

<b>TO</b>	Network Wide
<b>FROM</b>	Acting GM Technical Standards
<b>DATE</b>	05 September 2022
<b>SUBJECT</b>	Track and Civil Code of Practice – Section 3 - Clearance at Catchpoints – Technical Note
<b>TITLE</b>	ETN-03-02 Technical Note - Clearance at Catchpoints v1.0

## References

Track and Civil Code of Practice: Section 3 Version 2.9

## Background

Clause 3.1.9.3 specifies clearance requirements at catchpoints. The clause includes the statement “*The catch points, including the throw off rail, are to be located to provide a minimum of 450mm between the side of a vehicle on the running line and a vehicle being derailed on the catch point.*” Various interpretations have been made as to whether the 450mm minimum distance is inclusive of kinematics or not.

Clause 3.1.9.3 goes on to state: “*The throw off rail is to be located to ensure the wheels of the derailing vehicle travel the correct path so ensuring that the vehicle does not foul the running line structure gauge.*” The reference to structure gauge has added to confusion.

The 450mm minimum has been used historically in NSW, it was applied between two static vehicle outlines and was created as a simple method of determining clearance points before CAD and other methods of electronic calculation were accessible. This method pre-dates doubling stacking, where the kinematic effects have far more significant impact on overall outline. 450mm between static outlines does not create sufficient clearance for taller profiles such as double stacked containers.

A technical note is required to clarify the requirement to be used by Inland Rail.

## Scope

This technical note supersedes the requirements paragraph 1 of Clause 3.1.9.3 until the time this note is rescinded.

## Preferred Solution

The arrangement in figure 1 is generally preferred. In this arrangement the throw off rail is located outside the return curve on track parallel to the mainline where normal track centres have been achieved. Derailed movements cannot be guaranteed to follow the throw of rail. In this configuration the derailed vehicle is not directed toward the running line in the event of jumping the throw off rail. NB: the remaining requirements of Clause 3.1.9.3 shall be adhered to including requirements not to direct derailed movements towards vulnerable areas.

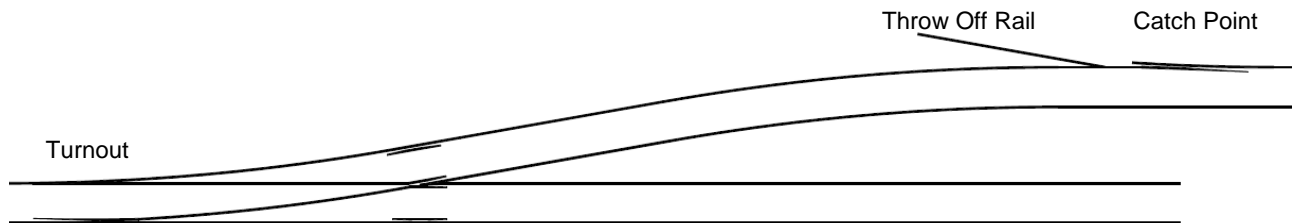


Figure 1

## Alternate Solutions

Figures 2 and 3 depict situations where constraints have prevented use of the preferred solution. Figure 1 shows an improved arrangement where the risk of fouling the mainline has been further reduced.

For existing track it is accepted that the preferred solutions may not always be achievable within the constraints provided. Where the preferred solution cannot be achieved either of the following solutions may be employed. These requirements may be adopted as an alternative to Paragraph one of section 3.1.9.3.

Paragraph one of section 3.1.9.3 may be replaced with the following requirements:

A 100mm minimum air gap between kinematic envelopes shall exist as shown in Figure 2 in accordance with the following:

- Kinematic envelopes 1 and 2 are based upon the approved rollingstock outlines for the given tracks and are full kinematics calculated in accordance with Section 7.
- Kinematic envelope 1 is positioned such so that the vehicle overhang past the bogie centre extends beyond the throw off rail as shown. The bogie centre shall be positioned on the centreline.
- The throw off rail is parallel to or directed away from the line being protected.

Note: The air gap minimum is only 100mm. However, a derailed vehicle will not be aligned to the centreline as shown but guided by the back of the switch rail. An approximate 200mm theoretical air gap will be maintained. This method using 100mm minimum may be used as a simplification.

