NEW EQUIPMENT & SYSTEM APPROVAL PROFORMA

Ref: *08-08-11-123*

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** *

1 in 8, dual / mixed gauge, 50kg double V crossing assembly, for type 29, 30, 39 & 40 dual / mixed gauge turnouts.

2 **Originator** *

Name: Adam Scoles Company: Vossloh Cogifer Australia

3 **Introduction** *

Vossloh Cogifer Australia Pty Ltd (VCA) supplied ARTC with the initial 50kg dual gauge turnout types 29, 39 and 40 with fully cast 1 in 8 Solid Manganese Steel Double V Crossings (ARTCS2060008000) in 2008.

The vees were approx 6,800 mm long.

During the supply of these cast crossings VCA encountered considerable quality problems manufacturing to the existing designs as a result of the design of the crossing being of extremely large size and the shape not being conducive to favourable solidification during the casting process.

4 **Determination of Need** *

The main reason for these proposed alterations is to improve the castability of the manganese steel mono-block, which forms the basis of the crossing.

The revised vees are approx 5,800mm long.

Last time VCA manufactured these crossings, for the Port River Express way, many problems were encountered during the casting process, and as a result several castings had to be rejected.

Altering the castings as proposed will result in fewer casting rejections, thereby leading to more on time deliveries of new and replacement crossings.

5 **Significant Change or Not** *

This change in equipment or system is assessed as Minor

6 **Review Panel** *

- John Furness - Manager Standards
- Steve Cooper
- Tim Calver

7 **Safety**

1. GHD were retained to examine the changes in the design and reported favourably as below (extract from email 21/4/09):

"2. Based on the preliminary information provided (as shown schematically on the drg A1B15152 Prelim Rev B date 11 - 2 - 09 as attached) and following discussions with Vossloh Cogifer, it is considered that all proposed amendments to crossings & closure rails can safely be installed in track.

3. Based on the Risk Assessments carried out it is considered that a Type Approval can be issued. It should be noted that, for all risks identified, appropriate control measures were applied to reduce the risk to an acceptable level which resulted in a "Not Less Safe" or better outcome than prior to the changes"

8 **Performance and Suitability**

This is an amended design of a cast crossing previously approved – ref 08-08-11-029 DRG ARTCS2060021000.

The change consists of a reduction in casting length of three legs at the extremity of the casting resulting in an increase in closure rail length, the addition of spacer blocks to these rails and changes in the design of base plates at this location.

While changes in dimensions appear to be quite significant, the decrease in length of the casting of approximately 1m is expected to improve suitability for the task

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

None known of.

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

This is a revised design and therefore has not been installed to date, however a number of the original design of casting have been installed in SA

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

If an existing crossing of the superseded design should require replacement, changes to closure rail lengths and base plates as described in (iv) will be required.

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

In the event of a worn crossing being replaced:

- Some of the crossing plates will be different to the original design. However, the footprints of these plates will be retained. Meaning that affected plates can simply be replaced during the installation of the new crossing.
- Some rail will also need to be extended or replaced, as detailed below:
  - Type 29 & 30 – Inside straight closure rail (ISC4), will need to be replaced.
  - Type 39 & 40 – Inside curved closure rail (ICC4), will need to be replaced.
  - Type 29, 30, 39 & 40 – The three rails connected to the back end of the crossing will need to be either extended or replaced.

Reliability

Timing of manufacturing targets should be much more consistent with this design. Service life in track should also be improved.

9 **Maintainability**

The crossings are generally compatible with the current maintenance regime.

10 **Approval** *

Vossloh Cogifer 1 in 8 Dual / Mixed Gauge Double Vee Crossing Assembly (VCA Preliminary Drawing A1B15152) for type 29,30, 39 & 40 Dual / mixed gauge turnouts is approved for use within the ARTC network

11 **Conditions of Approval** *

- Ensure spares will be available for old designs that are currently in track. Differing components to be clearly marked, by indentations in castings or punch markings.
- Ensure that drawings for existing and new turnouts are available and clearly distinguishable.
- Clearly advise Assets, Projects and Maintenance staffs in Vic and SA of these changes and how they are to be implemented e.g. from which date new vees will be made.
- If the existing crossings in track need to be replaced with the new design, closure rail inserts must meet minimum rail length requirements.
- Maintainers to amend inspection and test plans to accommodate changes.

12	**Does the Originator accept the additional Conditions of Approval as set by the Review Panel:**	Yes	☐	No	☐	N/A	☐

13 **Sign off** ***ARTC office use only***

Review Panel:

Date: 30/4/09

Date: 30/4/09

Date: 30/4/09

Attachments:

GHD Risk Assessment Summary Sheet Rev 1

GHD Email 21/04/2009