

Letter of instruction

Information for users

The following document:

NR/L3/OCS/043/7.1 Issue 5

has had changes made to it, most recently, with effect from **16 November 2015**.

Instructions for use

It is essential that you first read and understand each letter of instruction pertaining to the standard before proceeding to use the standard. You must then apply the requirements of each letter to the standard.

NR/BS/LI/290	Issue 2	16 November 2015	Proceed to letter ►
NR/L3/OCS/043/7.1	Issue 5	01 December 2012	Proceed to standard ►

For further information, please contact:

[IHS Customer Support](#)

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WEATHER MANAGEMENT

1 PURPOSE

To enable Network Rail controllers on a 'real time' basis to manage weather events of floods, high winds, snow and high temperatures.

In addition instructions are contained in [NR/L3/OCS/043/7.2](#) Seasonal Management.

2 SCOPE

- Autumn instructions including non-operation of track circuits.
- Winter instructions.
- Routes shall issue specific instructions periodically.

3 REFERENCE DOCUMENTATION

[NR/L2/OPS/021](#)

Weather – Managing the Operational Risks

[NR/L2/OCS/043/7.2](#)

Seasonal Management

[GE/RT8000](#)

Rule Book Module M3

4 APPROVED CODE OF PRACTICE

Key points:

- Forecast arrangements.
- Route and National EWATs.
- Flooding.
- High winds.
- Snow.
- High temperatures.

5 GENERAL: WEATHER FORECAST ARRANGEMENTS

5.1 Forecast Process

MeteoGroup provides weather reports by e-mail or fax with a forecast for all 21 weather areas (see Appendix A Map of Areas).

The forecasts shall be received by 03:30 hours each day with a forecast for the current day plus a four-day forecast.

If forecasts are not received then the Network Rail Route Control Manager shall contact MeteoGroup on the number below:

MeteoGroup; 020 7963 7575

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On receipt of the forecast the Network Rail Route Control Manager shall:

- page out alert status
- record alert status
- liaise with the nominated senior manager if a conference is needed.

The Infrastructure Fault Control / Incident Controller, TOCs and FOCs shall e-mail the colour alert status (see table below) back to MeteoGroup and National Operations Centre (NOC).

5.2

Weather Alert Status Table and Confidence Table

Weather Type	Alert Status
Normal	Green
Adverse	Yellow
Extreme	Red
Extreme weather event affecting two or more routes	Double Red (to be used only by National Operations Centre Duty Manager)
Extreme leaf fall contamination (applies only during autumn leaf fall period)	Black (To signify widespread black railhead conditions)

MeteoGroup shall provide a Confidence Level of the weather expected this shall determine our Alert Status as below:

Meteo Group Confidence Level	Alert Status
Low	Level 1
Medium	Level 2
High	Level 3

5.3

Alert Status

When a colour alert has been issued other than Green, a conference shall be held by the Route to discuss the operational integrity and preparedness.

The use of a high-risk site register may be of use (refer to high-risk site section).

When a **Yellow** alert has been forecast within the four-day outlook, this shall be reviewed as a minimum daily with MeteoGroup or more frequent if felt necessary by the Route.

If a **Red** alert has been forecast then this shall be reviewed daily until 48 hours out and then at least twice daily.

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Hazards are expected to be present in extreme form or a combination of adverse weather conditions giving a high degree of risk to the operational integrity of the network.

The red alert status shall be assigned where weather conditions are expected to be 'Extreme'.

5.4 During Autumn (Black Days)

During the autumn period a forecast of adhesion conditions is supplied (ADAS leaf fall forecast summary) and utilises an additional level of alert – **Black** – to indicate possible severe railhead contamination.

This is to be used as additional information to allocate an alert status.

The **Black** alert status shall be used when autumn conditions are expected to be such that the railhead becomes widely contaminated and an increased risk operational incidents, e.g. wrong-side track circuit failures, Category A SPADs and disruption to the operational integrity of the network.

5.5 Extreme Weather Affecting Two or More Routes (Double Red)

When two or more Routes activate the Extreme Weather Management process, the NOC shall co-ordinate responses across the affected parts of the network.

The status of alert shall be referred to as **'Double Red'**. In addition the NOC shall notify the 'On-call' HQ Senior Manager and all other relevant personnel.

