

**KEYPOINTS**

**SAFE SYSTEM OF  
WORK PLANNER  
(SSOWP)**

Issue one valid from October 2011

**CERTIFICATION REQUIRED: CURRENT SENTINEL  
CARD ENDORSED WITH PTS COMPETENCY**

Keypoint Cards have been produced for many of the track safety competencies, as a reminder of the main duties, rules and requirements.

Further copies are available from Willsons Group Services.

To obtain an order form, email:

**[denise@willsons.com](mailto:denise@willsons.com)**

(phone **01636 702334** or fax **01636 701396**)

## ROLES

- **Responsible Manager:** is accountable for the preparation of Safe Systems of Work, how the work is to be prioritised, planned and delivered, which is then delegated to the Planner.
- **Planner:** is responsible for planning the work and the Safe Systems of Work in accordance with the priorities set by the Responsible Manager.
- **COSS/IWA (Controller of Site Safety/ Individual Working Alone):** is responsible for protecting their own safety and the safety of others in the work group from the risk of being struck by trains, and verifies that the planned Safe System of Work is appropriate and can be implemented as planned.

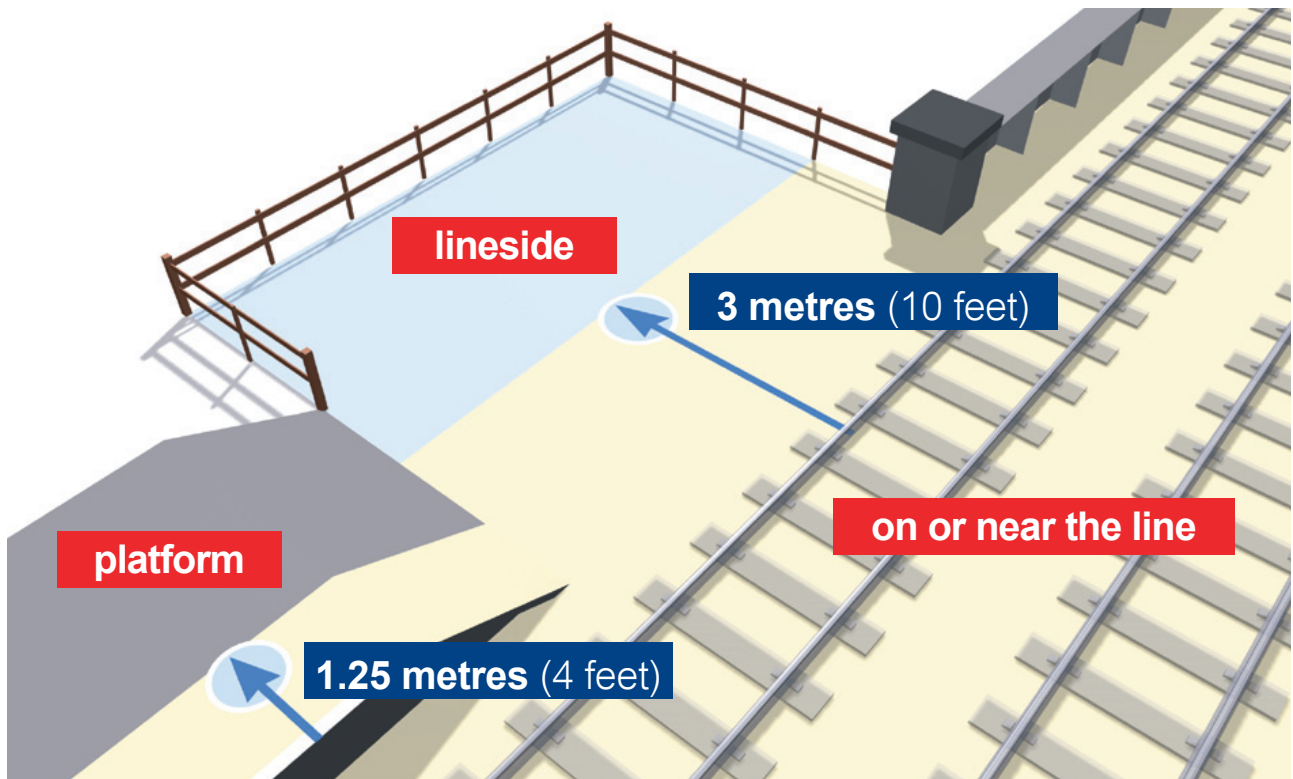
These roles are clearly defined in NR/L2/OHS/019

