



additional friction units incorporated on additional rails over the length of the buffer. A number of videos of various Rawie buffer stops in action are available on the Rawie web site.

(i) **Use in other rail networks**

Rawie Buffer Stops are in use in over 23 countries on freight and passengers systems, including high speed railways in Europe, the Americas and Asia and elsewhere.

Rawie Friction buffer stops have been used in Australia at the following locations by the named operators:

V/Line:

- a. West Tower Buffer now with PN. 16ZEB unit rated to control 5000t from 15 km/h. This unit is at the top of an embankment abutting Wurundjeri Way in Metropolitan Melbourne.

Metro Trains Melbourne:

- b. Epping sidings (4no. Rawie 10EB) adjacent a 5m mainline rail cutting
- c. Westall sidings (Rawie 10EB)

WestRail:

- d. Various

NSW RailCorp:

- e. Certificate of Product Approval (Type Approval) BS-PA-13/18

(ii) **Use in the ARTC network**

The Rawie 16ZEB/28a Friction Arresting Buffer Stop has not been used previously on the ARTC network as far as is known.

(iii) **Issues arising from usage of the equipment/system**

There are no issues that arise from usage of this equipment. This equipment provides an enhanced safety mechanism for arresting train overrun events without impacting adjacent rail infrastructure and other rail operations.

(iv) **Changes required to infrastructure or systems for use of the equipment**

Item number to be added to the system.

9 **Reliability**

Rawie has a long history of successful use globally.

10 **Maintainability**

Rawie buffer stops are supported in Australia by Cavotec Australia Pty Ltd with local operation at Lynbrook Victoria.

A feature of this friction buffer stop is that it handles wagon impacts in a controlled and progressive manner that minimises damage. For a minor event the buffer is repositioned and the friction units repositioned and reset.

For a more significant impact the buffer would be reset and the friction liners would be replaced.

Controls.

Installation and maintenance documentation has been provided by Rawie. Maintenance could either be carried out by Cavotec or by general contractors using the Rawie documentation and parts supplied through Cavotec.

11 **Approval \***

Rawie 16ZEB/28a Friction Arresting Buffer Stop for ARTC Freight Link Headshunt at Moonee Pond Creek Junction only.

12 **Is the supplier accredited to ISO 9001 specifically for this product? \***

A. Rawie GmbH & Co. KG is accredited for the development, manufacture and sales of buffer stops, track safety installations, vehicle loading technology, barrier systems and access control systems (certificate No. 40604714/3)

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
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13 **Conditions of Approval \***

1. To be installed at the end of the Freight Link Headshunt in Melbourne only.
2. To be installed and maintained as per manufacturer's instructions.
3. The RRL CMR Alliance in procuring the Rawie 16ZEB/28a Friction Arresting Buffer Stop shall provide the following:
  - Installation, operation and maintenance instructions to be provided for each installation.
  - Spare parts list
  - Site specific design

14	Does the Originator accept the additional Conditions of Approval as set by the Review Panel:	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A	<input type="checkbox"/>
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15	<b>Sign off</b>	<i>ARTC office use only</i>
<b>Review Panel:</b>		
John Furness	<b>On file</b>	Date: <b>3 June 2014</b>
Jamie Threader	<b>On file</b>	Date: <b>2 June 2014</b>
Phil Meehan	<b>On file</b>	Date: <b>2 June 2014</b>
Patrick Gray	<b>On file</b>	Date: <b>2 June 2014</b>
Jess Tai	<b>On file</b>	Date: <b>3 June 2014</b>

Approval:

Operations Safety & Environment Review Group

Date: 10 June 2014