The 'on-call' HQ Senior Manager shall determine whether the circumstances warrant the declaration of a potential 'Major Incident' and activate a process to support the network management of such an event.

On being notified by the NOC of a 'Double Red' alert, the Route Control Managers of the Routes involved shall then reflect this revised status in their own reporting arrangements and reviews.

There may also be occasions when weather fronts appear (torrential rain / high winds during summer), and consideration needs to be given as to whether or not to implement any mitigation measures.

Consideration shall be given to areas where trees have a full canopy, especially during summer or early autumn, particularly where they may be overhanging OHLE or encroach upon signals.

5.6 High-Risk Register

Route Controls shall have a list of high-risk areas (see weather hazards below Appendix B) that can operationally affect the running of trains and help become a factor in deciding on an alert status.

High-risk sites should be compiled by the Route Weather Strategy Co-ordinator with input from the various functions within the Route.

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5.7 Extreme Weather Action Team (EWAT)

5.7.1 Setting up of EWAT Team

When a **Red alert** has been declared, the Route Control Manager shall inform the relevant EWAT chair and members that a conference shall take place with time and telephone number.

5.7.2 EWAT Members

The Senior On-Call or Route / Area General Manager, or his nominated deputy, is to take the lead in orchestrating the EWAT team; he shall inform who needs to attend so that the Route Control Manager can contact relevant parties.

If MeteoGroup is required by the Network Rail Route to participate in the conference, the Route Control Manager shall give advice of the time and conference telephone number.

MeteoGroup shall require a minimum of 60 minutes notice when they are required to attend. Attendance shall be arranged via the MeteoGroup Network Rail forecaster on 020 7963 7575.

5.7.3 Out of Hours EWAT

The Route Control Manager shall have a list, weekly produced by the Route / Area for relevant on-call Staff who attend an EWAT conference if called after office hours.

6 FLOOD WARNINGS

6.1 The Environment Agency has in place a system whereby flood warnings are advised to Control via email, fax or telephone message.

On receipt of a flood warning the Route Control Manager shall advise the Infrastructure Fault Control / Incident support Control of the information received.

The Infrastructure Controller shall have procedures in place to receive all appropriate river and coastal flood warnings issued by the relevant authorities.

The Infrastructure Controller shall maintain a list of National, Regional and area offices of the relevant authorities.

Appropriate mitigation plans shall be in place that shall include any actions necessary for safeguarding railway operations, including, but not limited to, procedures for implementation and subsequent removal of site monitoring, temporary, or emergency, speed restrictions and / or line closures. The action plan shall also detail the circumstances which trigger the required actions.

The requirements of [GE/RT8000 Rule Book Module M3](#) shall apply.

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CONDITIONS FOR TRAIN MOVEMENTS DURING FLOODING

Following advice from the signaller that train running has been suspended due to flood water being above the top of the rail head, the following instructions must apply:

- Establish the depth of the water from Network Rail staff or contractors on site or via remote monitoring equipment where provided.
- If the water is up to 100mm above the rail head the control may authorise trains to travel through the flood water at a maximum speed of 5mph.
- If flood water is more than 100mm above the top of the rail no movement can take place through the flood water without the permission of the train operator. Any movement permitted by the train operator must only be authorised at a maximum speed of 5mph.

Where flood water is moving at any depth and is likely to dislodge or has dislodged ballast you must only authorise train movements through the flood water if the following conditions have been met:

- The track and formation have been inspected by track maintenance or engineering staff and they have confirmed that it is safe for trains to travel through the affected area.
- Where the flood water is more than 100mm above the top of the rail the movement is permitted by the train operator.
- Where the flood water is above the bottom of the rail head the movement is authorised at a maximum speed of 5mph.