## DEFINITIONS

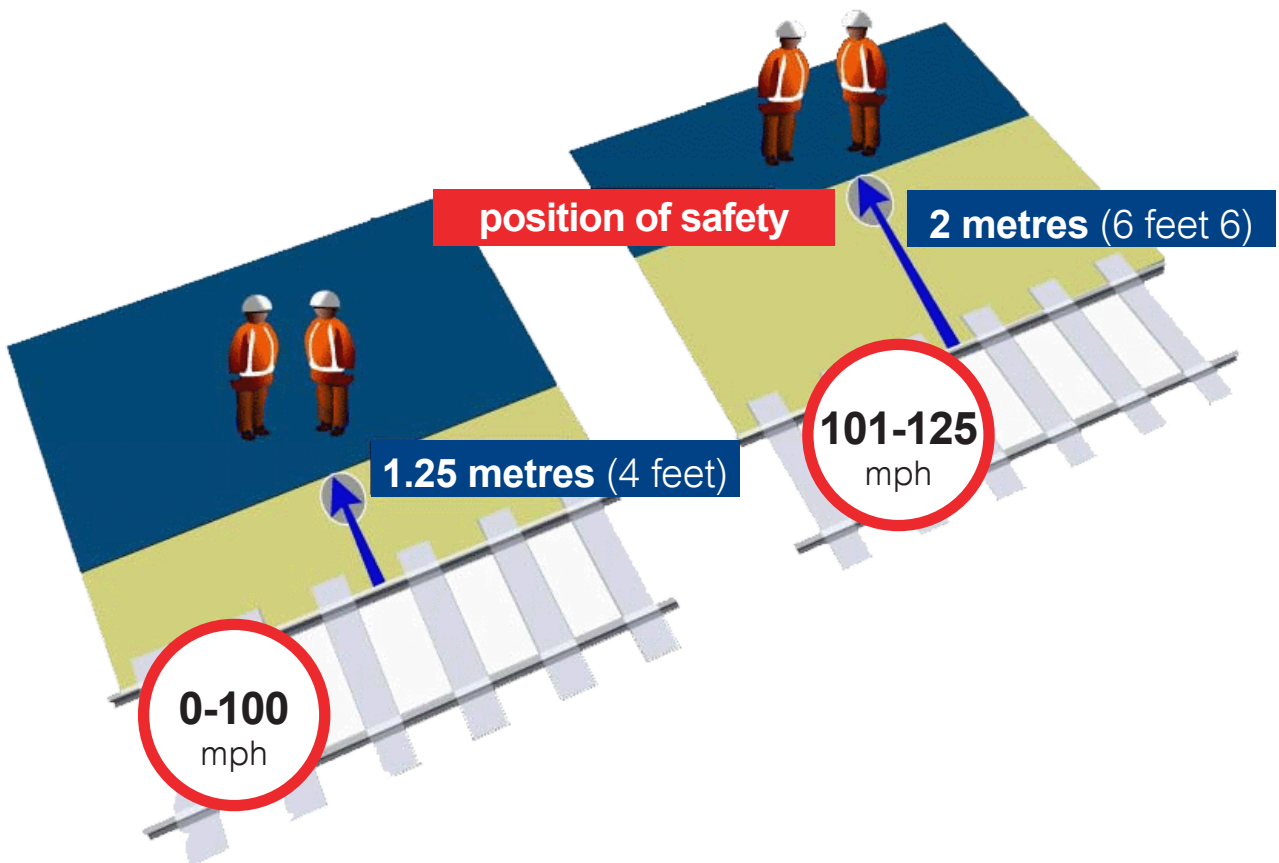
- **Safe System of Work:** Arrangements to make sure a workgroup, (including Lookouts), that is to walk or work on or near the line is not put in danger by passing trains or movements. This includes the arrangements for:
  - Entry to and exit from railway infrastructure
  - Walking on or near the line
  - Walking to or from a site of work
  - Setting up and withdrawing protection or warning arrangements
  - Carrying out the work

