

TO	Inland Rail and Interstate Network
FROM	Head of Engineering Standards
DATE	02 August 2023
SUBJECT	Track and Civil Code of Practice – Section 1 – 47kg/m to 60kg/m Junction Rails – Technical Note
REFERENCE	ETN-01-09 Technical Note – 47kg/m to 60kg/m Junction Rails v1.0

References

ARTC CoP Section 1 Rail

Background

ARTC CoP Section 1 1.2.8 currently permits 6 types of junction rail to be used on ARTC in 1.2.8.

To connect 47kg/m rail to 60kg/m rail using the currently approved junction rails requires the use of two separate junction rails or two separate junction welds with an intermediate section of 50kg/m or 53kg/m rail, this is less desirable as junction welds have a significantly higher in-service failure rate to standard welds.

Both Inland Rail and the Interstate have a requirement to join 47kg/m to 60kg/m.

Scope

The extract shall serve as an addendum to list of currently approved junction rails, with additional conditions as described below.

Risk

The risk of using 60kg/m to 47kg/m rail was reviewed and it was determined that in any circumstance, the use of this junction rail was preferable to current available options and significantly less likely to fail in service than a junction weld.

In the event of a failure of the junction rail or standard 47kg/m weld at its end, the failure may not be able to be plated due to the abnormality of the forged rail end. Replacement will require either the use of a new 60kg/m to 47kg/m junction rail or the use of two junction rails or welds as would have been previously used.

Use of 60 kg/m to 47 kg/m Junction Rails

In addition to the junction rails approved for use in ARTC CoP Section 1 Rail 1.2.8, 60 kg/m to 47 kg/m junction rails may be used.

The 47kg/m end of the junction rail shall not be shortened.

The forged section and the adjacent 47kg/m weld shall not be used as a stressing point.

60 kg/m to 47 kg/m junction rails should not be used in the following circumstances;

- on bridges or within 8m of a fixed point (e.g. level crossings, turnouts or bridge abutments)
- transition zones where track modulus changes (e.g. sleeper transitions)
- in tracks rated for >25 TAL

Where a 60 kg/m to 47 kg/m junction rail is used the local maintenance team should be advised of what their repair options are in the event of a failure of a 60 kg/m to 47 kg/m junction rail.

The forged section of the 60 kg/m to 47 kg/m junction cannot be protected by plating.

Any failures of or adjacent to 60 kg/m to 47 kg/m junction rail should be reported to the local engineering authority and standards@artc.com.au