


<b>Document:</b> Form 220	Road Safety Audit Response Report	
<b>Issue:</b> 3		
<b>Related to:</b> 4GNE / 4GNW		
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**TERM CONTRACT FOR THE MANAGEMENT AND  
MAINTENANCE OF THE SCOTTISH TRUNK ROAD NETWORK  
NORTH WEST UNIT**

**A83 TARBET – CAMPBELTOWN TRUNK ROAD**

**STRONE POINT REALIGNMENT**

**ROAD SAFETY AUDIT RESPONSE REPORT**

**STAGE: 3**

**ROAD SAFETY AUDIT**

**SCHEME ID: 13/NW/0901/052**

**RSA REF NO: 165**


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**CLIENT:**

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Buchanan House  
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**PREPARED BY:**

BEAR Scotland Ltd.  
Inveralmond Industrial Estate  
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**AUTHORISATION SHEET**

**Project: A83 Strone Point**

**Report Title: Stage 3 Road Safety Audit – Designer’s Response**

**PREPARED BY:**

**Name:** [REDACTED]  
**Position:** Design Team Leader  
**Signed:** [REDACTED]  
**Organisation:** BEAR Scotland Limited  
**Date:** 18.7.18

**APPROVED BY:**

**Name:** [REDACTED]  
**Position:** Project Sponsor  
**Signed:**  
**Organisation:** BEAR Scotland Limited  
**Date:**

## Road Safety Audit Response Report



**Route Number: A83**  
**Scheme Name: Strone Point Realignment**  
**Scheme ID: 13/NW/0901/052**  
**Road Safety Audit: 165 Stage 3**

