

Information for users

The following document:

NR/L2/TRK/001/mod02 Issue 7

 has had changes made to it, most recently, with effect from **31 March 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/263	Issue 6	Expired December 2015	Proceed to letter ►
NR/L2/TRK/001/mod02	Issue 7	05 September 2015	Proceed to standard ►

For further information, please contact:

[IHS Customer Support](#)

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
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Track inspection

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Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Contents

1 Scope	4
2 Definitions	4
3 Inspection and compliance	5
3.1 Inspection plan	5
3.2 Safe for traffic	5
3.3 Inspection on foot	5
3.4 Compliance	5
4 Track inspection; general requirements	6
4.1 Lines out of use	6
4.2 Temporary suspension of visual track inspections	6
4.3 Minimum frequencies	6
Figure 1 – The Track Category Matrix	7
Table 1 – Minimum Frequency of Basic Visual inspections	8
Table 2 – Minimum Frequency of Section Manager and Track Maintenance Engineer Inspections	9
Table 3 – Maximum interval between inspections – Visual and detailed inspections	10
4.4 Level Crossing inspection	10
4.5 Longitudinal timbers	11
4.6 Inspection of track after flooding	12
4.7 Short term traffic increase	12
4.8 Seasonal traffic differences	12
4.9 Low use routes	12
4.10 Additional inspections during project or track renewals work	12
4.11 Lineside	12
5 Basic visual track inspection	13
5.1 General	13
5.2 Tools and equipment	13
5.3 Inspections from a vehicle	13
5.4 Train-borne inspection	14
5.5 Inspection in poor light conditions and darkness	14
5.6 Inspection diagram	14
5.7 Inspection of track between platforms	15
5.8 Reporting	15

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

5.9 Minor maintenance	16
5.10 Designed patrolling and inspection	16
5.11 Themed inspection	16
6 Section Manager track inspection	17
6.1 Competency	17
6.2 Delegation of Section Manager inspections	17
6.3 Inspection Plan	17
6.4 During inspections	17
6.5 Reporting	18
6.6 Substitution for basic visual inspection	18
7 Track Maintenance Engineer track inspection	19
7.1 Delegation of Track Maintenance Engineer inspections	19
7.2 Inspection Plan	19
7.3 During inspections	19
7.4 Reporting	19
7.5 Completed inspections	19
7.6 Substitution for other inspections	19
8 Cab riding	20
8.1 General	20
8.2 Delegation of cab riding	20
8.3 Reporting	20
9 Report and record retention	20
Appendix A Reduction in basic visual inspection frequency	21
Table A.1 – IRJs in the CWR length	22
Appendix B Approval for the use of vehicles for visual track inspections	23
Appendix C Approval for basic visual inspection in darkness	24
Appendix D Process for undertaking substitute BVI during snow	25
Table D1 – Basic visual inspections; alternative arrangements when track covered by snow	25
Table D2 – Alternative measures	25

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Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

1 Scope

This module of NR/L2/TRK/001 covers:

- a) frequencies for basic visual track inspections, Section Manager track inspections and Track Maintenance Engineer track inspections;
- b) arrangements for planning and undertaking track inspections;
- c) cab riding;
- d) inspection from vehicles;
- e) inspection in poor light conditions and darkness;
- f) reporting of inspections completed and defects found;
- g) who undertakes the inspections;
- h) permitted substitution and delegation of inspections.

This module does not cover:

- i) the inspection of sidings (see NR/L2/TRK/001/mod17);
- j) the visual inspection and the ultrasonic testing of rails (see NR/L2/TRK/001/mod06);
- k) the visual inspection and ultrasonic testing of adjustment switches (see NR/L2/TRK/001/mod16);
- l) broken rails (see NR/L2/TRK/001/mod08).
- m) additional inspection requirements for S&C (see NR/L2/TRK/001/mod05).

2 Definitions

See Glossary (NR/L2/TRK/001/mod01).

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

3 Inspection and compliance

3.1 Inspection plan

A periodic inspection plan shall be in place for all track assets.

Inspection plans shall be set and progressed from original 'planned dates', not 'completed dates'.

Progress against plan shall be monitored and reported.

If the planning interval is exceeded, complete the inspection before the 'maximum interval between inspections' timescale (shown in Table 3) has been exceeded.

3.2 Safe for traffic

If the track is not safe for traffic, either a speed restriction shall be applied or the line shall be blocked. The restriction or line blockage shall remain in place until the necessary repairs have been completed.

3.3 Inspection on foot

Except where specifically permitted elsewhere in this standard, track inspections shall be undertaken on foot, walking within the length of the sleepers.

A maximum of two tracks shall be inspected at one time.

- If two plain line tracks are to be inspected during a single inspection, In daylight, the following rules apply the separation between adjacent rail running edges is 3050mm (10ft) or less. This separation may be increased to 3660mm (12ft) with RAM[T] approval.
- the view of the second track is not obscured.
- the track from which the observations are made is alternated between successive inspections.
- each route through S&C is inspected separately
- (i.e. up line, down line and crossover all observed from the 'four foot').
- include a 20 yard or 30 sleepers overlap so no track is missed at the interface between inspections. This requirement includes patrols which abut infrastructure not maintained by Network Rail (for example in depots and private sidings).

