

Oliver Stewart
Senior Executive, RAIB Relationship and
Recommendation Handling

Telephone 020 7282 3864

E-mail oliver.stewart@orr.gov.uk

12 June 2020



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

Dear Andrew,

RAIB Report: Freight train derailment at Heworth, Tyne and Wear on 23 October 2014

I write to provide an update¹ on the action taken in respect of recommendations 2, 3 & 4 addressed to ORR in the above report, published on 24 September 2015.

The annex to this letter provides details of the action taken regarding the recommendations. The status of recommendations 2, 3 & 4 is '**Implemented**'.

We do not propose to take any further action in respect of the recommendations, unless we become aware that any of the information provided has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 15 June 2020.

Yours sincerely,

Oliver Stewart

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

Recommendation 2

The intent of this recommendation is to reduce the possibility of new track defects developing at Heworth, which could cause a derailment.

Network Rail should investigate why water is not draining from the track bed in the vicinity of where the train derailed (between 99 miles 220 yards and 99 miles 264 yards on the Down Sunderland line between Pelaw and Newcastle) and implement measures to control the risk of excess water affecting the track's vertical geometry. Such measures could include ballast cleaning, remedial work to improve the effectiveness of the installed track drainage, through to a renewal of the track.

ORR decision

1. Network Rail has carried out renewal of the track and cleaning and maintenance of the drainage in the vicinity of the derailment location. Subsequent inspection has shown that the track geometry has been maintained and there is no evidence of cyclic top, therefore reducing the risk of another derailment at that location. This conclusion is supported by consistent quality track geometry traces.
2. We made further enquiries with the LNE Route about the drainage assets under the ownership of Nexus that run next to those under the management of Network Rail. We have been assured that these third party assets are not contributing to the drainage in the Heworth incident area, and no further evidence needs to be provided about their status.
3. 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 taken action to implement it

Status: Implemented.

Previously reported to RAIB

4. On 26 April 2017 ORR reported that Network Rail had investigated the condition of the track bed at the incident location and found the root cause of the poor asset condition to be the lack of an outfall for the drainage system. ORR was content that Network Rail has an appropriate time-bound plan in place to address the issues identified.

Update

5. On 18 April 2020 Network Rail provided the following closure statement and supporting document:



Heworth Rec 2
Closure Statement.d



Heworth Rec 2
diagrams.pptx

6. Network Rail state the following:

Site was attended on Thursday 21st February and Friday 22nd February 2019, the weather conditions were dry and clear. The drainage system, catchpits and outfall were surveyed over the course of the 2 days to map out the system and confirm and prove the position and functionality of the outfall.

The main drainage system identified on site runs on the LEN3, predominantly through the 6ft between the UP and DOWN Sunderland lines running from catchpit 1 at Kirkstone Road to catchpit 64 just prior to Carlisle Street where the system outfall has been identified.

There is also a drainage system running through the 10ft prior to the NEXUS lines, due to access constraints the NEXUS drainage system could not be surveyed and there were no visible pipes identified to show the 10ft drainage system running into the 6ft system on the LEN3 – it is assumed that this is a separate drainage run that may potentially outfall at catchpit 9.

What action have we taken? What do the diagrams tell the ORR?

Slide 7 details a copy of the Handback Form and confirms all remitted work has been completed. This entailed:

- *Jet and prove system in 6ft between Up and Down Sunderland from CP1 to CP63.*
- *Jet and prove system from CP49 to CP67 in the Up Sunderland cess.*
- *If feasible and safe to do so, please undertake any necessary minor repairs to the drainage system as and when you find them during the jetting and investigation. Please advise the Asset Engineer of any major work required via a Technical Query.*

The following was identified:

- *Blockages found between the following chambers 42 to 44, 44 to 45 and 45 to 47.*
- *Blockages found between chambers 67 to 66 and 62 to 64.*
- *All repaired.*

Slides 10 to 12 detail the track geometry between August 2017 and January 2020 and confirm the excellent geometry achieved through track renewal has been maintained. There is no cyclic top evident which was the cause of the derailment. This is further detailed in slides 13 and 14, the former shows the very poor top and line immediately before the derailment and the latter shows the most recent top and line.

Slides 15 to 18 detail an extract from ELLIPSE which contains all of the drainage assets and confirms all are fully maintained.

This therefore fulfils all the requirements of Recommendation 2.