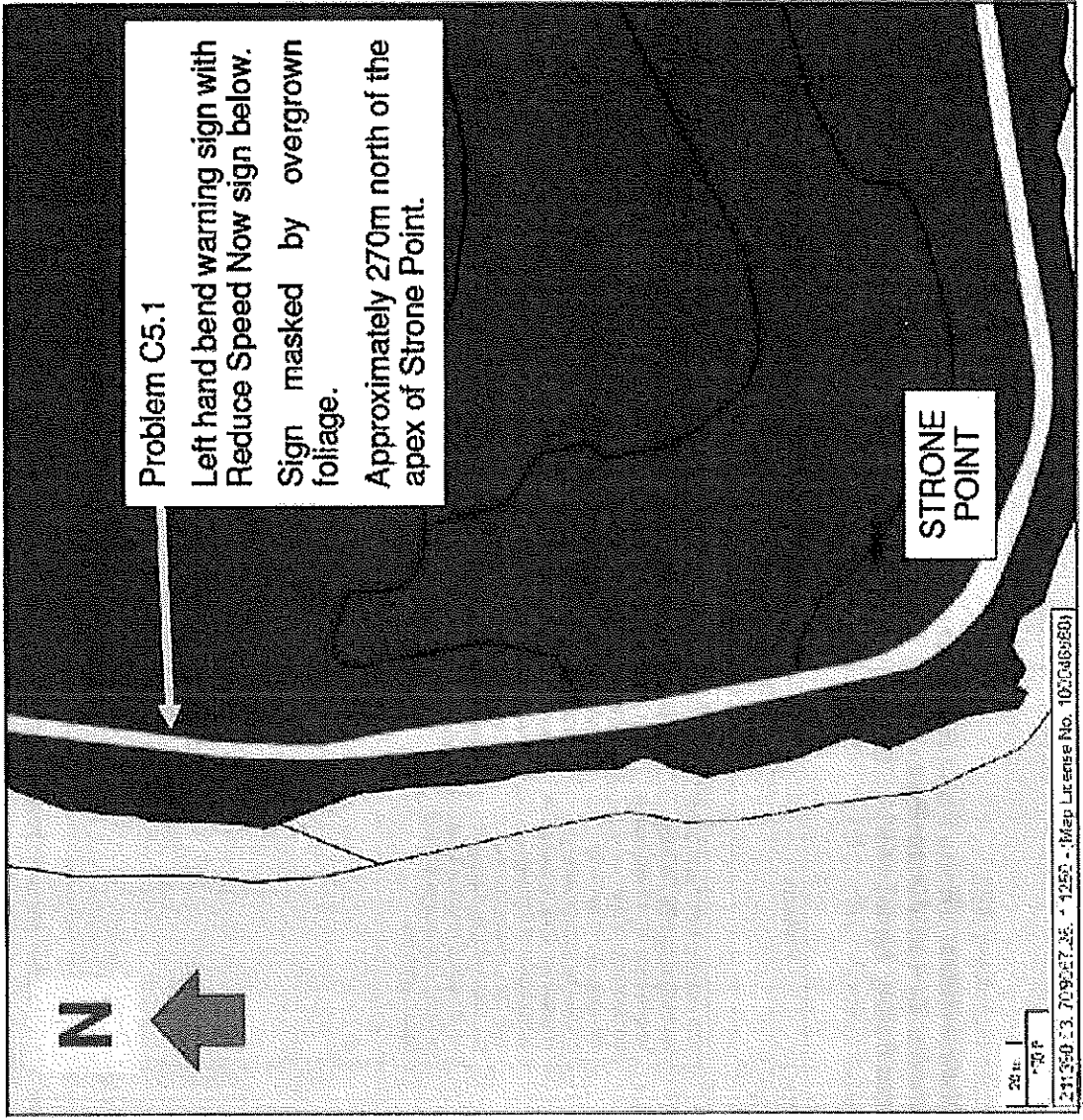
Item	Problem	RSA Recommendation	Accept Problem / Recommendations	Accept Problem but Suggest Alternative Recommendation giving Reasoning	Disagree with Problem and Recommendation and Give Reasoning for Rejecting Problem / Recommendations
C5.1	<p>The existing Left-hand bend warning sign with Reduce Speed Now sign fixed below, on nearside of the carriageway is partially hidden by overgrown vegetation. This reduces the conspicuity of the sign making it easily missed on the approach to the bend which could result in later braking and loss of control type accidents.</p>	<p>Trim back the existing foliage and branches to provide a clear visibility of the signs for a minimum distance of 90m as detailed in the Traffic Signs Manual Chapter 4 Appendix A. The cutting back should be sufficient that future growth does not infringe on the sign visibility envelope.</p>	<p>Problem and recommendations accepted.</p> <p>The area of overgrown vegetation noted was outwith the Contract site boundary and therefore could not be addressed within the traffic management set up in place.</p> <p>Vegetation clearance will therefore be undertaken as part of BEAR Scotland's routine landscaping maintenance.</p> <p>It should be noted that an additional bend warning sign is located on the opposite verge as well as the presence of a Bend Ahead vehicle activated sign. The presence of these signs reduces the overall risk to road users and acts as mitigation until routine maintenance occurs through this section.</p>		


Note: In the situation where the Project Sponsor does not agree a response with the Design Team Leader the difference of opinion should be identified in the final Road Safety Audit Response Report with the final decision on how the scheme progresses remaining with the Project Sponsor

### Road Safety Audit Response Report



Problem Location Plan (extracted from RSA Report)



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**A83 TARBET – CAMPBELTOWN TRUNK ROAD**

**STRONE POINT REALIGNMENT**

**STAGE: 3**

**ROAD SAFETY AUDIT**

**SCHEME ID: 13/NW/0901/052**

**AUDIT REF NO: 165**


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**Client:**

Transport Scotland  
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Buchanan House  
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**Prepared By:**

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## Scheme Title: Strone Point Realignment

### Road Safety Audit Stage: 3

#### Contents Amendment Record


This report, reference 165, has been issued & amended as follows:

Issue	Revision	Description	Date	Signed
1	0	Report	18/7/2018	

#### Report Circulation Record


This report has been circulated, as follows:

Person	Organisation	No. of Copies	Issue / Revision	Date
Project Sponsor	Transport Scotland			
File	BEAR Scotland			
Road Safety Manager	BEAR Scotland			

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## 1 INTRODUCTION

1.1 This report results from a Stage 3 Road Safety Audit carried out in accordance with HD19/15 "Road Safety Audit" on the following scheme: 'A83 Strone Point Realignment' at the request of the Project Sponsor, [REDACTED] from Transport Scotland.