In some circumstances a more detailed inspection of particular features from other positions (such as the six-foot or cess) may be necessary.

NOTE

3.4 Compliance

If the inspection has not been completed within the maximum interval time frame, the inspection is non-compliant to this specification.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

4 Track inspection; general requirements

4.1 Lines out of use

Regular visual inspections may be reduced or suspended if the line is out of use for an extended period.

If the line out of use is not permanently fenced off from the operational route, continue Section Manager inspections at a reduced frequency.

Frequency to be agreed by the Track Maintenance Engineer (TME) and Route Asset Manager [Track] (RAM[T]). Focus these inspections on line-side security.

Inspect the line prior to re-opening to traffic. This may be undertaken by cab riding at slow speed.

4.2 Temporary suspension of visual track inspections

In conditions where effective visual inspection is not possible (e.g. the asset is hidden from view during flooding or heavy snow cover) the TME shall, in consultation with the RAM[T], implement alternative measures to confirm lines can be safely operated.

The process described in Appendix D can be applied (with RAM[T] approval) if the tracks are covered by snow.

Restrict any suspension of basic visual inspections to the shortest practical period. Record the reasons for the suspension and the alternative arrangements in place.

4.3 Minimum frequencies

4.3.1 Track category matrix

Visual inspections are carried out at intervals related to the Track Category of the line, which is obtained from the speed of traffic and equivalent annual tonnage using that line. The Track Category Matrix is shown in Figure 1.

The RAM [T] specifies the ruling track category for each line, on each section of route (e.g. down line, junction to junction), taking account of any significant changes to the speed or tonnage of traffic that occur.

4.3.2 Minimum frequency tables

Undertake basic visual inspections to the minimum frequencies shown in Table 1.

Undertake Section Manager and Track Maintenance Engineer inspections to the minimum frequencies shown in Table 2.

The maximum permitted intervals between inspections are shown in Table 3.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

4.3.3 Review of inspection frequencies

The TME shall review annually the frequencies applied in the inspection plans.

Asset condition or traffic changes may indicate that an increase in the inspection frequency is required.

Consider the occurrence of broken or defective rails, cracked or broken fishplates, vandalism, poor track geometry, missing components and general asset condition.

Frequency may decrease if there is a permanent reduction in traffic or the asset is renewed.

Issue revised inspection plans as necessary.

Keep records of any changes made to inspection plans for use at the next review.