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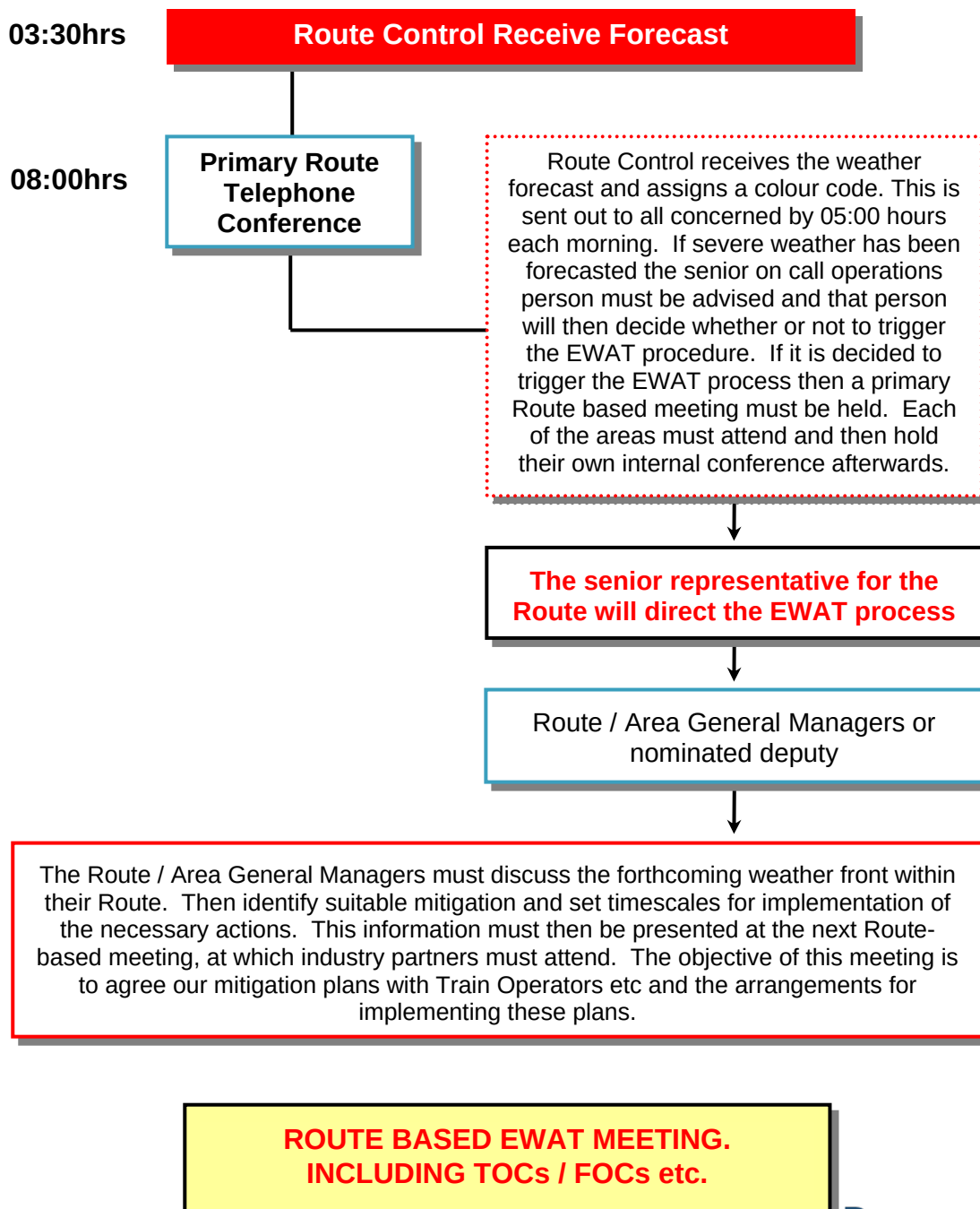
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8 HIGH WINDS

8.1 High Wind Forecasts

High Wind forecasts are advised through the normal weather forecasting arrangements. This advice is given when wind speeds are forecast in excess of predetermined values (mean and gust).

The definition of "High Winds" is when a forecast predicts wind speeds gusting in excess of 70mph (60 knots), or mean speeds in excess of 39mph (30 knots) as per the 'Triggers' table below.



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8.2 Trigger Table

Wind Speed	Action	Element
Forecast of gusts up to 59 mph	No action	Wind 1
Forecast of gusts from 60 mph to 69 mph (Not sustained)	Be aware of the possibility of 'Wind 3' being reached	Wind 2
Forecast of frequent* gusts from 60 to 69 mph (sustained over 4 hours+)	50 mph speed restriction for all trains in the affected Weather Forecast Area	Wind 3
Forecast gusts 70 mph or over	50 mph speed restriction for all trains in the affected Weather Forecast Area	Wind 3
Gusts 90 mph or over	All services suspended in the affected Weather Forecast Area	Wind 3

* Frequent is defined as winds / gusts reaching the determined speed at least once every 10 minutes.

