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Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire
GU11 2HP

Dear Andrew,

RAIB Report: Collision between a train and a collapsed signal post at Newbury, 17 November 2014

I write to report¹ on the consideration given and action taken in respect of recommendations 1- 5 addressed to ORR in the above report, published on 23 September 2015.

The annex to this letter provides details in respect of each recommendation. The status of recommendations 1 and 5 is '**Insufficient response**', the status of recommendation 2 is '**Progressing**' and the status of recommendation 3 is '**Implementation on-going**'. ORR will advise RAIB when further information is available regarding actions being taken to address these recommendations.

The status of recommendation 4 is '**implemented**' and we do not propose to take any further action in respect of this recommendation, unless we become aware that any of the information provided becomes inaccurate, in which case I will write to you again.

We will publish this response on the ORR website by 23 September 2016.

Yours sincerely,

Tracy Phillips

¹ In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Initial consideration by ORR

1. All 5 recommendations were addressed to ORR when the report was published on 23 September 2015.
2. After considering the recommendations ORR passed recommendations 1, 2, 3 and 5 to Network Rail and recommendation 4 to Amey asking them to consider and where appropriate act upon them and advise ORR of its conclusions. The consideration given to each recommendation is included below.
3. This annex identifies the correspondence with end implementers on which ORR's decision has been based.

Recommendation 1

The intent of this recommendation is to reduce the risk of failure of ancillary structures across the national rail network.

Network Rail should review its asset management strategy with the objective of improving the examination and maintenance of its ancillary structures (paragraphs 96a and 98). The review should consider:

- identification of structures at greatest risk of failure (eg by age of the structure, those of hollow section, those without galvanised or otherwise treated surfaces, those in hostile environments) and the possible consequences of failure in the context of wider safety risks to the railway;
- steps to mitigate the risk (such as periodic replacement); and
- specific measures to deal with planted posts as well as those structures fixed to foundations.

ORR decision

4. It is unclear to ORR how Network Rail will address the three specific bullet points outlined in the RAIB recommendation and deliver the intent of the recommendation. ORR has suggested meeting with Network Rail to discuss this further and agree a way forward.
5. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:
 - taken the recommendation into consideration; but
 - has not provided a sufficient response setting out how it will be delivered.

Status: Insufficient response. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Information in support of ORR decision

6. On 16 December 2015 Network Rail provided the following initial response:

To achieve improvement to the examination and maintenance of ancillary structures, and reduce the risk of failure, STE Structures will lead a working group to develop an integrated policy for the design, maintenance and examination of Network Rail's ancillary asset stock.

The working group will include representatives from parent asset owners. (Electrification, Telecommunications, Signalling, Commercial Property, Buildings and Plant).

The objective is that the developed policy will minimise whole life, whole system costs and define the most appropriate approach to asset maintenance, inspection and renewal, by looking at:

- *Asset sub-groups based on structural form and function.*
- *The use of reliability centred maintenance (RCM²).*
- *Future design and specification with cognisance to specific recent failures.*
- *Ongoing maintenance / examination / intervention of existing asset stock.*

The policy should detail:

Long term design / specification requirements to minimise intervention and facilitate future examination. Consideration on continued use of hollow sections (and alternate suitable sections), appropriate foundation design (not sensitive to ballast drop), coatings and materials (which maximise durability within the railway environment) and the requirement to undertake cross discipline approval of renewal schemes which affect maintenance and inspection of other assets.

Following determination of long term asset strategy, the requirements for examination and intervention can be further developed and detailed within the policy.

Network Rail has, in response to the Newbury incident, developed and implemented an initiative to undertake enhanced visual examinations to all ancillary assets currently examined by line of route. The project includes an exercise to produce an accurate inventory of such assets. The output of this exercise will be a full asset register containing information such as asset type, structural form and presence of hidden details, enabling structures at greatest risk of failure to be identified.

Following implementation of a programme of enhanced visual examinations and confirmation of asset inventory, the developed ancillary asset policy will detail future examination requirement, consider and implement risk based

examination intervals and prioritisation, considering and incorporating as necessary the principles of RCM.

Consideration will also be given to the implementation of a programme of hidden critical element examinations (HCEs) to ancillary assets – see the action plan developed to address recommendation 2.

Finally, the policy will also detail required parameters for intervention taking into account, long term strategy for future design and specification, expected serviceable life and periodic replacement.