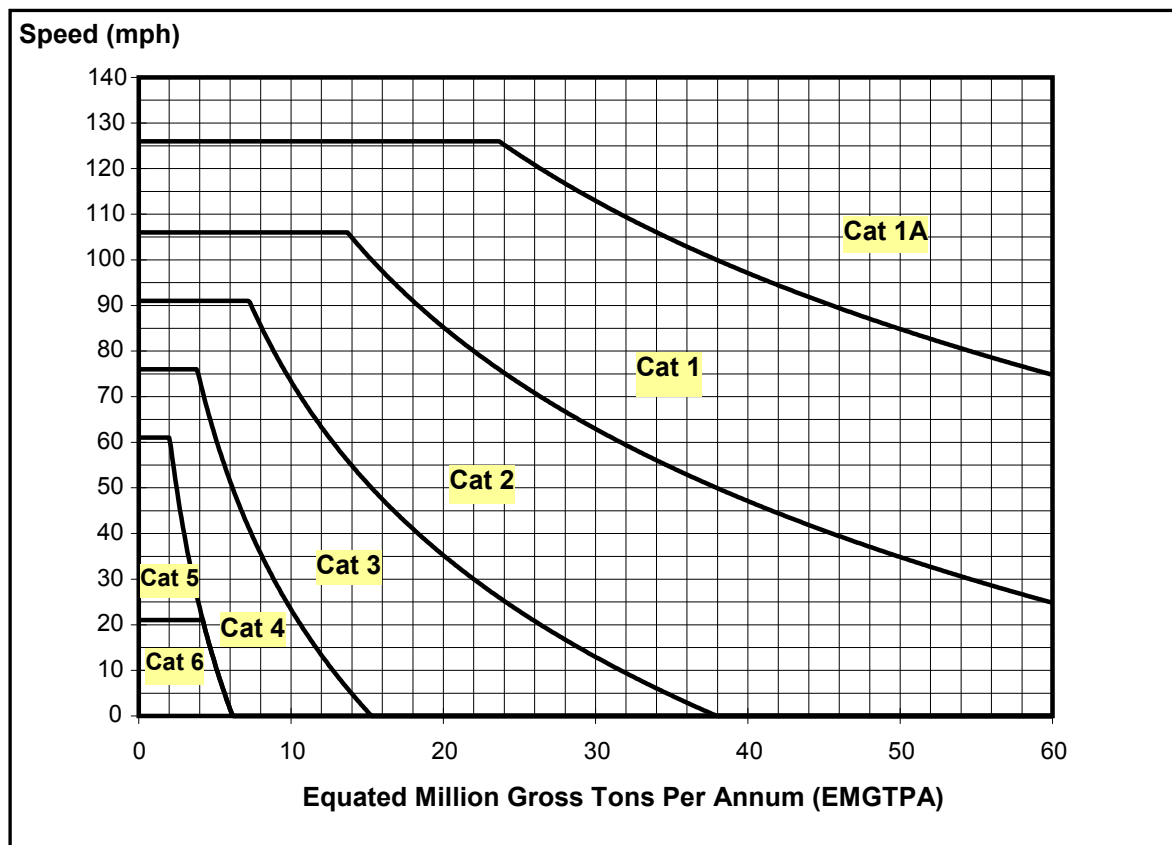


Figure 1 – The Track Category Matrix

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Table 1 – Minimum Frequency of Basic Visual inspections

		Track Category						
Activity	Qualifier	1A	1	2	3	4	5	6
Basic visual inspection of plain line jointed track		N/A	Twice per week	Twice per week	Once per week	Once per week	Once per 2 weeks	Once per 2 weeks
Basic visual inspection of plain line CWR	Flat bottom rail on concrete or steel sleepers ¹ with pandrol, SHC or vossloh fastenings.	Once per 2 weeks	Once per 2 weeks	Once per 2 weeks	Once per 4 weeks	Once per 4 weeks	Once per 8 weeks	Once per 8 weeks
Basic visual inspection of plain line CWR	All other types of construction ² .	Once per week	Once per week	Once per week	Once per 2 weeks	Once per 2 weeks	Once per 4 weeks	Once per 4 weeks
Basic visual inspection of strengthened S&C	Fully welded shallow depth switches on concrete bearers	Once per 2 weeks	Once per 2 weeks	Once per 2 weeks	Once per 2 weeks	Once per 2 weeks	Once per 4 weeks	Once per 4 weeks
Basic visual inspection of strengthened S&C	All other types	Once per week	Once per week	Once per week	Once per week	Once per week	Once per 2 weeks	Once per 4 weeks
Basic visual inspection of non-strengthened S&C		N/A	Twice per week	Twice per week	Once per week	Once per week	Once per week	Once per 2 weeks
PLPR Inspection System for plain line CWR	As detailed in NR/L3/TRK/1015/Mod02	Once per 4 weeks	Once per 4 weeks	Once per 4 weeks	Once per 4 weeks	Once per 4 weeks	Once per 4 weeks	Once per 4 weeks

Note:

1. Can include a short length of wood sleepers (up to 60 metres) within the length.
2. Frequency can be extended with RAM[T] approval by applying Appendix A requirements.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Table 2 – Minimum Frequency of Section Manager and Track Maintenance Engineer Inspections

		Track Category						
Activity	Qualifier	1A	1	2	3	4	5	6
Section Manager inspection of plain line jointed track		N/A	8 weekly	8 weekly	13 weekly	13 weekly	13 weekly	13 weekly
Section Manager inspection of plain line CWR	Flat bottom rail on concrete or steel sleepers ¹ with pandrol, SHC or vossloh fastenings.	16 weekly	16 weekly)	16 weekly	16 weekly	26 weekly (see note 2)	26 weekly (see note 2)	26 weekly (see note 2)
Section Manager inspection of plain line CWR	All other types of construction.	16 weekly	16 weekly	16 weekly	16 weekly	16 weekly	16 weekly	16 weekly
Section Manager inspection of strengthened S&C	Fully welded shallow depth switches, cast crossings on concrete bearers	13 weekly	13 weekly	13 weekly	13 weekly	26 weekly	26 weekly	26 weekly
Section Manager inspection of S&C	S&C not included in the above	8 weekly	8 weekly	8 weekly	13 weekly	13 weekly	13 weekly	13 weekly
Track Maintenance Engineer inspection		2 yearly	2 yearly	2 yearly	2 yearly	2 yearly	2 yearly	2 yearly
Section Manager cab riding	8 weekly where cant deficiency exceeds 150mm	8 weekly	8 weekly	13 weekly	26 weekly	26 weekly	26 weekly	26 weekly
Track Maintenance Engineer cab riding	13 weekly where cant deficiency exceeds 150 mm	13 weekly	13 weekly	26 weekly	Annually	Annually	Annually	Annually

Note:

1. Can include a short length of wood sleepers (up to 60 metres) within the length.
2. Minimum inspection frequency for longitudinal timbers is 16 weekly.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Table 3 – Maximum interval between inspections – Visual and detailed inspections	
Nominal planning interval	Maximum interval between inspections
Twice per week	4 days
Once per week	8 days
Once per 2 weeks	17 days
Once per 4 weeks	35 days
8 weekly	10 weeks
13 weekly	16 weeks
16 weekly	20 weeks
26 weekly	32 weeks
yearly	1 year & 8 weeks
Two yearly	2 years & 16 weeks
Maximum interval between inspections – PLPR inspection System	
Once per 4 weeks	13 weeks
This table can be applied to intervals for detailed inspections (unless otherwise stated)	

4.4 Level Crossing inspection

Detailed inspection and maintenance of level crossings is covered in NR/L2/SIG/19608 and NR/L3/TRK/4041.