- **Safe System of Work Pack:** A pack of information used by the COSS/IWA that provides details of the Safe System of Work and the work to be carried out. Minimum content includes: - RT9909 Form, Sectional Appendix and Hazard Directory.
- **Cyclical Maintenance Task:** An inspection or maintenance task which is performed to a frequency schedule specified in Network Rail standards.
- **Non Cyclical Maintenance Task:** A 'one off' work activity arising from an inspection, incident, fault or failure which does not fall into the definition of 'exceptional circumstances'.
- **Exceptional Circumstances:** Any circumstance when there is a need to undertake work to avoid or reduce risks to people, or significant disruption to train services, which could not foreseeably have been planned in advance by the Planner.
- **Emergency Situation:** A type of Exceptional Circumstance where urgent track access is required as a result of an incident, fault or failure which is affecting the normal passage of trains.


- **On or Near the Line:**



- **Position of Safety:**



# SSOWP HIERARCHY COMPARISON

<b>1.</b>	<p><b>Safeguarded Green Zone, unless:</b></p> <ul style="list-style-type: none"> <li>the required blockage(s) of the line(s) are not available or</li> <li>the time required to take the line blockage is disproportionate</li> </ul>	<b>Safeguarded</b>
<b>2.</b>	<p><b>Fenced Green Zone, unless:</b></p> <ul style="list-style-type: none"> <li>the required blockage(s) of the line(s) are not available or</li> <li>the time required to erect and dismantle fencing is disproportionate</li> </ul>	<b>Fenced</b>
<b>3.</b>	<p><b>Separated Green Zone, unless:</b></p> <ul style="list-style-type: none"> <li>the required blockage(s) of the line(s) are not available or</li> <li>the time required to set up a separated Green Zone is disproportionate</li> </ul>	<b>Site Warden Warning</b>
<b>4.</b>	<p><b>Red Zone with warning given by Automatic Track Warning System (ATWS), unless:</b></p> <ul style="list-style-type: none"> <li>the time required to plan, install and remove ATWS is disproportionate or</li> <li>the required equipment is not available or</li> <li>the equipment is not suitable for the location (see NOTE 7 below)</li> </ul>	 <b>Equipment Warning</b>
<b>5.</b>	<p><b>Red Zone with warning by Train Operated Warning System (TOWS), supplemented where necessary by other methods of warning, unless:</b></p> <ul style="list-style-type: none"> <li>TOWS is not available at the location or does not provide an adequate warning for the work</li> </ul>	
<b>6.</b>	<p><b>Red Zone with warning given by Lookout Operated Warning System (LOWS), unless:</b></p> <ul style="list-style-type: none"> <li>the time required to plan, install and remove LOWS is disproportionate or</li> <li>the required equipment is not available</li> </ul>	
<b>7.</b>	<p><b>Red Zone with warning given by one or more Lookouts or COSS/IWA working alone and looking out for him/herself.</b></p> <p><b>THIS SHALL ALWAYS BE REGARDED AS THE LAST RESORT</b></p>	<b>Lookout Warning</b>

# THE RESPONSIBILITIES OF THE PLANNER

- To plan work in accordance with the priorities set by the Responsible Manager and the Appendix A hierarchy of Safe Systems of Work defined in NR/L2/OHS/019
- Maintain competence in Safe System of Work Planner as defined in NR/L2/CTM/209
- Access and understand various documents or electronic information sources used in collating a SSOW (Sectional Appendix, Hazard Directory etc)
- Understand the process for line blockage planning through GZAM or WON.

If any SSOW is rejected, the Planner, shall, in consultation with the Responsible Manager/COSS/IWA, review the reason for its rejection, and amend any changes required for future planning to ensure a robust SSOW can be implemented, and all rejected SSOW packs must be withdrawn from use.

If changes have been made to accepted SSOW post implementation, then the Planner must check against any previous SSOW packs, and if required, amend details for future planning, or identify any anomalies or errors which need to be escalated to the Responsible Manager.

# INFORMATION SOURCES AND SUPPORTING DOCUMENTATION

To enable Planners to familiarise themselves with the location of work, reference must be made to the following documents to ensure a SSOW is planned correctly:

## Sectional Appendix - Table A contents:

- Location names (Stations/Level Crossings/Tunnels etc)
- Engineers Line Reference ELR (ECM1/SPC1 etc)
- Miles & chains (1 mile = 1760 yards / 1 chain = 22 yards)
- Lines at the site (DS DF – down slow/down fast etc)
- Line speed and direction of travel (uni or bi directional)
- Controlling Signal Control Centres or Signal Boxes
- Controlling Electrical Control Centres (AC/DC)
- Fixed Warning Systems (ATWS/TOWS)

The majority of information can be found in the above Table A, however if there are General or Local Instructions that apply the Planner needs to ensure the COSS/IWA is made aware of such things.