Timescale:

Publish integrated policy for the management of Ancillary Assets by 2 December 2016.

7. On 1 February 2016 ORR wrote to Network Rail advising that it did not consider that the specific bullet points within the recommendation had been addressed by the response and suggesting that the timescales proposed could be improved, particularly when a significant amount of the work proposed has already been applied in discharging ORR's improvement notice served in December 2014 in respect of visual inspections of straight signal posts.

8. On 10 March 2016 Network Rail provided the following further update:

Please note Recommendation No1 Bullet Points with added notation: -

- *Identify assets at greatest risk of failure (age, component section, protective coatings, environment, consequence of failure) - **Point A.***
- *Steps to mitigate risk (such as periodic replacement) – **Point B.***
- *Measures to deal with planted & fixed posts - **Point C.***

To address Rec 1, a multi discipline working group will develop an integrated policy for the management of ancillary assets.

*In developing the policy; data requirements, examination, evaluation and intervention measures will be reviewed and improved as deemed necessary. Each stage of the asset management process will be developed with due consideration for the identification and management of assets at greatest risk of failure, the determination of suitable risk mitigation, including measures to deal with both planted and fixed posts. (**Points A, B & C.**)*

*The collection, retention and evaluation of asset data will be improved. Contemporary data should be kept for all assets including age, construction form (section type), details of protective coatings provided, location (to determine environmental factors, failure consequences etc.). (**Point A**) Review of this data, guided by a published policy, will better inform the asset engineer during examination evaluation on current condition, expected serviceable life and suggested interventions. (**Points B & C.**)*

Examination requirements (including the need for detailed examination and on what frequency for instance) will be determined with full cognisance of the risk factors noted in the recommendation. (Points A, B & C).

Policy requirements would include a strategy for intervention and future design and specification based on suitable risk mitigation measures. (i.e. expected design life, strategy for replacement, maintenance of protective coatings etc) (Point B & C).

Upon determination of an integrated policy, relevant cross discipline management standards will need to be reviewed, revised and reissued to mandate process improvements. The closure date has been determined to allow sufficient time for the formation the working group, the development of policy and revision of standards and then publication following review and acceptance by stakeholders.

Milestones to completion: -

- 1) Establish Working Group (including Parent Asset Owners) – 1 April 2016*
- 2) Identify NR Standards Requiring Revision - 10 June 2016*
- 3) Produce Draft Policy for Stakeholder Consultation – 29 July 2016*
- 4) Produce Draft Management Standards for Stakeholder Consultation – 26 August 2016*
- 5) Publish Final Integrated Asset Management Policy for Ancillary Assets – 4 November 2016*
- 6) Publish Revised Management Standards – 18 November 2016*
- 7) NR Formal Closure of Newbury Rec 1 – 2 December 2016*

9. ORR reviewed this response on 23 May and concluded that, whilst it provided some further detail, it remained high level and lacked clarity on the specific actions that would be taken to address the recommendation. ORR considered that the update focused on delivering a policy for the management of ancillary assets when the intent of the recommendation of the recommendation was for Network Rail to review its asset management strategy. On 27 May 2016 ORR wrote to Network Rail setting this out and suggested that a meeting would be beneficial to discuss the recommendation and the proposed actions more fully. No meeting has yet been scheduled - ORR has chased.

Recommendation 2

The intent of this recommendation is to reduce the risk of corrosion at the base of ancillary structures and to allow examination of baseplates fixed to foundations.

Network Rail should develop and implement a risk assessment process to determine when it is necessary for the critical elements of ancillary structures to be exposed for the purposes of examination and/or to mitigate the risk of corrosion. The process should take into account the specific risk of corrosion of buried metalwork on hollow section ancillary structures that are fixed to foundations.

ORR decision

10. ORR is content with Network Rail's response to the recommendation but has asked for confirmation that the planned HCE examinations will include the elements of structures that are buried beneath ballast.

11. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- is taking action to implement it, but ORR has yet to be provided with a timebound plan.

Status: Progressing. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Information in support of ORR decision

12. On 16 December 2015 Network Rail provided the following initial response:

Network Rail has developed an enhanced visual examination regime in response to the Newbury incident (see NR action plan to address Rec 1).

Following successful implementation of this enhanced regime, in conjunction with the actions to address recommendation No1, the proposal to develop a programme of Hidden Critical Elements (HCE) examinations for ancillary assets will be developed.