4.4.1 During basic visual inspection

Routine basic visual track inspection will include, at level crossings, checks for the following:

- signs of deterioration or defects in any part of the track system concealed by the crossing surface (e.g. poor top which could be caused by ballast or sleeper failure);
- any worsening of the track condition which is affecting, or may affect, the safe use of the crossing (by rail or road vehicles);
- deterioration of the level crossing surface system, including loose components, broken or cracked deck panels and damage;
- loose deck units which rock or tilt under load from road traffic (which may indicate incorrect seating/support of the deck panels);
- gaps and steps between the deck panels likely to be a hazard to the crossing users (especially cyclists, pedestrians and those on horseback);
- clear flangeways (free from silt, rubbish, etc.);
- damage or deterioration to the trespass guards;
- correctly functioning telephones at unmanned level crossings.

Report any observed defect which is likely to render the level crossing unsafe.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Take immediate action where necessary to protect rail traffic and the users.

4.4.2 Inspection of rail and sub-surface components

The level crossing surface is removed to enable a detailed inspection of the rail (covered in NR/L2/TRK/001/mod09).

Whilst the surface is removed, inspect the condition of exposed sub-surface track components (sleepers, ballast, rail fastenings, rail pads and insulators).

Pay particular attention to:

- a) loose, missing or defective fastenings;
- b) insulators and pads;
- c) defective and/or voided sleepers;
- d) ballast condition.

4.5 Longitudinal timbers

Full details of the inspection and maintenance of longitudinal timbered bridges is covered in NR/L2/TRK/3038.

4.5.1 During basic visual inspection

Include, during routine basic visual track inspection, checks for the following at longitudinal timbered bridges:

- a) wheel/rail contact marks (for evidence of rail rotation creating wide gauge);
- b) tightness of holding down straps;
- c) voiding at “flying ends”;
- d) all fastenings in place and tight.

4.5.2 During Section Manager inspection

Undertake, during the Section Manager track inspection, an inspection of longitudinal timbers. Carry out at the Section Manager track inspection frequency, with a maximum interval between inspections of 16 weeks.

Record the inspection on TEF3021.

Include in the inspection the measurement of gauge, cross level, twist (at intervals not greater than 3 metres) and alignment, including at the ends of the bridge.

4.5.3 Annual inspection

Detailed annual inspections are undertaken as specified in NR/L2/TRK/3038 (recorded on form TEF3014).

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

4.6 Inspection of track after flooding

Carry out an inspection on foot after flooding, when the water has subsided, to check for:

- a) debris on the track;
- b) build-up of debris in flangeways, in switch openings, around equipment, etc;
- c) undermining due to ballast washout;
- d) contamination of ballast or formation;
- e) blocked drains.

This inspection shall be carried out by a person competent in accordance with NR/L2/TRK/001/mod13.

4.7 Short term traffic increase

When a short-term significant increase in traffic is proposed, the Section Manager [Track] (SM[T]) shall undertake an additional inspection before this starts. The SM[T] will specify and programme any additional repair work required.

Increase the frequency on an annualised basis visual inspections and SM[T] inspections to that of the revised track category applicable to the increased traffic. The increased frequency of inspection applies for the period of increased traffic.

4.8 Seasonal traffic differences

On routes with significant seasonal differences in traffic, an inspection regime based on more than one track category may be applied.

4.9 Low use routes

On running lines where the interval between trains is greater than two weeks (for jointed track) or four weeks (for CWR track), undertake an inspection not more than two weeks prior to trains running.

4.10 Additional inspections during project or track renewals work

The responsibility of the inspection and maintenance of assets during project and renewal work is specified in the AMP for the project.

An agreed Asset Management Plan (AMP) shall be in place prior to the commencement of work as defined in NR/L2/MTC/088 - Arrangements for maintenance of new and changed assets.

4.11 Lineside

Equipment, materials or scrap, which could be placed on the line and cause a derailment, shall be secured or removed.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

5 Basic visual track inspection

5.1 General

Basic visual track inspections, undertaken by competent persons, identify defects which, if uncorrected, could affect the safety or reliable operation of the railway before the next inspection.

Details for the management of basic visual inspection can be found in NR/L3/TRK/1015/Mod01.

Requirements for assessing competency are specified in NR/L2/CTM/011.

Carry out all basic visual inspections on foot, unless the use of inspection vehicles (to carry out a proportion of the inspections) has been approved by the RAM[T].

For approval process see section 5.3.

Inspect in daylight unless approved otherwise by RAM [T] (see section 5.5).

Where practicable, the opportunity should be taken to observe the track under traffic.