The Sectional Appendix may be accessed through:

- National Electronic Sectional Appendix (NESA)
- Hard copy
- The Safe System of Work Planning System (SSOWPS) – (NR only).



## Hazard Directory

- Authorised Access points (Pedestrian/Vehicle/Road Rail Vehicle)
- Authorised Walking Routes
- Red Zone Working Prohibitions
- Restricted or Limited Clearance areas
- Buried Services

The above accesses or hazards are the more common sources of information a planner needs to plan a SSOW, however if there are specific hazards that need to be detailed, then the National Hazard Directory must be referred to. All codes are denoted by Category and Sub Category, e.g.:-

HB relates to Buried Services, so the sub category could be HBE – Buried Electrical Cables.

The following codes and descriptions highlight the more common Hazard codes and their meaning along with the Sub Category:

### **MA – Authorised Access**

- MAP – Pedestrian
- MAR – Road Rail Machine
- MAV – Vehicle

## HW – Hazard Working Practices

- HWGR – Gradient steeper than 1 in 50
- HWI – Isolation required
- HWL – Lookout compulsory
- HWP – COSS or IWA may not work alone
- HWR – Red Zone Working Prohibited

The Hazard Directory may be accessed through:

- On:Trac (Network Rail National Hazard Directory)
- Hard copy
- The Safe System of Work Planning System (SSOWPS) – (NR only).

## Signal Diagrams

If the SSOW involves planning a line blockage, then reference shall be made to identify the relevant signals that will be used to protect the site of work.

This means a signal on the approach to the site of work must be placed to danger, and in some circumstances additional protection provided if the work will affect the safety of the line.

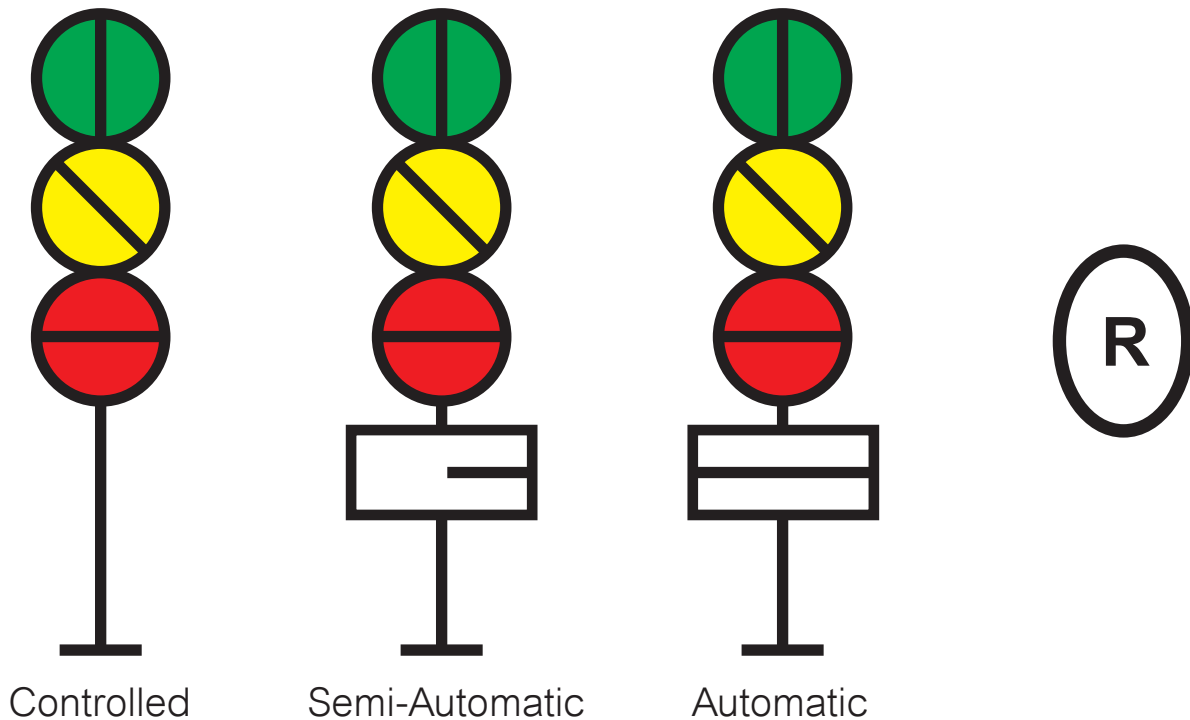
The terms ‘On Approach’ and ‘Beyond’ are extensively used within the railway industry, and relate to where staff are in relation to the signals.