The HCE programme will determine the required extent of any intrusive exam, the frequency and applicability of asset type to facilitate the examination of buried, obscured components such as baseplates buried in ballast or clad or obscured superstructure.

Timescale:

Implement programme of HCE ancillary asset examinations in conjunction with publication of integrated policy by 2nd December 2016.

13. On 1 February 2016 ORR requested that Network Rail clarify whether the new enhanced visual examination regime or Hidden Critical Elements examinations will deliver the recommendation requirement to develop and implement a risk assessment process.

14. On 10 March 2016 Network Rail provided the following further update:

Network Rail's response to this recommendation states that a programme of Hidden Critical Elements (HCE) examinations will be developed for ancillary

assets. This will be an extension of the current HCE programme which at the moment applies to Bridges, Culverts and 'bridge like' structures that span or cantilever the operational railway.

The HCE programme will require the: -

- Identification of applicable HCE details (risk factors)
- Determination of asset types with such details and their registration
- Implementation of a risk prioritised programme of examinations (considering age, asset type/construction, consequence of failure, adequacy of current condition, the amount of contemporary conditional data, effectiveness of other examinations within the overall regime, known/ forecast deterioration/corrosion rates, condition of protective coatings, expected serviceable life, type and number of HCE details present)
- Following implementation, the business as usual HCE process with entail periodic examination with risk based frequencies, review of onsite findings from initial examinations, defined follow on actions and interventions/ renewals in line with an integrated asset policy
- Maintain records, revise and review accordingly.

The HCE programme will in effect be a process which identifies risk factors and enables a process of controls to be implemented, i.e. a risk assessment process which determines when it is necessary for the critical elements of ancillary assets to be exposed for the purposes of examination and /or to mitigate the risk of corrosion.

15. ORR wrote to Network Rail on 27 May asking for confirmation that the proposed programme of HCE examinations will include the elements of structures that are buried beneath ballast (as indicated in its 16 December response) and to provide timescales for each of the individual HCE programme milestones set out in its latest response. No response has been received to date.

Recommendation 3

The intent of this recommendation is to reduce the vulnerability of the routine examination and maintenance regimes to missing failures of ancillary structures that are currently subject to visual examinations only.

Taking account of the emerging findings from the implementation of Recommendation 1, Network Rail should review its examination and maintenance regimes for ancillary structures and make any necessary improvements to ensure that its processes are commensurate with the risk arising from the failure of those structures (paragraphs 96b, 96d and 99). The review should include, but not be limited to, consideration of the following areas:

- a regime of periodic enhanced examinations for ancillary structures (such as the Detailed Examination regime applied to bridges and other complex structures);

- consideration of the special requirements for examination of the buried elements of planted posts;
- a means for assessing the internal condition of hollow section structures as well as their external condition;
- re-designing the examination forms (whether electronic or paper versions) to improve usability for the examiners, to clarify the need to report hidden critical elements that were not examined and to improve reporting lines between Network Rail and its examinations contractors;
- revising the competence standards for staff involved in the examination of structures to ensure consistency in the level of training received both by those who are new to the industry as well as experienced examiners; and
- cyclical maintenance of any surface treatments on ancillary structures.

Changes made as a result of the review should be re-briefed to all those involved in structures examinations and relevant company standards and other documents should be updated as appropriate.

ORR decision

16. ORR is content with the proposed action plan and milestones submitted in response to the recommendation and will seek updates on progress through its regular liaison meetings with Network Rail.

17. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- is taking action to implement it by 31 March 2017.

Status: Implementation ongoing. ORR will advise RAIB when actions to address this recommendation have been completed.

Information in support of ORR decision

18. On 16 December 2015 Network Rail provided the following initial response:

The action plan to address Rec 1 will develop an integrated policy which informs enhanced exam techniques and includes further development of the examination process.