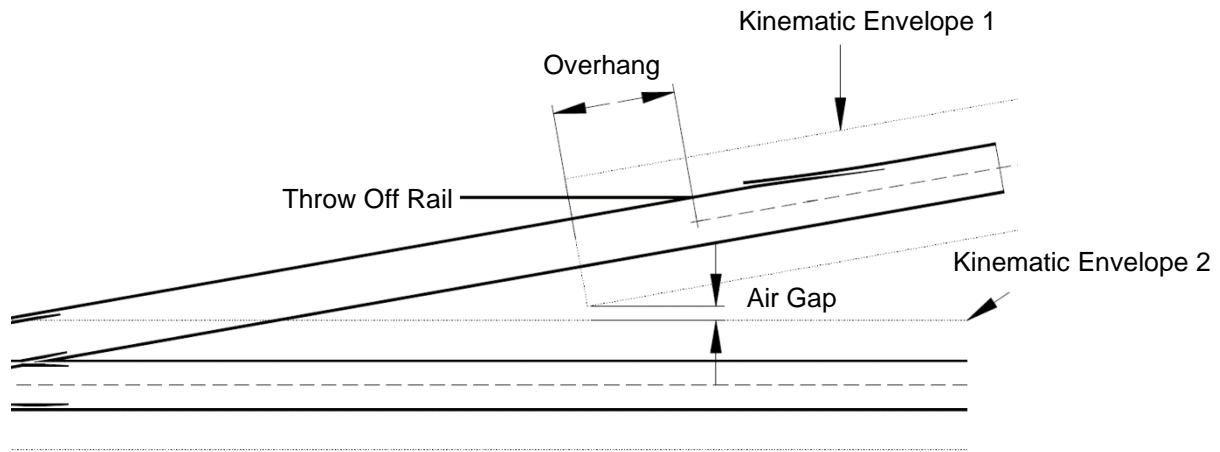


Figure 2

Alternatively, a 200mm air gap between the swept path kinematic envelopes shall exist as shown in Figure 2 in accordance with the following:

- Kinematic envelopes 1 and 2 are based upon the approved rollingstock outlines for the given tracks and are full kinematics calculated in accordance with Section 7.
- Kinematic envelopes 1 and 2 are based upon swept paths to account for curvature effects.
- For kinematic envelope 1, beyond the catchpoint, the vehicle is guided by the back of switch rail and then throw off rail. A centreline path offset 700mm from these contact faces is to be adopted.

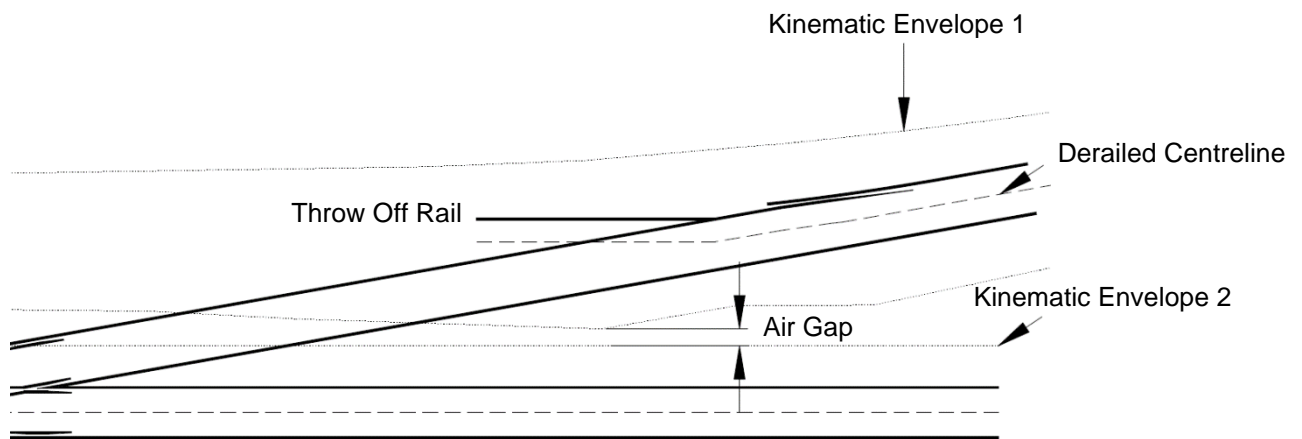


Figure 3

Note: The 700mm offset is derived as half of the maximum back-to-back wheelset dimension plus the wheelset clearance used in Section 7. Allowing the full kinematic to be used.