5.2 Tools and equipment

The tools and equipment required for basic visual inspections are specified in NR/L3/TRK/002/A01.

5.3 Inspections from a vehicle

Undertaking basic visual inspections from a vehicle is permitted after assessment (by the TME) and approval (by the RAM[T]) using the process described in Appendix B.

NOTE RAM[T] only needs to provide initial approval. Annual reviews undertaken by TME.

Undertake inspections using a vehicle so that:

- a) all S&C is inspected on foot at the frequencies given in Table 1 (any observation from the vehicle being in addition to this);
- b) one in four inspections is on foot (i.e. maximum of 75% permitted by vehicle);
- c) the vehicle is stopped at any location where a close inspection is needed;
- d) on double track, where practicable the inspector sits on the six-foot side of the vehicle (to achieve the best possible view of both lines);
- e) double track is inspected by travelling on opposite lines on alternate patrols;
- f) the additional requirements of section 5.5 are applied when inspecting in poor light or darkness.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

5.4 Train-borne inspection

5.4.1 Plain line pattern recognition

Plain line pattern recognition inspection is an alternative process for delivery of basic visual inspection of plain line track components.

The requirements for using the 'plain line pattern recognition inspection' process are detailed in NR/L3/TRK/1015/mod02.

Application of the process to selected routes requires the agreement of the TME and the RAM[T].

5.4.2 S&C diamond (Dynamic Inspection And Measurement ON Demand)

S&C diamond inspection is an alternative process for the basic visual inspection of S&C track components.

5.5 Inspection in poor light conditions and darkness

Undertaking basic visual inspections in darkness and poor light conditions is permitted after assessment (by the TME) and approval (by the RAM[T]) using the process described in Appendix C.

NOTE RAM[T] only needs to provide initial approval. Annual reviews undertaken by TME.

In darkness each track shall be inspected individually unless sufficient lighting is used to provide as close to "in daylight" conditions as practicable.

The requirements of this section also apply to tunnels and other locations with poor visibility during daylight hours.

See NR/L3/TRK/1019 for the specification for the provision of lighting for visual inspections.

5.6 Inspection diagram

Inspection diagrams provide a diagrammatic record of the scheduled track inspection, in lengths, for a TME area.

Provide a uniquely referenced diagram for all:

- basic visual inspections and;
- any scheduled supplementary/themed inspections required by alternative means of undertaking BVI such as PLPR or Risk Based Maintenance. The diagram is part of the method statement for carrying out the inspection.

Use TEF3065 to create the inspection diagram.

Cross-reference the inspection diagram to the work order for each track patrol.

A track inspection diagram shall include:

- a drawing of the track layout to be inspected, showing other lines and significant landmarks (e.g. signal boxes) within the patrol length;
- the description for the scheduled inspection (e.g. BVI, Drainage, RCF);

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

- c) which adjacent track is included in the inspection;
- d) adjacent tracks not included in the patrol;
- e) the start and finish mileage of the patrol;
- f) the route to be followed by the patroller to inspect all the track in the patrol (e.g. at complex junctions, where tracks diverge or where tracks are hidden by island platforms or bridge piers);
- g) the direction of patrol;
- h) the ruling track category used to calculate the inspection frequency;
- i) the frequency of the patrol;
- j) the unique identifier for the patrol;
- k) reference to linked patrols (e.g. 2A = up direction patrol, 2B = down direction patrol);
- l) the Engineers Line Reference (ELR) for the route;
- m) GEOFIS track identification and/or track name;
- n) all S&C, including the point numbers for each point end;
- o) permanent special features within the patrol length, e.g.:
 - major structures (viaducts/tunnels);
 - longitudinal timber systems;
 - level crossings;
 - platforms;
- p) a note of special instructions (e.g. the use of vehicles for inspection, lighting arrangements in darkness, inspection theme if any);
- q) boxes for the TME and SM[T] to approve the diagram;
- r) the date of issue and reference number, for version control.

5.7 Inspection of track between platforms

Two tracks separated by a 6ft interval may be observed from one platform.

If the interval between the two tracks is greater than a nominal 6ft, it will be necessary to inspect the second track from another platform.

Inspect top and line from rail level at each end of the platform.

Carry out inspections on the track (within the length of the sleeper) through platforms at a frequency appropriate to risk.

Risk assessment to determine the frequency of the above inspection should consider track construction, curvature, frequency of track geometry recording and condition.

5.8 Reporting

Report basic visual inspections on TEF3015.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Full details on the reporting and recording of defects and repairs can be found in NR/L3/TRK/002/A01.

The SM[T] shall review basic visual track inspection reports to determine and prioritise the actions needed to address the faults identified.

Enter prioritised actions (work required) into the work bank.

The SM[T] shall sign TEF3015 within three days of the inspection being carried out.

5.9 Minor maintenance

Maintenance such as tightening of bolts, replacement of loose or missing fastenings and lubrication is carried out during the inspection. Flangeway and switch obstructions are cleared.

Mark on site any remedial work undertaken. Record details on TEF3015 and enter in the work bank as completed work.