Recommendation 3

The intent of this recommendation is to reduce the risk of derailment in the Newcastle Track Section Manager area due to track defects that are not repaired after being found by the inspection regime.

Network Rail should review the condition of the track assets in the area covered by the Newcastle Track Section Manager against the records on its system for maintaining its track assets (Ellipse). The aim of the review should be to identify track defects requiring maintenance action which are either not recorded on Ellipse, do not have a planned date for repair, or have not been correctly prioritised for repair. Once identified, these defects should be recorded on Ellipse, prioritised and given a date for repair.

ORR decision

7. Through SIN 169, Network Rail identified areas not covered by track geometry measurement and put in suitable measures, including on the LNE route. Network Rail have reviewed the condition of the track assets in the Newcastle TME area, identified where maintenance was needed and added the work to Ellipse. Regular meetings are held to identify and prioritise track defects that need to be repaired.

8. ORR has previously identified track geometry as something Network Rail need to improve across the network in order to reduce the risk of derailment and to improve performance. LNE have demonstrated that the required geometry management process have been put in place.

9. 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 taken action to implement it

Status: Implemented.

Previously reported to RAIB

10. On 26 April 2017 ORR reported that Network Rail had carried out a review to identify track defects requiring maintenance in the Newcastle TME area. ORR had asked Network Rail to provide confirmation that track defects requiring maintenance action are recorded in Ellipse, have been correctly prioritised and give a date for repair.

Update

11. On 2 May 2020 Network Rail provided the following closure statement for recommendations 3 & 4:



Heworth.pdf

12. Network Rail state in summary the following:

The TME now runs a fortnightly 1/8th by 1/8th review for both the Newcastle TME and Morpeth TME areas which is attended by the track SMs and planners. The review aims to identify track defects requiring maintenance action which are either not recorded on Ellipse, do not have a planned date for repair, or have not been correctly prioritised for repair. The IME is scheduled to attend one 1/8 by 1/8 per period for each TME to understand the risk associated with each section and the controls in place/support required for each TME.

From August the RME has also been attending the 1 /8 review. This comprises a review of each line using HD footage and the workbank in Ellipse to correctly identify and prioritise the workbank. This provides a detailed review and assessment of the planned work and enables the team to fully understand the condition of their asset.

Part of the output from the 1 /8 review is the population of the potential TSR register to build up and provide knowledge and actions around the areas of risk. In addition to the 1/8 by 1/8 review the IME now chairs a 4 weekly track risk review meeting with the TME Newcastle, TME Morpeth and RAM Representative. The purpose of this meeting is to review any unmitigated risks within each area and identify areas of support/funding required for each engineer. Any issues requiring escalation from this meeting are then taken forward to the monthly Route Reliability and Compliance meeting with the AD, IMDM.

The IME self-assurance documentation has been amended to include additional checks on the following: Additional checks on reviews on repeat rough ride locations, repeat super red 1 /8ths and repeat track geometry faults. The SM/TME/Technical self-assurance process is being amended to review if the VPE & Super Reds are being managed in accordance with the standard The 1/8 review is attended periodically by the IME to allow a review of the process and to meet DU self-assurance requirements on the management of track geometry. The effectiveness of this regime will be measured through the additional ATME post at Newcastle carrying out monthly technical light touch assurance (to maintain focus on technical compliance in key areas). This would measure compliance to some key items such as Super red inspections, L2 management, 053, 054, loss of rail section. The Additional ATME will provide assistance to reduce the VPE/Super Red inspections that are currently in backlog.

Update June 2017 The review of the TME Newcastle assets has been systemically undertaken by the following process:

1. TME led 1/8th review of the assets. The TME reviews the track in the presence of his ATME team, Track SM, Technical team. Work items reviewed and work added and prioritised into Ellipse
2. High Risk sites (Wide Gauge, Twist, dip Angles) scoped at site by SM, ATME and plan identified for repair in Ellipse
3. Critical 1 /8ths reviewed by TME and RAM to establish packages of work required. Scoping then undertaken in line with action 2 above
4. On site workbank management to ensure an accuracy of the workbank and correct prioritisation of repair timescales.
5. RAMP (Route Asset Management Plan) Review process is being undertaken by the TME with RAM team to prioritise/populate the existing CP5/CP6 renewals workbank against the risks and work identified in 1-3 above.