+ The imposition of the 50mph speed restriction shall be imposed four hours after the weather front arrives, unless the number of incident reported require the early imposition of the ESR.

Where the existing line, or train speed, is lower than 50 mph, then no restrictions are required except the suspension of services when gusts of 90 mph or over are encountered.

8.3 Double Red Status

When two or more Routes (Double Red status) activate the Extreme Weather Management process, (as described in [NR/L2/OPS/021](#) Weather – Managing the Operational Risks) a national telephone conference shall be chaired by a National Operations representative. Representatives shall include:

- National Operations representative (Chair).
- The National Weather Specialist.
- The Route Emergency Weather Action Teams chair.
- Route Control / Control Duty Managers.
- Network Rail Press Office.
- MeteoGroup Network Rail Forecaster.
- DfT Representation.



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- Train Operating Company / Freight Operating Company representatives (Single point of contact).
- The National Operations Centre Duty Manager.
- National Maintenance representation.
- National Delivery Service Control Duty Manager.
- London Underground Limited (If London affected).
- Network Rail Enquiry Service (NRES).
- Association of Train Operating Companies (ATOC).

The National Operations Centre shall inform Route Controls of the conference telephone number and PIN number.

The National Operations Centre shall, also, verbally advise delegates of the conference – with the exception of TOC representation which shall fall to the Routes to advise.

The frequency of these conferences shall be decided on during the initial conference.

8.4

Conference Protocol

- Chair shall open the conference.
- Chair shall remind contributors that voice recording is in place.
- Conference contributors shall identify themselves at the start of their input.
- Contributors shall keep phones on Mute by exception.
- Contributors shall not leave the conference prior to its formal closure or be distracted.
- Internal issues, to Network Rail Routes, shall not be discussed during the Conference.

Telephone conferences have three phases, the first (respond) or initial conference shall be in the main information gathering and understanding of the event with probable time scales.

The second phase of the conference(recovery) shall be more detailed building on the initial conference, firming up plans and realistic time scales, resource issues, detailed train plans, operational delivery (SLW, TBW etc)

The third phase (rebuild) follows rectification and looks at the managed return to steady state and the intervention plans required to support recovery.

The number and timing of conferences in the second and third stages shall be set by the delegates at the conference based on key delivery points in the agreed plan.

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8.5 Conference Agenda

- Roll call of Routes, conference representatives.
- MeteoGroup update:
 - o Expected time of extreme weather
 - o Expected time weather shall arrive in specific areas
 - o Expected time when extreme weather shall dissipate by area
- Wind direction. (North Easterly winds provide more risk).
- State of the ground (heavy rain-fall).
- Next steps – (e.g. Blanket speed imposition).
- Effect on train services. Speed restrictions, SLW.
- Resources and deployment. Watchmen.
- Advice to response staff and signallers.
- Agree with TOCs requirement of issuing Blanket ESRs via Booking On Points as the prime option.
- Necessity for TOC / FOC representatives to ensure a robust process is in place to advise Network Rail Controls when all drivers are aware of the imposition of Blanket ESRs.
- Agree mileposts for service recovery where possible.
- Removal of Blanket ESRs post 'Incident-free' period.
- Media and information to passengers.

The NOC shall capture and distribute to conference representatives, and senior management, key outputs on a Word document via email within 1 hour of the conference.

Appendix C is to be used as an Aide Memoir for Route Control Managers

8.6 Single Route Affected

The Route / Area General Manager or nominated Deputy shall decide whether an emergency / blanket speed restriction shall be implemented. He shall advise the Route Control Managers who shall then:

- make sure the area EWAT team are aware;
- page out the nature of the restriction;
- inform the Train Operators affected by the restriction;
- advise all parties of the likely duration and the sections of route to be covered by the restriction;
- advise Signallers and relevant ECRs.

Implementation of the required actions shall be determined from weather forecasts, and reports from SMT weather and Network Rail anemometer sites.