This revised examination process will include consideration of the following; -

- *Currently detailed examinations are undertaken on complex ancillary structures such as gantries and cantilevers that span operational railway lines. The developed ancillary asset policy (Rec 1) will consider appropriate types of examination and optimised intervals for all types of ancillary asset commensurate with the risk arising from failure*

- *Development of a programme of hidden critical element examinations for ancillary assets – see action plan to address Rec 2. The need for proposed HCE examinations to include intrusive investigation of the internal parts of hollow sections will be considered with cognisance to whether a competent / informed examiner as part of a suitable examination regime can evaluate the condition of the asset without internal investigation*
- *Re-designed examination forms will be an output of the Civils Strategy Asset Management System (CSAMS). These revised forms will include parts lists which enable exam reports to clearly define whether individual components of an asset have been adequately examined by positive nil return. Positive nil return has already been partially implemented through clauses within the CP5 examination framework contract. Pending implementation of CSAMS, current detailed and visual examination reports are being modified to include standard 'name of part lists'. These lists clarify the completed scope of the exam to the evaluating engineer. In the report of an exam, individual asset 'parts' should be designated: -*
 - i) Examined – i.e. relevant part is present on the particular asset and has been examined sufficiently.*
 - ii) Not Examined – i.e. relevant part is present on the particular asset but has not been examined sufficiently. (Wingwall obscured by vegetation, baseplate obscured by ballast)*
 - iii) Not Applicable – i.e. this part isn't present on this type of asset.*
 - iv) Not Included – i.e. this part is present on the particular asset but wasn't expected to be examined within the scope of the exam (bearings on a 4 metre high bearing shelf during a visual exam – for example).*

In addition to a revised examination process: -

- *The content of the current STE 1 competency framework, used to evaluate the competence of Network Rails asset engineers will be reviewed and revised as necessary to include the management of ancillary assets. The scope of competency standard CTM017 will be reviewed and revised to clarify the requirements for the examination of ancillary assets.*
- *Required intervention with regards to maintaining surface treatments and coatings will be determined within the integrated ancillary asset policy developed within the action plan to address Rec 1.*

Timescales: -

Development of Ancillary Asset Policy and implementation of enhanced ancillary asset examination regime – aligned to Recs 1 & 2, i.e. by 2 December 2016.

Successful implementation of CSAMS which facilitate the use of revised examination forms by 31st March 2017.

19. On 10 March 2016 Network Rail provided the following further update:

Network Rail can confirm that the revised examination arrangements implemented immediately post the Newbury incident has been instructed

through the examination framework contract and reporting in line with its requirements has commenced. This is an initiative to ensure that the full requirements of a visual examination are captured during the Line of Route process, incorporating more robust measures to uncover obscured foundations and advocating reporting by positive nil return to better capture defects and recommendations aiding evaluation of current condition. This implemented initiative will significantly improve Network Rails examination regime for ancillary assets but will not fully address the intent of recommendation 3.

The current revised exam arrangements do not consider (and therefore revise) the existing requirements for the scope/ frequency of detailed examinations, the need and implementation of additional examinations (such as HCE), the use/ requirement of supplementary measures/technologies to inform the examination (remote condition monitoring) and the evaluation or the determination of suitable intervention based on an integrated asset management policy.

Milestones to completion: -

- 1) Establish Working Group (including Parent Asset Owners) – 1 April 2016*
- 2) Identify NR Standards Requiring Revision – 10 June 2016*
- 3) Produce Draft Policy for Stakeholder Consultation – 29 July 2016*
- 4) Produce draft examination standards incorporating revised examination requirements – 28 October 2016.*
- 5) Undertake Examination Framework Impact Assessment – 25 November 2016*
- 6) Complete Examination Standards Stakeholder Consultation (including outside parties) – 30 December 2016*
- 7) Publish Revised Examination Standards – 24 February 2017.*
- 8) Issue Contractors Instruction for revision to CEFA Contract – 24 February 2017*
- 9) NR Formal Closure of Newbury Rec 3 – 31 March 2017.*

Recommendation 4

The intent of this recommendation is to reduce the risk of structure defects being missed on examinations due to the variability in standards being applied by different examiners.

Without waiting for Network Rail's actions in response to Recommendation 3 above, Amey should immediately review and revise its competence management processes for its staff involved in structures examinations in accordance with the findings from this investigation (paragraph 97b). The revised processes should allow for further adjustments to be made as necessary once Network Rail has completed its response to recommendation 3.

ORR decision

20. ORR is content that the action plan presented by Amey in November 2015 has been implemented sufficiently to address the intent of the recommendation. We have requested sight of the actual changes made to the Competence Management System as a result of the review undertaken.

21. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Amey has:

- taken the recommendation into consideration; and
- taken action to implement it.

Status: Implemented.