To provide protection involving signals, it will always be the signal

‘On Approach’ to the site of work placed to danger.



The following signals are used to protect a site of work for a line blockage or line blockage with additional protection.



Signal post replacement switches (SPRS) are provided at some automatic and semi automatic signals. When operated they place the signal to danger, if this is the case, then on the signal diagram it will specify with an “**R**” identifying the signal to have an SPRS.

### **Weekly Operating Notice (WON):**

The WON gives details of :

- Temporary speed restrictions
- Engineering arrangements
- Signalling and permanent way alterations
- Amendments to National Operations Publications (NOPs), Sectional Appendices, and other notices
- Is populated using the Possession Planning System (PPS)

If the work to be planned is more than 8 weeks out, then any line blockages or possessions must be planned and published in the WON using the Possession Planning System (PPS)

Reference should be made to this document if:

- Work that you are planning could be carried out in a line blockage or Possession arranged by a another department, thus sharing the same engineering arrangements

Or

- Should avoid due to conflicting works, thus getting the SSOW rejected by the Green Zone Access Coordinator (GZAC).

### **Green Zone Guide (GZG)**

Provides information on the availability of 'Non Disruptive line blockages whilst trains are not running.

If the work is to be planned less than 8 weeks out then any line blockages may be arranged via the GZAC using the GZAM or SSOWPS system.

Depending on the type of work, the line affected, and the length of time required, a 'Non Disruptive line blockage may be applied for, using the following time codes:

- X = 0 – 19 minutes
- L = 20 – 39 minutes
- M = 40 – 59 minutes
- H = 60 minutes +

As a guide, if the duration of the work is such that to obtain a line blockage would increase:

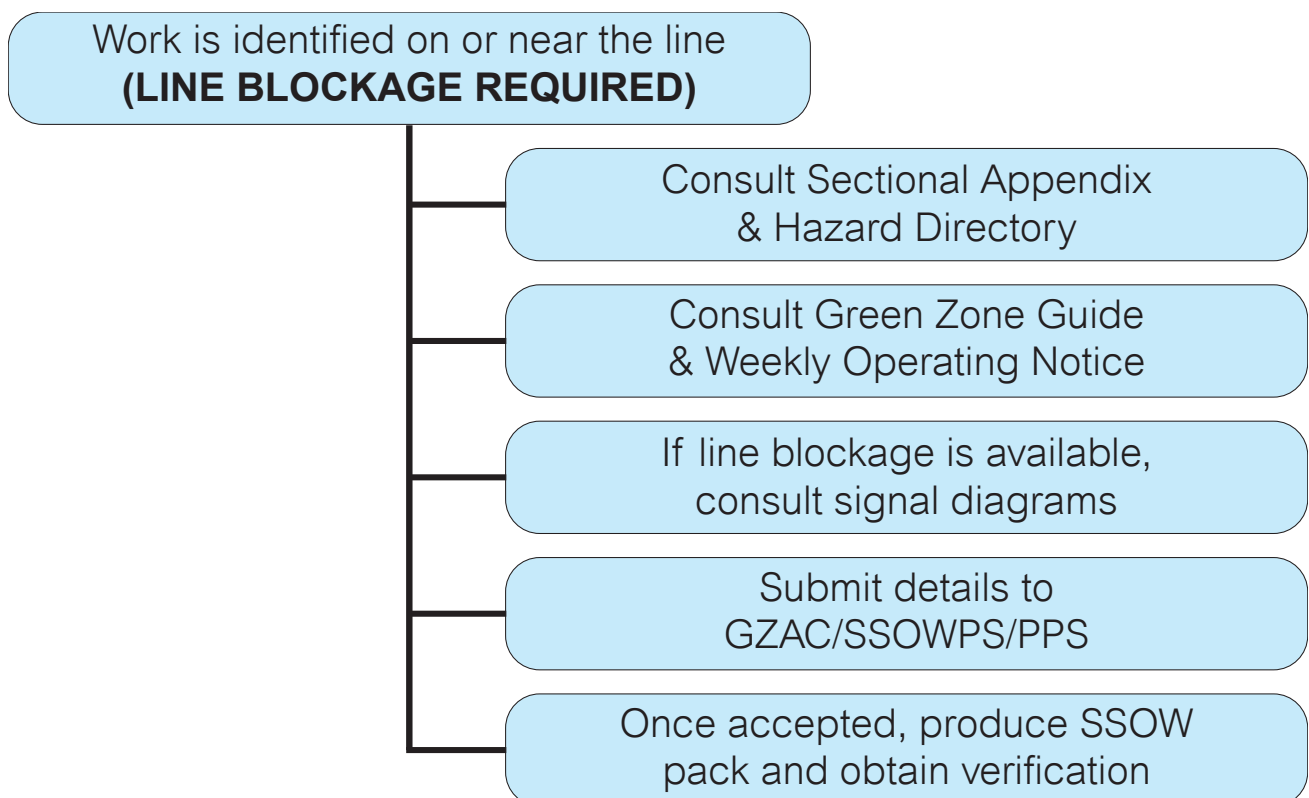
- Time to take the line blockage by more than 25% due to the GZG showing low availability, then the work must be aborted until another time/date when there would be a line blockage. This increase in time would be referred to as “disproportionate”.
- Or the SSOW varied to carry out the work under Open Line (Red Zone) Arrangements. (if work allows)