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The Route Control Manager shall consult with the appropriate Operations Manager. Where necessary, the Functional Heads shall liaise with the relevant Engineers from the IMM department concerned to agree and determine the action to be taken.

The appropriate action shall be applied when a forecast indicating the conditions concerned has been received, and is confirmed by an actual reading from a Network Rail Anemometer Site (where available) or MeteoGroup (for other locations).

Where there is a conflict between different requirements, the most restrictive requirement should be applied. Speed restrictions are subject to any lower Permanent or Temporary Speed Restriction.

Service suspensions or speed restrictions shall be applied only in those Weather Forecast areas affected by the High Wind Speeds.

8.7 Control Log

Details of all speed restrictions and service suspensions imposed as a result of high wind forecasts shall be recorded in the Route Control Log and the National Operations Centre shall be advised.

9 IMPOSITION OF BLANKET / EMERGENCY SPEED RESTRICTION

The actions to be considered are:

- reduction in line speeds to reduce the likelihood and / or consequence of a train striking obstructions blown onto the line;
- reduce the risk of damage to OHLE and electric trains;
- mitigation of the effects of wind related incidents and their effects on staff and passengers;
- engineering work, especially where cranes are involved.

9.1 Advice to Drivers / Signallers

If a Level 3 Confidence level is advised by MeteoGroup the Emergency Speed Restriction shall be published on the Late Notice Case at Traincrew Booking on Points. Dependent on the time when this notice is published shall dictate whether further reactive advice to drivers and signallers is required

Trains shall be specially advised of the imposition of Emergency Speed Restrictions by methods described below:

- NRN.
- CSR.
- Stopping of Trains at Signals to advise of the action required.
- GSM-R (where available).

Route Control Managers shall ensure that signal boxes are advised if such restrictions are imposed.

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Control, or the signaller, shall receive positive confirmation from drivers in the affected area that they have received and understood the message and Control shall note the time the blanket speed was introduced.

Any trains entering the blanket speed restriction area shall also be advised, stopping especially if necessary.

Where there is a conflict between different requirements, the most restrictive requirement shall be applied. Speed restrictions are subject to any lower Permanent or Temporary Speed Restriction.

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REMOVAL OF BLANKET / EMERGENCY SPEED RESTRICTIONS

When a forecast indicating abatement from the conditions that forced the implementation of Blanket / Emergency Speed Restrictions has been received, and is confirmed by an actual reading from a Network Rail Anemometer Site (where available) or MeteoGroup (for other locations) the network shall be monitored for one hour after which the Route Representatives shall report local incident occurrence levels at The National Telephone Conference.

This shall allow for the decisions to be taken on a National, or Route by Route level, as to when the removal of Blanket / Emergency Speed Restrictions can take place. Consideration shall be given to cross Route trains and Boundaries when removing speed restrictions.

During Leaf Fall season, and at other times as defined by The Network Rail Seasons Management Team, the 'Incident-free' period shall be extended, as required, to allow for any effects of precipitation on embankments, weight of trees in full leaf, etc.

Withdrawal shall be carried out using:

- Removal notice at Booking On Points.
- NRN/CSR (General call).
- GSM-R (where available).
- Paging system.
- Advice at manned stations.

If all services on a given route section have been suspended, then a resumption of services at the normal or reduced speed shall be dependent on Line Proving being carried out, and shall be subject to consultation and agreement between the Route Control Manager and those who implemented the action.

During Line Proving the Driver shall proceed at a safe, reduced speed.