Information in support of ORR decision

22. On 22 November 2015 Amey provided the following initial response:

The intent of this recommendation is to reduce the risk of structure defects being missed on examinations due to the variability in standards being applied by different examiners.

Without waiting for Network Rail's actions in response to Recommendation 3 above, Amey should immediately review and revise its competence management processes for its staff involved in structures examinations in accordance with the findings from this investigation (paragraph 97b). The revised processes should allow for further adjustments to be made as necessary once Network Rail has completed its response to recommendation 3.

Amey Action Plan

No	Action	Start Date	Completion Date	Person responsible	Comments
1	<i>Develop, in conjunction with NR, new specification and method of data capture for ancillary structures</i>	<i>1/2/15</i>	<i>31/1/16</i>	<i>Steve Hizzett</i>	<i>Specification substantially developed 23/7/15 Development of hand held application, trialling by Nov 15, completion by Jan 16</i>
2	<i>Implementation of new Specification and hand held data</i>	<i>1/2/15</i>		<i>Routes</i>	<i>This will need to be instructed by Network Rail</i>

	<i>capture</i>				
3	<i>Audit of CEFA Competence Management System by person external to CEFA</i>	<i>3/11/15</i>	<i>28/2/16</i>	<i>James Andrews</i>	<i>Initial meeting planned for 3rd November 2015, done</i>
4	<i>Audit of effectiveness of Technical Bulletin No 18</i>	<i>30/11/15</i>	<i>24/12/15</i>	<i>Sean Berry</i>	<i>Bulletin was issued on 7th April 2015</i>
5	<i>Site assessments of STE3 and STE4 examiners who primarily undertake generic or visual examinations</i>	<i>1/12/15</i>	<i>21/12/15</i>	<i>Keith Jefferies</i>	
6	<i>Revise Line of Route section of Examinations manual</i>	<i>2/1/16</i>	<i>15/1/16</i>	<i>Steve Hizzett</i>	<i>This is dependent on substantial completion of item 1</i>
7	<i>Undertake changes to CMS based upon recommendations from audits and site assessments in items 3, 4 and 5</i>	<i>1/3/16</i>	<i>31/3/16</i>	<i>Steve Hizzett</i>	
8	<i>Implement changes to CMS</i>	<i>1/4/16</i>		<i>Steve Hizzett</i>	
9	<i>Review / audit effectiveness of changes to processes</i>	<i>1/6/16</i>		<i>Steve Hizzett</i>	

Actions already taken

Internal enquiry

Interview undertaken with the examiner involved on Friday 11th December 2014

The conclusion was that the examiner had appeared to undertake the examinations of ancillary structures correctly and gave good answers when questioned. He had a good background from British Rail days in maintenance and renewals of civils structures

He held STE4 at the time of the examination, however had originally been trained "on the job".

Technical Bulletin (no18) issued on 7/4/15 which highlights

- *Critical location for defects*

- *Severity of defect which may cause issues*
- *Criticality of identifying any areas required to be exposed for further inspection*
- *Method of reporting*

Sampling of 34 reports since the issue of this bulletin has indicated a heightened awareness of the issues and high percentage of compliance with the requirements of the bulletin

Technical Briefing, May 2015

- *Technical Briefing 18 discussed in more detail with examination staff.*

Examinations Manual Section 15: Urgent Defects

- *Revised and reissued during October Technical Briefings to reinforce the procedure and introduce a risk level that will automatically instigate the process at engineering stage.*

Development of New Specification and method of data capture

Amey have been assisting Network Rail in the development of a new specification for the examination of ancillary structures. The specification is substantially complete and work is now progressing with the development of a hand held application for the capture of data.

The highlights of the system are,

- *Structured data capture*
- *Real time reporting*
- *Early warnings*
- *Embedded photographs*

23. On 8 July 2016 Amey provided a further update on progress against their action plan (post 1 December 2015) as follows:

Further actions (post 1st December 2015)

Status

No	Action	Status
1	<i>Develop, in conjunction with NR, new specification and method of data capture for ancillary structures</i>	Green
2	<i>Implementation of new Specification and hand held data capture</i>	Amber
3	<i>Audit of CEFA Competence Management System by person external to CEFA</i>	Green
4	<i>Audit of effectiveness of Technical Bulletin No 18</i>	Green

