

**NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA**

Ref: 10/7811

Note: the prompts given below are only a guide to the information required for approval. Dependent on the type of equipment or system that requires approval delete any section that is not applicable or include additional information if necessary. **Mandatory** fields are marked with an asterisk (\*).

**1 Equipment or System to be approved \***

**Dual Gauge/Standard Gauge 1:7.52 Diamond Crossing**

**2 Originator**

Name: Ben Ryan/Glenn Lorenz

Company: SIA/VCA

**3 Introduction \***

The Dual Gauge/ Standard Gauge Diamond Crossing is required to be installed for the Missing Link project. The crossing allows both SG and BG trains on the DG track to cross the SG track and SG trains to cross the DG track. It is to be installed at 3.955 km near Dock Link Rd level crossing in South Dynon. Train speed will be limited (by signalling) to 40 km/h with most trains expected to travel at 35 km/h.

**4 Determination of Need \***

The DG/SG Diamond is required to be installed as a result of the track configuration works associated with the Missing Link project. The diamond is to be installed near Dock Link Rd level crossing. Its function is to allow SG trains on the mainline to cross the new North Dock Line (new DG track to Appleton Dock) and SG or BG trains from North Dock Line to cross the SG track. The track geometry in the vicinity of the diamond dictates the need for the diamond as no other solution is practicable.

**5 Significant Change or Not \***

This change in equipment or system is assessed as MINOR.

**6 Review Panel \***

- John Furness - Manager Standards
- Tim Calver, Standards and Technical Services Engineer.
- Ben Leske, Infrastructure Manager East - West

**7 Safety**

Vossloh Cogifer were selected as the contractor to design and supply the diamond. A third party design review of the DG/SG diamond design has been undertaken by Paul Leombruni of GHD. The report dated 27/11/09 is attached. The only safety issue associated with the design of the diamond is a slightly increased derailment risk for standard gauge movements travelling on the standard gauge track. Paul Leombruni has recommended that a wheel transfer analysis be undertaken on the double nose K crossing and this is attached.

**8 Performance and Suitability**

The 1 in 7.52 50kg Standard/Broad Dual Gauge Diamond is designed within geometric parameters provided by John Holland/ARTC. i.e. set out details provided on Project drawing number KBR-TD02-DWG-VM004-RL-4019. The scope of supply is clearly indicated on drawing A1B15222 submitted. Note that interfacing issues with existing trackwork is not part of VCA scope.

The design is based on typical Victorian Railways conventional designs in conjunction with AREMA and British rail practices.

The construction, tolerance and workmanship details are in accordance with the ARTC specification. ETA-03-03 and relevant PTC of Vic spec TM14.

Materials used in the construction are, in accordance with Australian standards and, where practical, in accordance with AS1085 Rail Track Materials Standard.

VCA has an extensive history of supplying turnouts and trackwork components for the ARTC in Victoria, South Australia and NSW.

VCA designed produced a 53kg 1 in 7.52 Diamond crossing for Spencer Street Station Redevelopment, which has identical geometry to 50kg diamond, this has been in service since 2005 with no reported incident.

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

n/a

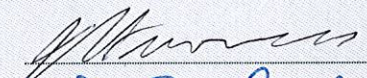


**(ii) Use in the ARTC network**

The diamond is installed in a single location within the ARTC network at 3.955km at South Dynon.

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

- VCA recommend inspection of metal flow and possibly some touch up grinding after approx 3 MGT of traffic over the diamond.
- Apart from this, normal track inspection and maintenance practices should be applied.

(iv)	<b>Changes required to infrastructure or systems for use of the equipment</b>						
	To be included in Missing Link suite of drawings.						
9	<b>Reliability</b>						
	n/a						
10	<b>Maintainability</b>						
	After first 3 MGT or so, standard turnout maintenance regimes are appropriate for the maintenance of the DG/SG Diamond.						
11	<b>Approval *</b>						
	The Dual Gauge/Standard Gauge 1:7.52 Diamond Crossing is approved for use at 3.955km at South Dynon.						
12	<b>Conditions of Approval *</b>						
	<ul style="list-style-type: none"> <li>• Train speed not to exceed 40kph.</li> <li>• Downer EDI to include this item in their maintenance procedures.</li> </ul>						
13	<b>Does the Originator accept the additional Conditions of Approval as set by the Review Panel:</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	N/A	<input type="checkbox"/>

14	<b>Sign off</b>	<b>ARTC office use only</b>
	<b>Review Panel:</b>	
	John Furness 	Date: <u>9/3/10</u>
	Tim Calver 	Date: <u>24/2/10</u>
	Ben Leske 	Date: <u>2/3/10.</u>