Following the process undertaken in 1-5 the TME & ATME have reviewed the track defects requiring maintenance action identified in Ellipse to confirm that they are genuine and that a correct level of prioritisation has been provided. The level of prioritisation is monitored and managed through the ongoing on site Section manager track walk assessments to give the correct date for required repair. This process has established what the DU is capable of delivering and has enabled the TME & IME to understand what delivery support is needed from the wider business (works delivery, renewals) to deliver those work items that are beyond maintenance capacity

The RAMP review process indicates that in order to meet the Current Limit & Immediate Action Limit (L&IL) and Repeat L&IL targets additional renewal/refurbishment volumes will be required on the TME Newcastle area.

Recommendation 4

The intent of this recommendation is to reduce the risk of derailment due to track assets not being maintained by better understanding the reasons for the problems found in this investigation.

Network Rail should investigate why its track assets within the area covered by the Newcastle Track Maintenance Engineer consistently have the highest numbers of reportable track geometry defects and sections of track in the super-red category on LNE Route. The investigation should include consideration of:

- the number of staff needed to maintain the track assets in the Newcastle Track Section Manager area, so that both reactive and planned volumes of preventative maintenance activities are delivered;
- the effect that changes to safe systems of work used by the track maintenance teams has had on the time spent working on the track;
- the effect that the introduction of PLPR within the track inspection regime has had on increasing the track maintenance workload;
- the types and numbers of track assets in the Newcastle Track Maintenance Engineer's area, their age, and their condition, in comparison to the other Track Maintenance Engineer areas on LNE Route; and

- the effect that any other factors have had in contributing to the high number of track asset defects.

Based on the findings of the above investigation, Network Rail should determine what the appropriate target values are for the numbers of reportable track geometry defects and sections of track in the super-red category in the Newcastle Track Maintenance Engineer area. Network Rail should then take action to improve the maintenance of the track assets in this area to a level that allows these targets to be met.

ORR decision

13. Network Rail have confirmed that they have considered all of the factors identified in the recommendation in understanding why the Newcastle Delivery Unit had the most track defects and super red eighths.

14. Network Rail set out targets that had been set across the business and how specifically the LNE AD (North) area including the Newcastle DU had established a plan that would deliver that target in stages. Those stages including reduction targets for L3 and L2 faults.

15. ORR carried out inspection work during 2016/17 which provide evidence to support the conclusion the recommendation has been implemented.

16. 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 taken action to implement it

Status: Implemented.

Previously reported to RAIB

17. On 26 April 2017 ORR reported that it had asked Network Rail to confirm if they had determined appropriate target values for reportable track geometry defects and 'super red eighths'.

Update

18. On 2 May 2020 Network Rail provided the following closure statement for recommendations 3 & 4, summarising the action taken:

Review of 2B/C Headcount proposals

AD North has submitted a revised headcount forecast following concerns raised by the IMDM in August 2015. The overall position of proposed posts to be consulted out is shown below.

<i>Original Position</i>	<i>IMDM Proposal</i>	<i>Final proposal</i>
<i>-34</i>	<i>-24</i>	<i>-27</i>

The -27 posts proposal produces a final vacancy gap of 4.8%, as advised by HR. A summary of the changes from the original submission of -34 is as follows:

+2 posts: operative welding and grinding, 1 York and 1 Newcastle.

+1 post: Section Supervisor, Newcastle Off Track. The current SM has an organisation on the limit of the sizing criteria to have an Assistant. He has experienced an increase in workload following the introduction of the Close Call (CC) process. His ability to cover his role during planned absence is difficult. With the removal of the LX workload it was assumed that this would provide some capacity but the CC workload has negated this benefit.

+4 posts: operative, Newcastle Track. This section is currently supported by two gangs of LOSC in addition to a L2 containment team. The IMDM and IME have undertaken a resource review for Newcastle Track, taking into account the effect of PLPR, RBM Track, and Business Critical Rules etc.

As well as the additional posts the HR team have worked closely with the DU on their people plan which has concentrated on long/short term sickness and medical restrictions to facilitate the workforce being as functional as possible.

Additional ATME for Newcastle DU

Request for additional ATME for DU over and above current template raised by IME with justification based on the conclusions from the workload study.

IME requested to submit revised recruitment proposal for temporary ATME.