Access to the Green Zone Guide may be accessed through:

- Green Zone Access Management (GZAM)
- SSOWPS (resources)

### **GZAM (Green Zone Access Manager)**

The system used to book Green Zone protection that is not required to be published in the Weekly Operating Notice or that is scheduled to take place within eight weeks.



## **5 Mile Line Diagrams (WBC Infrastructure Diagrams)**

If a line blockage is not available and the work has to be carried out with the affected lines open to traffic, then the 5 Mile Diagrams will identify the existence of curves at the site of work to assist the Planner in estimating the approximate sighting distance available and number of lookouts required.

The COSS remains ultimately responsible for confirming sighting distance can be achieved based on the warning time and speed of the line using the sighting distance chart and actual sighting distance available on site.

5 Mile Diagrams contain the following:

- Miles & chains (5 chain increments)
- Curvature of the line identified by green line (assist in sighting distance)
- Lines at site (as per Sectional Appendix)
- Line speed and direction of trains (as per Sectional Appendix)
- Signals and points (including type)
- Locations (stations, level crossings, tunnels, access points)
- Gradient of the line (1 in 50 etc)

NB 5 Mile Diagrams are uncontrolled documents

## **GI Portal (Geospatial Information Portal)**

GI Portal allows the Planner to examine the site of work in more detail by providing photographic footage of any railway location within the country.

It provides information on:

- Railway Property (land ownership, boundaries etc)
- Engineering (track, stations, level crossings etc)
- Schematic data (all track asset information – track, stations etc.

GI Portal includes anything from Ordnance Survey to Land Ownership. Also as part of providing access details for planning a SSOW, once the access has been located, GI Portal will provide post codes and grid reference numbers to enable the Emergency Services to access the site of work.

## **PLANNING A SAFE SYSTEM OF WORK (Appendix A)**

To comply with NR/L2/OHS/019 Safety of People working On or Near the Line, a Safe System of Work needs to be considered based on the nature, location and duration of the work (see SSOWP Hierarchy Comparison).

If Safeguarded – Fenced –Site Warden Warning is **not** selected, a reason must be given for each one in turn. Possible reasons could be:

- Disproportionate increase in time for the work to take place
- Lines cannot be blocked
- Green Zone Guide shows low availability
- Fencing not suitable
- Distance from open lines cannot be maintained

If the work is planned to be carried out on an Open Line (Red Zone) using equipment or Lookout warning the following questions must first be answered. If the answer to all the questions is **YES**, Open Line (Red Zone) working is not permitted:

- Does warning time required exceed 45 seconds?
- Are there are three or more lines open to traffic between the site of work and the designated position of safety? (COSS with equipment warning or Lookouts)
- Are there one or more lines open to traffic between the site of work and the designated position of safety? (IWA)
- Is line speed greater than 125 mph?
- Is the distance to the designated position of safety greater than 25 metres?
- Does the Network Rail Hazard Directory prohibit Open Line (Red Zone) working at this location?