1.2 The Design Organisation is BEAR Scotland Ltd, North West Unit.

1.3 The audit comprised of site visits and an examination of the documents provided by the Project Sponsor and listed in Appendix A.

1.4 The Audit Team membership approved by the Project Sponsor for this audit was as follows:

Name [REDACTED] Organisation BEAR Scotland Ltd.  
(Audit Team Leader and author of The Road Safety Audit Report)

Name [REDACTED] Organisation BEAR Scotland Ltd.  
(Audit Team Member)

1.5 The audit took place at the offices of BEAR Scotland Ltd at the Perth Depot during 11<sup>th</sup> July 2018, and the site was visited later on, on the same date. The weather conditions were as detailed in Table 1 below.

Day	Date	Times	Light	Weather	Surface	Traffic
Wednesday	11/7/2018	4:00 pm	Daylight	Light rain	Wet	Light
Wednesday	11/7/2018	10:00 pm	Darkness	Fine	Dry	Light


**Table 1: Site Conditions at Time of Visit**

1.6 Attendees of the site visit who were site staff for the scheme but did not form part of the Audit Team are listed below:

Name [REDACTED] Organisation BEAR Scotland

Name [REDACTED] Organisation BEAR Scotland



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- 1.7 The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

### **Purpose of the Scheme**

- 1.8 The A83 at Strone Point is a two lane single carriageway which follows the shoreline of Loch Fyne. The existing alignment features a double apex bend and numerous crest curves which restricts forward visibility, and has been the site of numerous personal injury accidents, particularly involving motorcyclists.

The purpose of this scheme is to improve safety and reduce accidents by altering the horizontal and vertical alignment at Strone Point on the A83.


### **Departures from Standard**

- 1.9 The Audit Brief included a report prepared for BEAR Scotland by JACOBS detailing the Departures from Standard in relation to the scheme at this stage of the Road Safety Audit process. The list of departures includes the following;

Departure 1 – cross section, whole scheme  
 Departure 2 – vertical alignment and stopping sight distance (SSD), Chainage 12-118m  
 Departure 3 – Horizontal curvature & stopping sight distance, Chainage 55 – 278m  
 Departure 4 – vertical alignment and stopping distance, Chainage 188 – 239m  
 Departure 5 – Insufficient lateral distance between the traffic face of a safety barrier and edge of carriageway lane.

### **Exception Report**

- 1.10 If any Problem or Recommendation is not accepted by the Project Sponsor, a copy of the approved Exception Report signed by the Director is required to be issued to the Audit Team Leader.

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## 2 ITEMS RAISED IN PREVIOUS STAGE 1-2 ROAD SAFETY AUDIT REPORTS

- 2.1 The road safety aspects of the A83 Strone Point scheme were the subject of a previous Stage 1-2 Road Safety Audit Report – Audit Ref No: RSA115. Two issues were identified.

### **PROBLEM 3.1.1.**

**Location:** The inside of the bend.

**Summary:** The drawings indicate that there is to be barrier protection to the inside of the bend. From 'TRL Published Project Report PPR298, The travel of errant vehicles after leaving the carriageway' Paragraph 3.2 – "barrier design is aimed at stopping vehicles from passing through the barrier, and subsequently re-directing the vehicle along the barrier face". A barrier designed with an external radius to the carriageway will not 'pocket' the vehicle and reduce its speed in the same way as a straight or internal radius barrier. An external radius barrier will likely deflect a vehicle tangentially back into the carriageway with only a slight loss of speed (depending on the factors at the time of the incident). This could lead to secondary incidents involving vehicles traveling in the opposite direction, unable to stop in time due to the reduced forward stopping sight distance mentioned in the departures.