5	Site assessments of STE3 and STE4 examiners who primarily undertake generic or visual examinations	Green
6	Revise Line of Route section of Examinations manual	Amber
7	Undertake changes to CMS based upon recommendations from audits and site assessments in items 3, 4 and 5	Green
8	Implement changes to CMS	Green
9	Review / audit effectiveness of changes to processes	Red

Detail

No	Action	Start Date	Completion Date	Person responsible	Progress
1	Develop, in conjunction with NR, new specification and method of data capture for ancillary structures	1/2/15	[31/1/16] 20/5/16	Steve Hizzett	System complete Slippage occurred due to late receipt of order from NR, received Jan 16
<p>Overview</p> <p>The scoping for the specification and development of the new system was undertaken during the period May to July 2015. The scope includes,</p> <ul style="list-style-type: none"> Improved identification of asset Improved capture of asset types including form and materials Expanded specification for examination Ability to evaluate condition of capability from examination data Data capture using hand held technology Early warning for serious defects Improved visibility of condition and capability for engineering review and recommendation <p>A pilot was undertaken in November to prove the concept of the data capture; this was undertaken using a development system. The trial was successful and gave sufficient information to proceed with the full development of the system. Full trials on site were conducted between November 2015 and May20 16</p> <p>The system is now complete.</p>					
2	Implementation of new Specification and hand held data capture	1/2/16		NR Routes	June 2016 Ready for instruction by the Routes This is currently under discussion with NR
<p>Overview</p> <p>The system has now been developed in accordance with the new Specification. An assessment of impact on time has been undertaken as part of the site trials. NR are currently discussing the method of implementation.</p>					
3	Audit of CEFA Competence Management System by	3/11/15	[28/2/16] 14/3/16	James Andrews	Complete

	person external to CEFA			
<p>The audit of the Competence Management System consisted of two parts,</p> <ol style="list-style-type: none"> 1. Review of relevant documentation 2. Interviews / structured questioning of examiners <p>The audit was undertaken by Armeys's Regional Engineering Director</p> <p>Review of relevant documentation</p> <p>The following documents were reviewed with regard to Line of Route examinations</p> <ul style="list-style-type: none"> • CON-CEFA-SE-MAN-05 – Competence Management System • CON-CEFA-SE-MAN-06 – Training and Mentoring • CON-CEFA-SE-MAN-13 – Line of Route Generic Exams • CON-CEFA-SE-MAN-15 – Urgent Defects <p>These documents form part of the Examinations manual, which reflect the requirements / specification of the Contract. It also incorporates local processes required to enable the technical requirements of the examinations to be satisfied.</p> <p>Conclusion</p> <p>The review identified 40 comments for the 4 documents, the majority being minor. The following are ones are of note, (appendix a gives all comments)</p> <ul style="list-style-type: none"> • CON-CEFA-SE-MAN-05 clause 3.14, clarity around the employment of people, emphasising responsibilities. • CON-CEFA-SE-MAN-13 clause 3.0, Expand and emphasis the fact that the normal requirements of a visual exam apply • CON-CEFA-SE-MAN-13 clause 3.1, Add identification of hidden elements and elements not examined (other than foundations). • CON-CEFA-SE-MAN-13 clause 4.1, Consider expanding this section to say that the most vulnerable type of supports are to be excavated and examined • CON-CEFA-SE-MAN-13 clause 4.1, Explain again here that even though line of route reports are being used there is still a requirement to cover all aspects of a visual exam, just that defects are reported by exception. Re-emphasise the need to record any elements not examined and why not <p>All of the 40 comments will be embedded in the updated version of the relevant documents</p> <p>See appendix a for further detail</p> <p>Interviews</p> <p>15 examiners were interviewed from the 4 Routes, selected from those who normally undertake Line of Route ancillary or visual structures examinations. The interviews were undertaken locally to the person's place of work and responses were treated anonymously.</p> <p>A set of 23 questions were devised to be used as a template to be used as a question and discussion session.</p> <p>Scoring was on the basis of,</p> <ul style="list-style-type: none"> • 2 for a fully correct answer, showing full understanding. • 1 for a partially correct answer where understanding is good but not complete. • 0 where no or little understanding is shown. 				

Conclusion

Four questions seemed to prove most difficult to the candidates to answer fully were (Worst first)

15: Multiple choice question regarding what items should be recorded when examining a LOC staging. Many who scored zero just went for the 'all of the above' answer.