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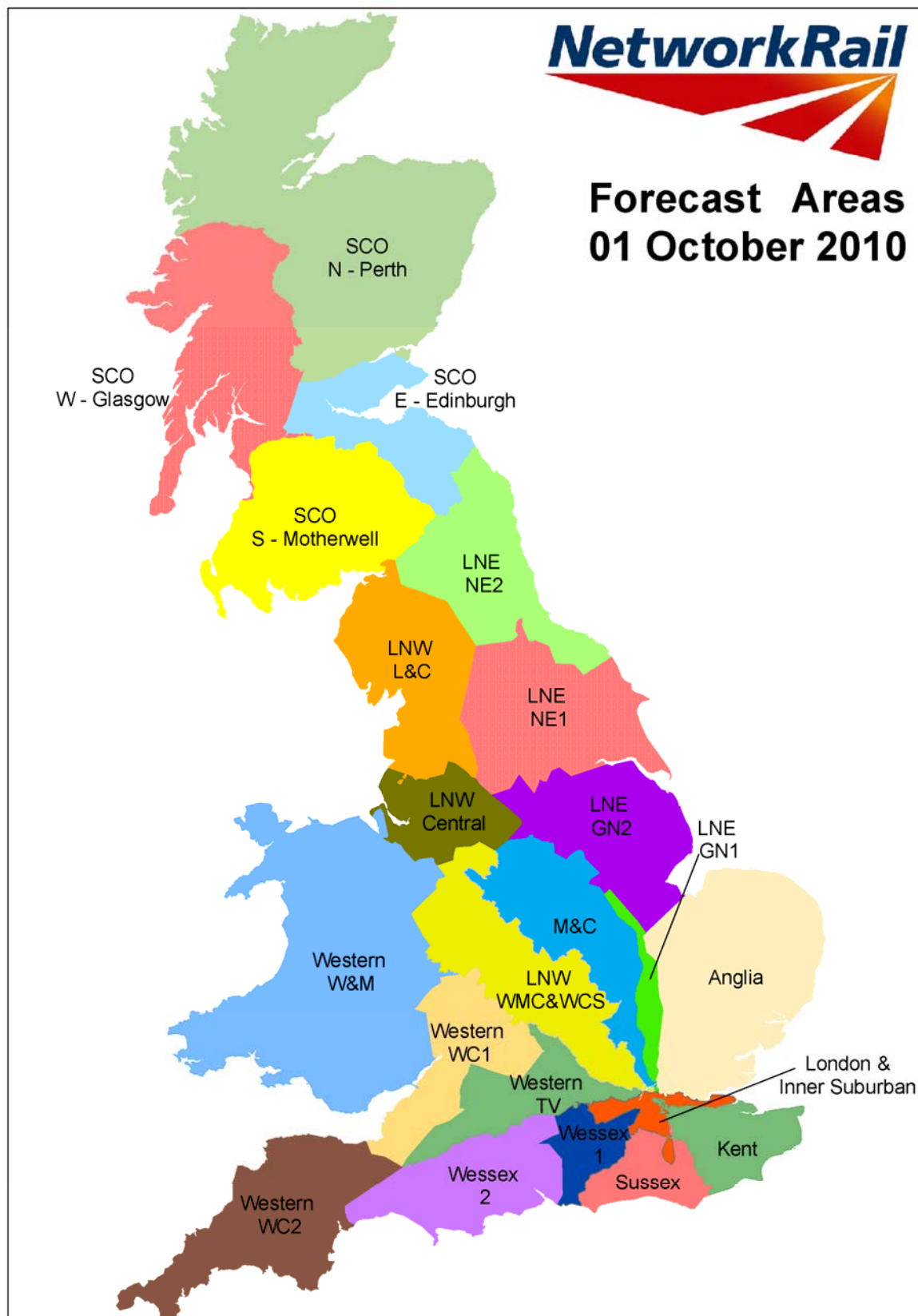
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APPENDIX A

NETWORK RAIL FORECAST AREAS



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APPENDIX B

TERMINOLOGY USED FOR NETWORK RAIL WEATHER ADVICE AND HAZARD IDENTIFICATION

ELEMENT	HAZARD
High temperatures	Air temperature is expected to reach or exceed 25 deg Celsius
Temperature Range	Difference between daytime maximum and overnight minimum is greater than 18 deg C.
Ice Day	Air temperature is not expected to reach or exceed zero deg Celsius
Heavy Rain	Rainfall during the forecast period is expected to exceed 25mm in lowland areas or 40mm in upland areas. However, if the criteria can be met during part of the forecast period, either due to rain having already fallen or rain expected to continue to fall for up to 18 hours after the end of the forecast period, a note shall be entered in the Comments Section.
Freezing Rain	Rain is expected to fall onto surfaces already below freezing and freezes
Freezing Fog	Fog is expected to form with air temperatures below freezing and fog droplets freeze on contact with surfaces and structures.
Thunderstorms	Lightning is expected. Details shall be entered in the Comments section.

