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		NETWORK RAIL - SIGNAL ENGINEERING Robust Train Protection: Replacement OSS positioning rules
Relevant Standard	NR/L2/SIG/10138	

Purpose

To replace the rules in [NR/L2/SIG/10138](#) for the positioning of TPWS loops on the approach to a signal to achieve improved effectiveness for all trains.

This instruction supports the achievement of the safety objectives agreed by the cross industry TPWS strategy group. It also allows loops to be placed up to 900m from the signal with greater flexibility in the arrangement of the loops utilising a risk based approach.

This instruction should be read in conjunction with [NR/GN/SIG/00028](#).

Scope

These rules apply to the placement of TPWS loops where works require TPWS to be provided or amended.

This instruction applies to signals requiring TPWS in accordance with [NR/L2/SIG/10137](#) (or other signals equipped with TPWS on the basis of risk) which can be approached from another running signal.

Signals not approached from a running signal or where trains start from rest (with no locking beyond the signal) are excluded.

Compliance requirements

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 2 June 2012.

This instruction shall be applied on all projects presently at GRIP stages 1 to 3. Additionally, it should be applied, wherever practical and where cost savings would result, to projects presently at GRIP stages 4 or 5.

This instruction does not apply when, at the date of publication, the design has been produced and agreed through the overrun risk assessment process.

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Safety Objectives

TPWS fitments (TSS with or without one or more OSS) at signals shall provide effective protection for passenger trains capable of achieving 12%g braking with a 2 second brake build up time.

Where effective protection cannot be achieved either the locked SOD shall be extended or signal controls shall be applied.

On routes where freight or passenger trains other than those with an emergency brake rate of 12%g operate, then designers should seek to improve the overall effectiveness of the TPWS by relocating loops.

Where, following the application of the overrun risk assessment process, the residual risk arising from an overrun is judged as significant, then the designer shall evaluate the potential increase in effectiveness by addition of a single extra loop. Where the value of the change in residual risk due to the provision of an extra loop is comparable or exceeds the whole life cost of an extra loop, then the extra loop should be provided. The effectiveness tool mandated in [TI 095](#) shall be used in conjunction with the SAT process described in [NR/L2/SIG/14201](#) to establish the residual risk.

Abbreviations & Definitions

Effective protection – an arrangement of TPWS which would cause a passenger train with 12%g braking and a 2 second brake build up time to stop within the SOD taking account of gradient and for all speeds up to the permissible speed. It is assumed that train drivers will always obey permanent speed limits and having commenced braking for a potential stop, they will not accelerate until appropriate.

SOD - Safe Overrun Distance – the distance from a signal to a point of conflict with an opposing or converging movement

TSS - Train Stop System

OSS - Overspeed System