16: Multiple choice question. Many people thought that it was a requirement of the inspection to confirm that the signal head is working properly.

23: Name the Arney processes / guidance around LORs etc. No one knew the reference but most knew they existed and many had a hard copy in the van

1: What do you understand by the term 'Line of Route Visual Exam'? Most had the idea when prompted but few gave a fully satisfactory definition.

On the whole, most people had a good understanding of what they were supposed to do. The scores in Scotland were markedly lower than the rest of the country, which may be down to the experience of the staff.

See appendices b and c for question sets and results

Action taken

The findings of the audit have been incorporated in to the updated CMS, and /or associated documents.

4	Audit of effectiveness of Technical Bulletin No 18	30/11/15	[24/12/15] 12/1/16	Sean Berry	Complete
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Method

A desk top audit was devised for use in this exercise on the following basis

- Reports completed following the issue of Technical Bulletin No 18 were sampled
- 11 questions were devised to test key area of the reporting
- These questions were weighted and scored dependent upon their importance relative to the issues raised by the failure at Newbury
- A sample of 10 reports per examiner were audited

Results

The pass score for each audit was set at 70%.

Number of audits undertaken	No of passes	No of fails	Pass rate	Low Score	Average Score
40	30	10	70%	17%	77%

Actions for reports where scores were in the 0 to 70% range (to overlap the marginal passes) were implemented and carried out. Whilst the action plans varied slightly dependant upon the

reason for failure, all included a one to one brief with the examiner involved.

See appendix d for template and appendix f for results

5	Site assessments of STE3 and STE4 examiners who primarily undertake generic or visual examinations	1/12/15	[21/12/15] 16/3/16	Sean Berry / Glenn Darby	Complete
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Method

A site audit template was devised for use in this exercise on the following basis

- Select 5 No metallic simple signal post assets and undertake an observation of the examiner undertaking an examination.
- Record the assessed level of competence / adherence to specification against the levels* shown below
- Follow up by asking the questions on the Question sheet

A scoring mechanism was devised to rate the examiners performance, based on.

1. Does not show any understanding
2. Demonstrates compliance with Specification when item does not exist
3. Complies with specification and records findings appropriately
4. Demonstrates understanding through inquisitive nature of examination

Audits

11 No site audits were undertaken on examiners who primarily undertake ancillary examinations.

Site assessments

	EA	K & S	WES	WAL	WES	LNE	SCO	Total
Undertaken	1	0	2	0	0	4	4	11
Passes	1	0	2	0	0	4	4	11

Conclusions and action

All candidates passed the audits/ assessments, however the following were items for further briefing / instruction

- Requirements understated regarding removal of loose material to aid examination, however PNE/HCE not always reported. 3 repeats
- Minor observation - Extend PNE to ladders
- Reminder on hammer testing advised on first site to use hammer. 3 repeats,
- Urgent defect – first call to OCDM or ADM, need to ensure that these are people who can provide the assistance required. 5 repeats, one had engineer as 4th choice

These observations are included in the full briefing to all staff

See appendix e for template and appendix f for results

6	Revise Line of Route section of Examinations manual	2/1/16	[15/1/16] 15/1/16	Steve Hizzett	Complete with regard to actions completed, will require a further update when new specification is instructed
Section 13 Line of Route Examinations has been revised in line with initial finding following the failure at Newbury and the finding of this review. The revised document has been published (uploaded to AmeyWorld, company intranet) and included in the next Technical Briefing					
7	Undertake changes to CMS based upon recommendations from audits and site assessments in items 3, 4 and 5	1/3/16	[31/3/16] 30/6/16	Steve Hizzett	Complete Slippage due to the inclusion of broader requirements to CMS
Changes have been made to strengthen the requirements of the Amey CMS, in excess of NR standard NR/L3/CIV/006. Findings of this action plan have been embedded.					
8	Implement changes to CMS	1/4/16	[] 4/7/16	Steve Hizzett	Complete
The document has been briefed out to all People Managers during April and May with an implementation date of 4 th July 2016. Relevant parts of the process were included in the Technical briefings of April 2016.					
9	Review / audit effectiveness of changes to processes	1/6/16	1/9/16	Steve Hizzett	Undertake audit in line with action 4 and 5
Repeat items 4 and 5 of the above and compare to the findings of this audit, instigate discussion in Technical briefings based on the feedback proposed for the late summer sessions					

Recommendation 5

The intent of this recommendation is to prevent the risk of internal corrosion to hollow signal posts in future.