**Recommendation:** The design team should assess the risk and potential accident severity of an errant vehicle striking the un-protected rock face, against a vehicle striking a conventional type barrier and being deflected into the opposite lane, potentially causing a secondary accident.

### **DESIGN TEAM RESOPNSE**

*Disagree – Removal of the inside barrier would not remove the risk of vehicles being deflected into the oncoming traffic as this could still occur following an impact with the rock face. An impact with the rock face and any associated rock netting system is not considered to offer an improvement to safety compared to impacting a correctly installed safety barrier.*

*For sections of strengthened soil cut, the vehicle safety barrier is also required to protect the facing system and reduce the risk of damage to the facing by a vehicle impact which could jeopardise the stability of the cutting slope. Without the barrier in place there is a risk that, following a collision with the rock face and facing system, the vehicle could pull the facing system and rock onto the carriageway. The barrier will also protect traffic against minor rock falls. Traffic volumes are also quite low reducing the chance of vehicle travelling in the opposite direction at the same time as near side barrier collision.*

*Based on the above and in line with the RRRAP for this Scheme we consider a safety barrier is required on the inside of the curve at this location and therefore the presented design be implemented.*

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2.2 The Design Team Response to the issue raised as **PROBLEM 3.1.1** is accepted by the Audit Team Leader and no further action or comment is necessary in this Stage 3 Road Safety Audit.

2.3 **PROBLEM 3.2.1.**

**Location:** The inside of the bend.

**Summary:** The drawings indicate that there is a filter drain running along the inside bend radius with Type B filter material to S.H.W. Clause 505. HA39/98 'Edge of Pavement Details' paragraph 5.3 indicates that this material is not considered to be suitable at the top surface of the drain due to the possibility of 'stone scatter' should the drain be overrun by a vehicle.


Drawing No. 13/NW/0901/052/500/001 and 13/NW/0901/052/500/003

**Recommendation:** Provide a suitable top material to the filter drain in line with the advice given in HA83/99 'Safety aspects of road edge drainage features' and HA217/08 'Alternative filter media and surface stabilization techniques for combined surface and sub-surface drains'

**DESIGN TEAM RESOPNSE**

Agree – During the design the following options were considered to reduce the risk of stone scatter:


1. Use of tyre chippings as the top layer of filler material, as outlined in HA217/08. This option was discounted due to the increased maintenance requirements.
2. Use of geotextile overlaid with topsoil and grass seeded. This option was discounted as the grass layer would reduce the infiltration rate of the drain and present a risk to maintenance staff who would be required to undertake frequent grass cutting to ensure visibility was not obstructed by grass.
3. Use of larger 75mm stone, lightly compacted in-situ. This would potentially be more resistant to stone scatter, however it would still be possible and the presence of larger stones on the road would cause greater safety issues, especially to motorcyclists. As such, this option was discounted.
4. Use of resin to bond the top layer of type-B filter material. This was discounted due to the increased maintenance implications and potential for requiring additional consents from SEPA due to the presence of Loch Fyne SSSI.
5. The use of a geogrid within the top layer of filter material. This option has been incorporated into the design.

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*The risk of verge overrun is considered to be low, due to improved cross section and visibility, and the presence of the VRS within the inside verge, which will positively influence driver behavior in terms of verge overrun. In order to reduce the risk of stone scatter, a geocellular containment system has been incorporated into the filter drain this detail is shown on revised drawing 13/NW/0901/052/500/003.*

*The system considered for design purposes is "ABG ConcertinaWeb" a High-density Polyethylene geocellular containment system, which is designed to prevent the scattering of drainage filter material in the event of vehicle overrun. Through the contract documents for the works the contractor shall be able to select his own geocellular system; however this shall be subject to the Engineers approval.*

- 2.4 The Design Team Response to the issue raised as **PROBLEM 3.2.1** is accepted by the Audit Team Leader and no further action or comment is necessary in this Stage 3 Road Safety Audit.

