	0.0	9.3	1.0	9.3
Comment						

VRS Summary Output

ID Number	Nature of Hazard	Start chainage of hazard	End chainage of hazard	Offset(s) from Psb	Minimum Length of Barrier in advance of object (m)	Minimum Length of Barrier beyond object (m)
0600.0006	Falling at 36.8%	327.0	327.7	2.0	22	
Barrier Containment	Barrier working width class	Parapet Containment	Barrier working width	Set-back of VRS from PSb	VRS Start / End Chainage	Relaxation / Departure required?
N2	W2		0.8	0.6		None

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ID Number	Nature of Hazard	Start chainage of hazard	End chainage of hazard	Offset(s) from Psb	Minimum Length of Barrier in advance of object (m)	Minimum Length of Barrier beyond object (m)
0600.0008	Falling at 34.6%	300.0	327.0	4.124	19	
Barrier Containment	Barrier working width class	Parapet Containment	Barrier working width	Set-back of VRS from PSb	VRS Start / End Chainage	Relaxation / Departure required?
N2	W2		0.8	0.6		None

Comments

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End