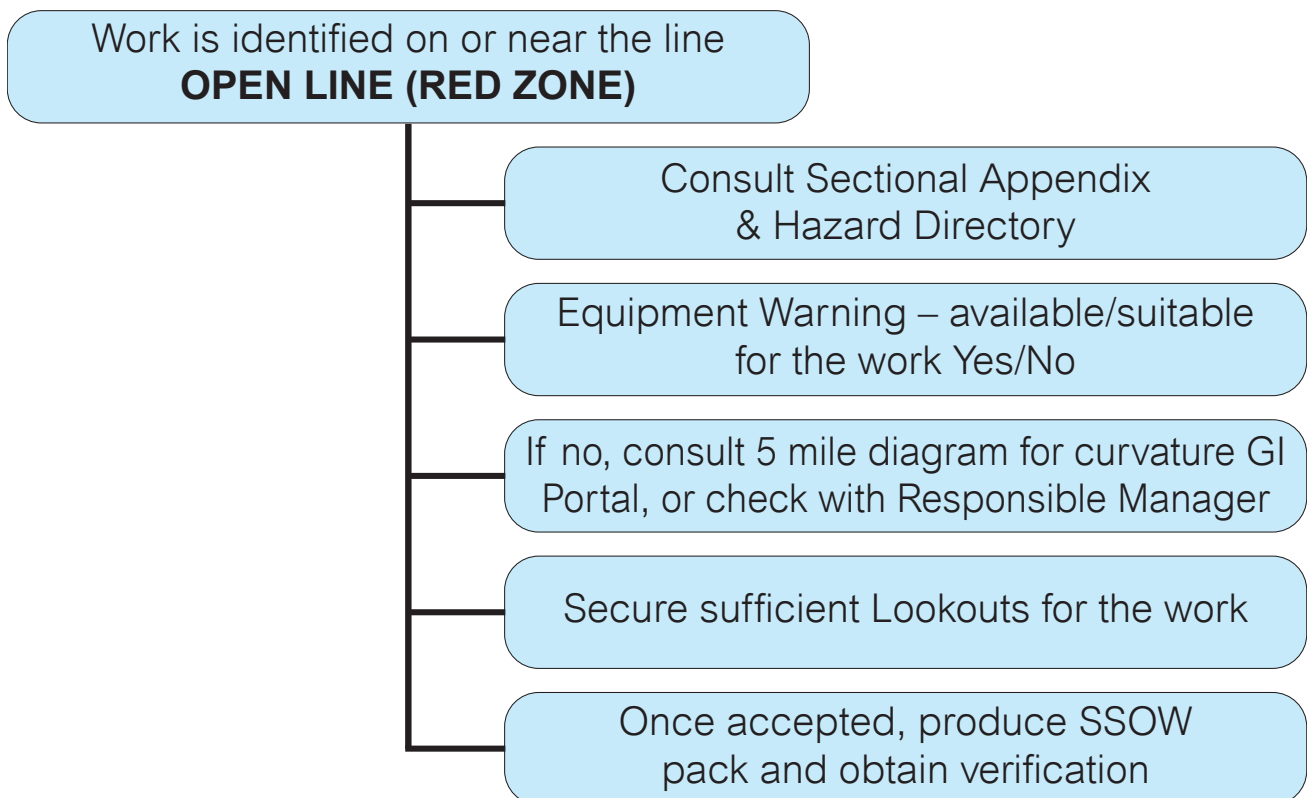
NB a line blockage may be planned to remove a Red Zone Prohibition, thus enabling staff to use the blocked line as a position of safety, or reduce the amount of lines to cross to reach a position of safety.

If the answer to all of the questions is **NO**, then Equipment Warning must be considered before using unassisted Lookouts. Unassisted Lookouts may be used, but there are limitations



Unassisted Lookouts are not to be used if:

- There is not enough sighting distance
- More than two distant/intermediate Lookouts are needed in any one direction
- More than four distant/intermediate Lookouts are needed in total
- In darkness or poor visibility, unless there is a 20mph speed restriction and no distant Lookouts are needed.