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### 3.0 ITEMS RAISED AT THIS STAGE 3 ROAD SAFETY AUDIT

#### 3.1 C5 – Road Sign, Carriageway markings and Lighting

##### 3.2 PROBLEM C5.1

LOCATION: Eastbound at Link Section Chainage 16520/58 – 3652 (approximately 270m north from the apex of the bend at Strone Point.)

SUMMARY: The existing Left-hand bend warning sign with Reduce Speed Now sign fixed below, on the nearside of the carriageway is partially hidden by overgrown vegetation. This reduces the conspicuity of the sign making it easily missed on the approach to the bend which could result in late braking and loss of control type accidents.

RECOMMENDATION: Trim back the existing foliage and branches to provide a clear visibility of the signs for a minimum distance of 90m as detailed in The Traffic Signs Manual Chapter 4 Appendix A. The cutting back should be sufficient that future growth dose not infringe on the sign visibility envelope.

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#### 4.0 AUDIT TEAM STATEMENT

We certify that this audit has been carried out in accordance with HD 19/15 "Road Safety Audit".

##### AUDIT TEAM LEADER

Name: [REDACTED] Signed [REDACTED]

Position: Engineer Date 18<sup>th</sup> July 2018

Certificate of Competence Holder? ✓

Organisation: BEAR Scotland Ltd

Address: BEAR HOUSE  
Inveralmond Road, Perth, PH1 3TW

##### AUDIT TEAM MEMBER


Name: [REDACTED] Signed [REDACTED]

Position: Road Safety Manager Date 18<sup>th</sup> July 2018  
North West Unit

Certificate of Competence Holder? ✓

Organisation: BEAR Scotland Ltd

Address: BEAR HOUSE  
Inveralmond Road, Perth, PH1 3TW

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## APPENDICES


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## APPENDIX A: Documents Forming the Audit Brief

### Drawings

Drawing No.	Revision No.	Drawing Title
14/NW/0901/052/SK/003	0	Detailed design site location plan
13/NW/0901/052/110/001	0	Detailed design, Plan and profile sheet 1 of 2
13/NW/0901/052/110/002	0	Detailed design, Plan and profile sheet 2 of 2
13/NW/0901/052/120/002	0	Detailed design, Cross sections sheet 1 of 4
13/NW/0901/052/120/003	0	Detailed design, Cross sections sheet 2 of 4
13/NW/0901/052/120/004	0	Detailed design, Cross sections sheet 3 of 4
13/NW/0901/052/120/005	0	Detailed design, Cross sections sheet 4 of 4
13/NW/0901/052/300/001	0	Detailed design, Fencing layout
13/NW/0901/052/400/001	0	Detailed design, Road restraint system layout
13/NW/0901/052/500/001	0	Detailed design, Drainage layout
13/NW/0901/052/500/002	0	Typical drainage details sheet 1 of 2
13/NW/0901/052/500/003	0	Typical drainage details sheet 2 of 2
13/NW/0901/052/700/002	0	Detailed design, Pavement layout
13/NW/0901/052/1200/001	0	Traffic signs and road markings layout
13/NW/0901/052/2700/001	0	Detailed design, public utilities sheet 1 of 2
13/NW/0901/052/2700/002	0	Detailed design, public utilities sheet 2 of 2
13/NW/0901/052/120/002	04	Departures from standard