5.10 Designed patrolling and inspection

In places where access to the infrastructure is limited, a designed inspection to cover track geometry, track components and line side separately is permitted.

The design inspections will be equivalent to, or better than, conventional track inspection from the four-foot in daylight.

NOTE An example design could include track geometry checks delivered by frequent track recording, component inspection taking place by night with suitable lighting and off track inspection carried out separately.

A route or location specific Assurance Case shall be produced for each design patrol proposed, supported by the RAM[T] and approved by the Professional Head of Track.

5.11 Themed inspection

A basic visual inspection or Section Manager inspection may focus on a particular aspect or component.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

6 Section Manager track inspection

6.1 Competency

The person undertaking the Section Manager inspection must be competent in Track Engineering competency Tr7 (including 053 inspection).

The TME shall maintain a record of competent persons approved to carry out section manager inspections. The record will include details of their training, mentoring and experience that qualifies them to undertake these inspections.

6.2 Delegation of Section Manager inspections

Where it is not practical for the SM[T] to undertake all the required Section Manager inspections, some inspections may be delegated to a competent person approved by the TME (e.g. a suitably experienced Assistant SM[T] or Assistant TME).

Delegation is limited such that the SM[T] shall:

- see all of their plain line CWR at least once within any 52 week period;
- see all of their S&C and jointed track at least twice within any 52 week period;
- not delegate more than 50% of inspections over a rolling 12 month period;
- review the inspection report with the person who undertook the inspection;
- countersign the inspection report.

6.3 Inspection Plan

The SM[T] shall produce an inspection plan that confirms:

- the limits of each inspection;
- the date of the inspection;
- compliance with Tables 2 and 3;
- compliance with section 6.2.

Record details of who carried out each inspection and the date it was undertaken.

An inspection diagram may form part of the inspection plan, particularly at complex locations.

6.4 During inspections

The requirements for carrying out section manager inspections are detailed in NR/L3/TRK/002/A02.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

6.5 Reporting

Report Section Manager visual inspections on TEF3022.

Send reports to the TME, who will review and sign each report within 4 weeks of the date of the inspection.

Enter actions (work required) identified and prioritised on the report into the work bank within 4 weeks of the date of the inspection.

6.6 Substitution for basic visual inspection

In exceptional circumstances it is permissible to substitute a Section Manager track inspection for a basic visual track inspection provided the requirements in section 5 are complied with.

Do not include substitution as an integral part of an established basic visual inspection plan.

A Section Manager track inspection which is being carried out as a substitute for a basic visual track inspection, shall be undertaken in accordance with the Track Patrolling Diagram.

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Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

7 Track Maintenance Engineer track inspection

7.1 Delegation of Track Maintenance Engineer inspections

A minimum of 75% of engineer track inspections shall be undertaken by the TME responsible for the section of line.

Up to 25% of the engineer track inspections may be carried out by a designated engineer approved as competent by the RAM[T] (e.g. an ATME or a TME from another area).

The TME shall maintain a record of persons approved by the RAM[T].

The TME shall review the report of each delegated inspection with the person who undertook the inspection and countersign the report.

7.2 Inspection Plan

The TME shall produce an inspection plan that confirms:

- the limits of each inspection;
- the date of the inspection;
- compliance with Tables 2 and 3;
- compliance with section 7.1.

7.3 During inspections

During inspections, measurements of cross level, gauge and rail wear shall be made appropriate to the track type and condition.

Track geometry recording information should be used during the inspection.

7.4 Reporting

Report Track Maintenance Engineer visual inspections on TEF3017.

Enter actions (work required) identified and prioritised on the report into the work bank

7.5 Completed inspections

Record details of who carried out each inspection and the date it was undertaken.

7.6 Substitution for other inspections

A Track Maintenance Engineer track inspection cannot be undertaken as a substitute for a basic visual track inspection or a Section Manager track inspection.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

8 Cab riding

8.1 General

Section Manager and Track Maintenance Engineer track inspections are supplemented by cab riding.

Carry out cab ride inspections from the driving cab, during daylight hours.

Cab riding is mandatory on passenger routes and is undertaken where practicable on freight-only routes.

Cab riding is not mandatory on lines where the line speed is 20mph or lower.

Cab ride each line of a route at the frequency specified in Table 2.

NOTE It is not practicable to ride all tracks (e.g. through S&C) or to travel over all loops and platforms.

8.2 Delegation of cab riding

Some delegation of cab riding, to a competent person, is permitted.

Approval for Section Manager cab riding is by the TME and engineer cab riding is by the RAM[T].

Delegation shall be limited such that the SM[T] or TME shall:

- not delegate more than 50% of cab ride inspections over a rolling 12 month period;
- see all of their section at least once within any 52 week period;
- review the report with the person who undertook the inspection;
- countersign the report.

8.3 Reporting

Report cab riding inspections on TEF3024 (for SM) and TEF3023 (for TME).