# **PLANNING A SAFE SYSTEM OF WORK**

## **(Appendix B)**

Prior to the Safe System of Work Pack being issued to the COSS/IWA, the Appendix B Planning Checklist may be used by the Planner to check all information is has been taken into account:

- The Work Protection identifies the blockage or possession type (E.g. detonators, T-COD, line or siding possession).
- The Safe System of Work type (E.g. Fenced, Equipment warning)

The following information must be included on the RT9909 Record of Arrangements and Briefing Form:

- Emergency contact details for the Signaller and Electrical Control Operator (if electrified AC/DC)
- Nature of Work (clearly described)
- Start and End mileages (access – site – egress)
- All lines for the work location shown, not just those being worked on
- Each line showing whether blocked or open, line speed and direction
- SSOW planned for staff to walk to and from the working area
- SSOW planned for staff to carry out the work
- Access and egress points (type – pedestrian/vehicle/road rail vehicle)
- SSOW pack includes Sectional Appendix diagrams for the entire mileage

- SSOW pack includes a list of relevant Hazards for the entire mileage

If a line blockage or possession is required:

- WON item (if disruptive)
- Possession Pack (where appropriate)
- Planning Reference Number (SSOWP, Work reference number)
- GZAC Reference number (if Non Disruptive)
- Partially completed RT3181 Form showing relevant protecting – limit signals and line blockage type (detonators – disconnection – T-COD – token).

## **PRE – IMPLEMENTATION (Appendix C)**

Before going to site and at least a shift in advance of the work the nominated COSS or IWA shall verify that the proposed SSOW is appropriate and can be implemented as planned

They must check:

- The SSOW pack contains the required documentation, giving consideration to the location, the nature of work and the resources required
- Use the information provided and their local knowledge to check the pack contents is accurate and can be implemented as proposed
- Either accept and complete the plan, or reject it and return the rejected plan to the planner, and
- Record the outcome of their verification of the pack on the Appendix C.

If the plan is rejected the Planner shall notify the Responsible Manager, consider the changes required, and make any alterations necessary.

Once the plan has been accepted by the COSS or IWA, the implementation process may commence.

If the work is Non Cyclical, the Appendix C must be completed on every occasion by the COSS or IWA.

If the work is Cyclical, the Responsible Manager, in consultation with a COSS or IWA who is familiar with the work and location, completes the Appendix C, and authorises the Safe System of Work pack to be used repeatedly up to a maximum of 12 months.

If the work is in Exceptional Circumstances the COSS or IWA should utilise the normal planning systems to produce the planned SSOW e.g. SSOWPS.

## **POST – IMPLEMENTATION**

Once the work has been completed, all packs must be returned to the Planner for audit purposes:

- Signed copies of RT9909 and RT3181 forms that have been planned and produced by electronic means (SSOWPS) and returned from site after use must be retained for a minimum period of 3 months
- Appendix C Verification forms shall be attached to the relevant SSOW Pack and retained for a minimum period of 3 months

- In emergency circumstances, signed copies of RT9909 and RT3181 forms that are hand written still need to be returned to the Planner and retained for a minimum period of 2 years.

COSS or IWA returns SSOW Pack to the Planner highlighting any changes made

Planner records SSOW and notes any changes made for future planning

For Non Cyclical work, close items of work e.g. in ellipse (where applicable)

Planner reviews period planning planned versus actual

Responsible Manager reviews Line Blockage and open Line working against targets

Responsible Manager reviews 20% of pack up to max 50 packs per period

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**Safety Central** - The site is your one-stop shop of safety information, advice, resources and useful contacts, designed to promote consistency and best practice across the whole rail industry.

**<http://safety.networkrail.co.uk/>**

There are two ways to report safety concerns. Your first step should be to tell your supervisor or sponsor. If this isn't possible, you can contact CIRAS - the railway's confidential reporting service - **[www.ciras.org.uk](http://www.ciras.org.uk)**

**The purpose of this Keypoint Card is to act as a reminder only. If you are unsure about any issue relating to the information given here, you must refer to the appropriate module of the Rule Book GE/RT 8000 Series or Handbook.**

**In supplying this document, Network Rail makes no warranties, expressed or implied, that compliance with all or any documents it issues is sufficient on its own to check safe systems of work or operation.**

**Users are reminded of their own duties under health and safety legislation.**

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