ELEMENT	HAZARD
Wind 1	Forecast of gusts up to 59 mph
Wind 2	Forecast of gusts from 60 mph to 69 mph (Not sustained)
Wind 3	Forecast of frequent* gusts from 60 to 69 mph (sustained over 4 hours) Forecast gusts 70 mph or over Gusts 90 mph or over
Snow 1	Light falls (<5 cm) of snow.
Snow 2	Moderate falls (5 – 15 cm) of snow
Snow 3	Heavy falls (>15 cm) of snow
Frost Levels	Minimum air temperature if wind <12 mph Minimum air temperature if wind >12 mph Term
Frost 1	0°C to -3 °C 0 °C Slight
Frost 2	-4°C to -6 °C -1°C to -2 °C Severe
Frost 3	-7°C or below -3°C or below Very Severe
Weather Category Scotland Only	B: Rainfall Hazard. C: Cold Temperature Hazard. D: Wind Hazard
Min Air Morning	Minimum air temperature this morning, between 0600 hrs and 1200 hrs
Max Air Today	Maximum air temperature between 0600 hrs and 1800 hrs
Min Air Tonight	Minimum air temperature tonight, between 1800 hrs and 0600 hrs
Min Ground	Minimum ground temperature tonight, between 1800 hrs and 0600 hrs
Snow Type	Wet or Dry
Drifting Snow	Nil, Slight or Severe
Snow depth	Depth of lying snow (cm) based on level snow cover, not drifts.

* Refer to section 7.2

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APPENDIX C

AIDE MEMOIR FOR ROUTE CONTROL MANAGERS

Date	Time	Train/Freight Operating Companies affected:	
Attendees			
Event Description			
Scope of Work			
Estimated Time for Rectification		Access Available	
Plan for Rectification and Resource Provision:			
Logistical Time Scales			
Operational Method of Working and Resource Provision			
Safe Method of Working			
Train Plan			
Next Conference Update		Time	
Attendees			
Plan Changes / Update			
Train Plan			
Service Recovery			
Start Time		End Time	Full Restoration Time
Details			
Review Conference			
What Went Well?			
What Didn't?			
Lessons Learned			

Letter of Instruction: NR/BS/LI/290 (Issue 2)

Issue date: 16 November 2015

Compliance date: 16 November 2015

Expiry date: On update of standard

Contact details: Stuart Ash, National Control Manager (07739 776315)

Standard affected: NR/L3/OCS/043 – National Control Instruction – Procedure 7-1 (Issue 6), Weather & Seasonal Management

1 Reason for issue

This Letter of Instruction is being issued as an extension of NR/BS/LI/290 (Issue 1).

As well as aligning updates to the new Rule Book Module TS11 – Failure Of, or Work On Signalling Equipment – Signallers' Regulations, this instruction has been issued for the following reasons:

- To provide instruction and clarity whilst reducing duplication to those involved in seasonal preparedness in relation to wind speeds, flooding and conditions for running trains in snow, following instruction and discussion with the Office of the Rail Regulator (ORR).
- The amendments to these instructions are directly related to safety during severe weather. Clarity has been provided for operating conditions during severe weather management.
- The amendments made to the National Control Instructions under this LOI will improve performance by enabling the Routes to provide a Structured Expert Judgement relating to severe weather events utilising real time data.
- A major review of the standard is currently being undertaken and will be completed in March 2016, however it has been agreed to update this section of the National Control Instructions using this LOI to mitigate the risks identified and discussed with the ORR.

Please note: A full re-issue of NCI 7-1 is expected to take place in March 2016.

2 Scope

The scope of this document is designed to provide seasonal instructions, including non-operation of track circuits in conjunction with Route specific instructions.

This document will also provide direction to mitigate the risks from seasonal management of flooding, high winds, snow and high temperatures using forecast arrangements, actual weather data, utilisation of Route and National Extreme Weather Action Teams (EWATs) and Structured Expert Judgements (SEJs).

3 Changes

Clause/subclause	Change
NR/L3/OCS/043 – National Control Instruction – Procedure 7-1 (Issue 6), Weather & Seasonal Management	Refer to the new instruction appended below, which replaces the current National Control Instruction (7-1).
NR/L3/OCS/043 – National Control Instruction – Procedure 7-2 (Issue 6), Seasonal Management	This NCI is now withdrawn as it has been incorporated into the new instruction.