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### Documents

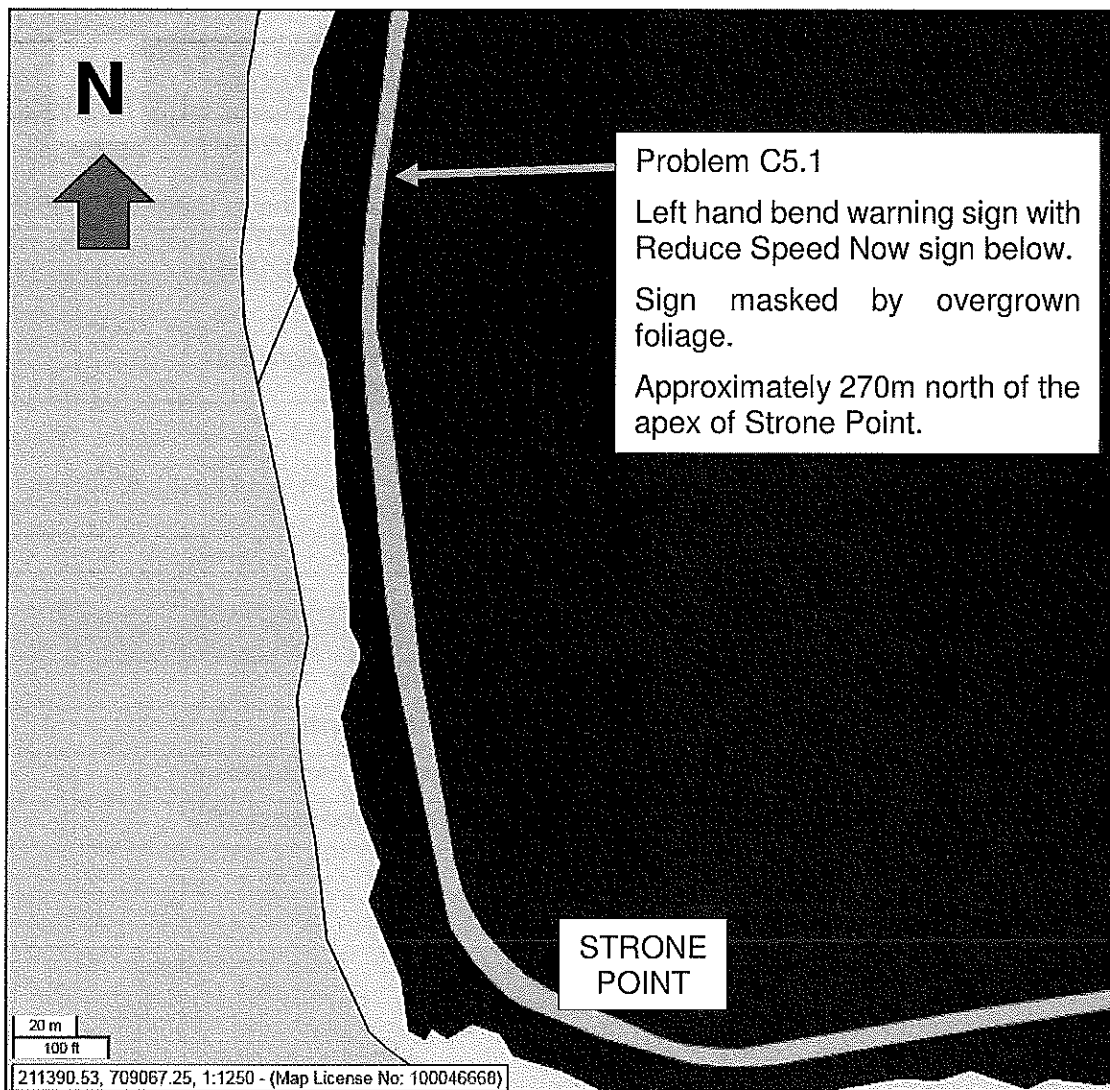
Report Reference	Revision No.	Report Title
Scheme Reference 13/NW/0901/052/002	0	Road Safety Combined Audit Stage 1 & 2 Brief Road Number: A83 Scheme name: A83 Strone Point Improvement Scheme Prepared by BEAR Scotland
Document Reference 13/NW/0901/052	0	A83 Strone Point Departures Report – April 2016 Prepared for BEAR Scotland by JACOBS
Document Reference 13/NW/0901/052	0	A83 Strone Point Improvement Scheme Stage 1 / 2 Road Safety Audit Designers Response 1/2/2017 Prepared for BEAR Scotland by JACOBS
Document Reference 13/NW/0901/052	1	A83 Strone Point Improvement Scheme Stage 1 / 2 Road Safety Audit Exception Report 1/2/2017 Prepared for BEAR Scotland by JACOBS
Scheme Reference 13/NW/0901/052/002	0	Road Safety Audit Stage 3 Brief Road Number: A83 Scheme name: Strone Point Realignment Prepared by BEAR Scotland