Network Rail should develop a specification for a new signal post, or a modification to existing posts, that eliminates or mitigates the risk of internal corrosion (eg, preventing water ingress, improving drainage, internal surface treatments), taking account of whether the galvanisation specified since 1993 (paragraph 17) is adequate and applicable to other designs of post (paragraph 96a). The specification should be implemented on new installations or to replace existing structures where opportunities arise to do so and where risk assessments indicate that it is necessary and appropriate.

ORR decision

24. In addressing the recommendation to Network Rail ORR noted that recommendation 5 imposes a continuing obligation. However, ORR indicated that it would consider recommendation 5 complied with once Network Rail has developed a

specification for a new signal post, or a modification to existing signal posts, and confirms that this will be implemented in accordance with the recommendation. Network Rail's initial response stated that they had undertaken a review of applicable controls and was considering the status of NR/L3/CIV/067; the recommendation is to 'develop a specification for a new signal post, or a modification for existing signal posts' and Network Rail's initial response did not clearly address this. Further exchanges between ORR and Network Rail have not yet clarified the specific actions they are proposing to take in relation to the recommendation.

25. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration; and
- has not provided a sufficient response setting out how it will be delivered.

Status: Insufficient response. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Information in support of ORR decision

26. On 16 December 2015 Network Rail provided the following initial response:

Network Rail will undertake a review of the applicable standards, instructions and template designs used by designers when specifying signal structures to establish that the structure will remain serviceable for the full extent of its expected asset life.

Applicable standards are:

- *NR/L3/SIG/11303 Signalling Installation, Issues 2.*
- *NR/L3/CIV/040 Specification for protective Treatment of Network Rail Infrastructure, Issue 1.*
- *PAN/W/CE/SS/0017 Issue 2: Guidance for Loading and Performance.*
- *PAN/B&C/E/GEN/INS/0059 Structural Euro codes – NR Technical requirements.*
- *BS EN 1990:2002 Basis of Structural Design.*
- *BS EN 1991-1-4 Action on Structures, Wind Actions.*
- *BS EN 1993:2005 Design of Steel Structures.*
- *BS EN 10025-1:2004, Hot rolled products of general structural iron & steel. Technical delivery conditions.*
- *BS EN 10210-1:2006, Hot finished structural hollow sections of non-alloy and fine grain steels – Part 1: Technical delivery conditions.*
- *BS EN ISO 1461:1999 Hot Dip Galvanizing coatings on fabricated steel articles.*

A joint review will be undertaken between signalling and civil engineers within STE and is expected to be completed by 23 February 2016. The outcome of

this review will determine what actions are required; these will be formulated into an action plan, which will be managed to closure.

26. On 1 February 2016 ORR informed Network Rail that, in focusing on carrying out a review to determine what actions are required, its response did not address the recommendation, which required Network Rail to develop a specification for a new signal post, or a modification to existing posts, that eliminates or mitigates the risk of internal corrosion.

27. On 13 April 2016, Network Rail provided the following update:

The recommendation action to produce a specification for a signal post prompted a review of applicable controls currently in place, as listed in its response of 16 December 2015.

There is also investigation into the status of draft document NR/L3/CIV/067 - Design of Equipment Support Structures.

The review is intended to establish if the current controls fulfil the recommendation intent, with the two specific issues, firstly to establish if new signal posts manufactured meet requirements for the full life specified for the asset. The second area being a review of the installation processes when modifying an existing signal post, to ensure the integrity of the existing post is not compromised for its remaining life.

This approach aligns with the goals of the business critical rules programme, and any new specification would fit into the document structure set out by BCRP.

28. On 27 May 2016 ORR advised Network Rail the requirement of the recommendation had still not been addressed and requested that it provide confirmation of whether it is taking action to develop a new specification or modification and what the proposed action plan and timescales are to deliver this. Alternatively, if Network Rail is not planning to develop a new specification / modification then ORR will need to be informed why this is the case.

29. A reply was received from Network Rail on 12 August stating that they were not in a position currently to address the recommendation by direct action and that progress on developing an action plan was delayed by negotiations with other Network Rail teams. ORR is currently liaising with Network Rail on this recommendation and the way forward.