9 Report and record retention

All track inspection reports and records shall be retained for a minimum of 3 years.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Appendix A

Reduction in basic visual inspection frequency

A.1 Introduction

This methodology shall only be applied to *plain line CWR*, 'all other types of construction' as described in Table 1.

If the criteria described in this appendix are met, the frequency of patrolling may be reduced by applying a factor of 0.5 to the frequencies in Table 1 (i.e. doubling the interval between inspections).

The assessment shall review the effectiveness of:

- basic visual inspection in managing particular risks;
- inspection vehicles if used (Appendix B);
- overall inspection regime including any proposed additional inspection systems.

A.2 Initial assessment

Undertake a site review.

TEF3075 can be used to record this review.

A.3 Initial proposal

Complete TEF3090.

If the length conforms to the required criteria (indicated by a tick in each bold box), the site may be proposed for a reduction in the frequency of inspection.

If the length does not meet the required criteria (indicated by ticks falling outside the bold boxes). a reduction in the frequency of inspection cannot be made without additional mitigation measures being put into place that address the issue.

A.4 Approval

Complete and sign the TEF3091 "Approval of reduction in visual inspection frequency certificate". Submit this with supporting evidence to the RAM[Track] for approval.

A.5 Action required prior to extending basic visual track inspection frequency

Before the extending basic visual track inspection frequency confirm that:

- all locations where there are localised gauge problems requiring the installation of gauge tie bars have been permanently repaired;
- all IRJs in the CWR length concerned are as specified in Table A.1;
- all rail defects which require clamping, have been clamped;
- all documented preparatory work is completed;
- all documented mitigation measures are in place;
- a compliant track geometry recording regime is in place

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

- g) all tunnels and other locations where high rates of rail and track component corrosion is particular maintenance concern have a management plan in place;
- h) the patrolling diagrams and the work planning system have been updated;
- i) the limits of the various patrols are clearly identifiable on the ground either by reference to landmarks (e.g. mileposts or structures) or by marking the sleepers.

Table A.1 – IRJs in the CWR length	
Track Category	Insulated joint type
1A, 1 and 2	6-hole shop assembled glued insulated joint
3, 4, 5, and 6	6-hole shop assembled glued insulated joint
	4-hole shop assembled glued insulated joint
	6-hole dry insulated joint
Note: In the event of an IRJ failure necessitating the changing of the fishplates in track Category 1A, 1 or 2 line which is being inspected at extended intervals under the arrangements of this appendix, a 6-hole dry insulated joint may be formed as a temporary arrangement but it shall be replaced with a 6-hole shop assembled glued insulated joint within 13 weeks or inspection to the frequency in Figure 1 shall resume.	

Where inspection is being carried out in darkness, or it is proposed to carry out inspection in darkness, the requirements of section 5.5 and Appendix C shall also be met.

A.6 Review

The TME shall monitor the continuing validity of the extended inspection frequency. Use TEF3090 to record the periodic revalidation of sections of line where reduced frequency inspection is in force. Review annually, or sooner if any of the following apply:

- a) adverse trends in track quality as revealed by analysis of track geometry data;
- b) adverse trends in the numbers of Immediate Action Limit and Intervention Limit faults as revealed by analysis of track geometry data;
- c) increasing numbers of patroller reported defects (M1 and M1*) in the job bank as revealed by Plan–Do–Review (PDR) meetings;
- d) major works that may affect the assumptions in the risk assessments (e.g. track renewals, S&C recoveries and earthworks remediation);
- e) introduction of new types of rolling stock onto a route;
- f) introduction of a new timetable with increased traffic levels;
- g) any other incidence of the qualifying criteria being breached.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Appendix B

Approval for the use of vehicles for visual track inspections

B.1 Process

The TME shall complete TEF3092 and submit this to the RAM[T] for approval.

If approval received, update the patrolling diagrams and the work planning system to reflect the new inspection methodology and patrol lengths.

If the vehicle is to be used for inspection in poor lighting or darkness the requirements of section 5.5 and Appendix C shall be met.

B.2 Vehicle requirements

The vehicle provided shall:

- a) be an approved type;
- b) allow the speed to be controlled during inspection to a maximum of 10mph. (it may be necessary to reduce this speed further when inspecting jointed track);
- c) be configured so that not more than 10 sleepers in front of the vehicle are out of view from the inspector's position in the vehicle;
- d) allow the necessary equipment and materials to be carried (to enable measurement and minor maintenance work to be undertaken);
- e) not carry the spare wheel on the bonnet.

B.3 Review

The TME shall undertake a review of the use of vehicles if any of the following occur:

- a) adverse trend in the number of intervention limit and immediate action limit faults;
- b) increase in the number of missing or loose fastenings;
- c) increase in the number of cracked or broken fishplates;
- d) increase in the number of faults that could not be detected from a vehicle but that have been picked up at Section Manager inspection (e.g. rail corrosion and loose components).