### Departures

Departure No.	Departure Title
DfS 001	Departure from Standard 001 – VRS provision
DfS 002	Departure from Standard 002 – Masonry parapet
DfS 003	Departure from Standard 003 – Carriageway cross section
DfS 004	Departure from Standard 004 – Full height anchors of VRS

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### APPENDIX B - Problem Location Plan and Photograph



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Photograph of PROBLEM C5.1  
REDUCE SPEED NOW sign obscured by overgrown foliage.





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 Emergency:  Currently On Web:

Operating Company Contract:  Location:

Identifier	Start Date	End Date	Location	Delay (Est)	Diversion	VMS Requested	OC C	Clarification Required	
								Completed	Cancelled
								<input type="button" value="+ Add New Roadwork"/> <input type="button" value="Complete Selected"/> <input type="button" value="Export"/>	
<a href="#">NW/2017/599</a>	21/08/2017	31/03/2020	A83 Rest and Be Thankful	2/1 - Slight Delay/At All Times	No	No	BEAF West		
<a href="#">NW/2017/829</a>	04/12/2017	31/07/2018	A83 Strone Point	4/3 - Serious Delay/Off Peak Hours	Yes	No	BEAF West		
<a href="#">NW/2018/3716</a>	19/07/2018	27/07/2018	A83 Bellochantuy	3/1 - Moderate Delay/At All Times	No	No	BEAF West		
<a href="#">NW/2018/4674</a>	24/07/2018	24/07/2018	A83 Inveraray	2/1 - Slight Delay/At All Times	No	No	BEAF West		
<a href="#">NW/2018/4780</a>	18/07/2018	31/03/2019	A83 Glen Kinglas	2/1 - Slight Delay/At All Times	No	No	BEAF West		
<a href="#">NW/2018/4798</a>	22/08/2018	02/08/2018	A83 Bellochantuy		No	No	BEAF West		

<u>Identifier</u>	<u>Start Date</u>	<u>End Date</u>	<u>Location</u>	<u>Delay (Est)</u>	<u>Diversion</u>	<u>VMS Requested</u>	<u>OC Cor</u>
				2/1 - Slight Delay/At All Times			
<a href="#">NW/2018/4876</a>	16/07/2018	24/08/2018	A83 Tarbet to Arrochar	2/1 - Slight Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/4900</a>	04/12/2017	31/07/2018	A83 Strone Point	4/3 - Serious Delay/Off Peak Hours	No	No	BEAR - West U
<a href="#">NW/2018/4952</a>	09/07/2018	13/07/2018	A83 Tarbet to Campbeltown	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/4964</a>	09/07/2018	13/07/2018	A83 Lochgilphead to Campbeltown	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/5015</a>	25/07/2018	25/07/2018	A83 North of Dunderave	2/1 - Slight Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/5084</a>	18/07/2018	20/07/2018	A83 Tarbet to Kennacraig	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/5087</a>	17/07/2018	17/07/2018	A83 Campbeltown	1/3 - Little or No Delay/Off Peak Hours	No	No	BEAR - West U
<a href="#">NW/2018/5089</a>	18/07/2018	18/07/2018	A83 Ardrishaig	1/3 - Little or No Delay/Off Peak Hours	No	No	BEAR - West U
<a href="#">NW/2018/5084</a>	16/07/2018	20/07/2018	A83 Tarbet to Campbeltown	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/5124</a>	18/07/2018	19/07/2018	A83 Tarbet to Campbeltown	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U
<a href="#">NW/2018/5165</a>	23/07/2018	27/07/2018	A83 Tarbet to Kennacraig	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U
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<a href="#">NW/2018/5253</a>	25/07/2018	25/07/2018	A83 Furnace Weather Station	1/1 - Little or No Delay/At All Times	No	No	BEAR - West U

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