The Track Maintenance Engineer and Section Manager routine inspections are part of the ongoing validation, confirming that this method of inspection is successfully identifying defects, monitoring deterioration and reporting action required in a timely manner.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Appendix C

Approval for basic visual inspection in darkness

C.1 Process

The TME shall complete TEF3053 and submit this to the RAM[T] for approval.

If approval is received, update the patrolling diagrams and the work planning system to reflect the new inspection methodology and patrol lengths.

The assessment will identify the limits of the inspection and the features to be observed within the inspection.

It will detail the method for inspecting or mitigating those features which cannot be observed.

Track access for regular basic visual inspections in darkness shall form part of a cyclical possession plan to demonstrate consistent compliance to the minimum inspection frequencies. Short term possession applications are not permitted.

If a vehicle is to be used for inspection the requirements of section 5.3 and Appendix B shall also be met.

C.2 Review

The TME shall undertake a review of the inspection in darkness arrangements annually, or sooner if any of the following occur:

- a) adverse trend in the number of intervention limit and immediate action limit faults;
- b) increase in the number of missing or loose fastenings;
- c) increase in the number of cracked or broken fishplates;
- d) faults have not been detected during BVI from a vehicle, but that have been picked up at Section Manager inspection (e.g. rail corrosion, loose components).

The Track Maintenance Engineer and Section Manager routine inspections will be part of the ongoing validation, confirming that this method of inspection is successfully identifying defects, monitoring deterioration and reporting action required in a timely manner.

Ref:	NR/L2/TRK/001/mod02
Issue:	7
Date:	05 September 2015
Compliance date:	05 December 2015

Appendix D

Process for undertaking substitute BVI during snow

Review sections of track affected using Table D1 and D2.

Record action plan on TEF3022.

Table D1 – Basic visual inspections; alternative arrangements when track covered by snow			
Factors to be considered		1 x BVI missed	2 x BVI missed
Main	Subset		
Track construction	Fastening type ¹ (likelihood of falling out)	Apply alternative measures ²	Apply for TNC <i>and</i> Apply alternative measures ² <i>and</i> Consider need for additional mitigation
Defects	Repeats		
	Clusters		
Outstanding work bank items	Priority		
	Location		
Ground condition	Prone to flooding		
	Prone to settlement		
Notes: 1. Pandrol fastenings are low risk. Others like BH keys and BR1 spikes are higher risk. 2. See Table D2.			

Table D2 – Alternative measures	
Minimum to be applied	Additional to consider
Cab ride 1 at 2x BVI frequency. Report on TEF3024	Clear snow from locations of high risk fastenings
	Target inspection of known defects
	Apply ESR
	Slow-speed cab ride
Note: 1. Person undertaking cab ride shall be competent to undertake SM inspections unless otherwise authorised by the TME.	

Letter of Instruction: NR/BS/LI/263 Issue 6

Inspection of track using the OmniVision[®] system

Issue date: 31st March 2015
Compliance date: 31st March 2015
Expiry date: Upon re-issue of NR/L3/TRK/1015/mod02 and NR/L2/TRK/001/mod02
Contact details: Robert Lacey (Principal Engineer [Track & Civils]) 07771 668542

Standard affected: NR/L2/TRK/001 Issue 7 Module 2 Clause 5.4

1 Reason for issue

Extended pending replacement by a new Level 3 document covering the inspection of track using the PLPR inspection system.

2 Scope

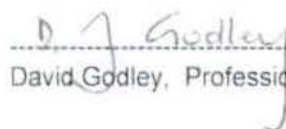
These processes shall only be applied where PLPR is to be used to replace Basic Visual Inspection.

3 Changes

Clause/subclause	Change
Date	Extended to meet quarterly standards publication and briefing timescales.

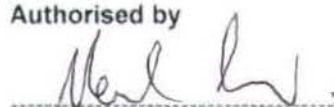
Authorisation of Standard Owner

Authorised by


David Godley, Professional Head [Track]

Authorisation of appropriate Delivery Function authority

Authorised by


Neil Lawson, Director, Maintenance and Operations
Services

4 Recipients:

Name	Post
David Godley	Professional Head [Track]
Neal Lawson	Director, Maintenance and Operations Services
Ken Lambert	Programme Manager
Jeremy Bullock	Project Manager
Christopher Wright	Implementation Leader
Colum Cavanagh	RAM[Track], Wessex
Andy Franklin	RAM[Track], Wales
Roger Griffiths	RAM[Track], East Midlands
Peter Cushing	RAM[Track], LNE
Michele Mullen	RAM[Track], Scotland
Steve Pearson	RAM[Track], Western
Nigel Wilson	RAM[Track], Anglia
Philip Jeyes	RAM[Track], South East
David Webb	RAM[Track], LNW

5 Details of briefing or cascade communication process

Jeremy Bullock (Project Manager, PLPR) has been working with the local teams to train inspectors and establish the necessary management processes.

Formal cascade brief will be led and monitored by Jeremy Bullock of the project to the RAM[T], TME, SM[T], Inspectors, Operations Control Centres and Fault Management System teams.

NR/BS/LI/263/1401 - Inspection of track using the OmniVision[®] system

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