Proposal was taken forward to Route Resourcing panel based on the following: Workload and asset comparisons have been undertaken with both route and national TME's which gives supporting facts to the proposals in that the geographical size of the area gives an extremely high number of assets in key categories giving rise to high expected workloads. Current support is via a single ATME who manages the Technical team. This support to the TME is limited given the technical workload demands and geographical influences.

Route Executive decision was acknowledging that there were some areas that required support within the DU and it was agreed a 6 month secondment of an Engineer from Route Asset Manager team to support the TME's at Newcastle & Morpeth.

Update 4th March 2016

The workload of the TME Newcastle was investigated by the IME in May 2015 and determined high levels of compliance workload in relation to trace reviews, track walks and cab riding in comparison with other smaller geographical area TME's. Historically this workload volume was a contributory factor into problem statements for renewals being generated with the resultant effect that the TME Newcastle area has not had a comparable volume of renewals in the last 5 years.

In response to this assistance has been provided to the TME in the generation of problem statements with 60 being produced and inputted by the RAM organisation from York. This will now commence the process of renewals being properly assessed and implemented over CP6.

The LNE Exec committee has also reviewed the output of the TME workload study and an additional permanent ATME post has been created to provide further support to the Newcastle TME in key areas.

The 2B/C model template for Newcastle TSM area had not been fully populated with a number of operative posts not filled due to the widespread view that PLPR would remove and reduce the number of operatives in the future. These posts were highlighted for consultation out of the business as part of the 2B/C PIR. However a decision was taken in 2013 to provide an agency production team of 6 to backfill a number of operative vacancies to support the TSM Newcastle in delivery of maintenance.

The monitoring of L2 faults at the end of financial year 2013/14 indicated that the presence of the agency teams at Newcastle track was not having the desired effect on reducing numbers and the IME & TME reviewed the impact of this. The findings were that the level of train borne faults that the teams were reacting to meant that the Newcastle TSM teams were not getting the opportunity to carry to root cause fix in areas of L2s.

In May 2014 IME & TME presented a gap analysis paper to the LNE RR&C meeting attended by the RAM track and AD. This indicated that we were currently spending money in a reactionary way in areas that are already in a very poor condition. It identified that the level of staff in place were not capable of proactively working in areas that were deteriorating.

A request was made for assistance in key areas.

- *Support for multipurpose stoneblowing & tamping access at 2375 : This was provided and 2375 points have now been renewed in January 2016.*
- *Removal of actionable dip angle sites and removal of discrete L2 faults : Agreement was provided by the AD & RAM to finance additional track containment teams at Newcastle & Middlesbrough to target discrete L1 & L2 faults with an emphasis on detailed scope and full repair. This consisted of 2 agency teams led by technicians/team leaders from the existing teams. The impact of this was that the Newcastle TME hit the L2 target at the end of 2014/15*
- *Plan for Thornaby, Whitby, Billingham & Saltburn west : Support was provided by the RAM in terms of funding and S&C renewals in these key areas*

In November 2015 the AD & IMDM proposed the reinstatement of 4 operative posts back into the TSM Newcastle team from the 2B/C consult out documentation. This was agreed and the posts were advertised and appointments made in January 2016. This has allowed the agency production team to be removed from the Newcastle TSM organisation.

In 2015 the Mobile Maintenance Train (MMT) was contracted into the Newcastle TME organisation. This provided an additional Section Manager and 9 additional staff to run the machine 5 shifts per week. The MMT work has been planned to carry out high volume of defect removal from the TSM Newcastle & Middlesbrough areas. This will comprise high volume repadding & insulation and summer preparation works (rail end maintenance, fishplate oiling etc). The volume of defect removal & production capability of the MMT will remove a workload from the TSM Newcastle & TSM Middlesbrough teams (estimated at 18700 hours or equivalent of 11 persons). The agency track containment teams at Middlesbrough and Newcastle TSM were terminated in November 2015 on the basis of MMT team being in place and also an ongoing increasing of capabilities within the Newcastle TME team through improved people management and returning to active service of individuals who have not been used to best advantage.

Following the ORR improvement notice in October 2013, the green zone working at Newcastle DU rose from approximately 70% to a consistent 90%+ in 2015/16.

This was in response to the various sections within Newcastle DU amending and implementing revised patrolling and working practices.

The increase in green zone working created a subsequent drop in productivity from 40% to around 35% as access to the track became more congested with multiple users vying for access on volume restricted signal box panels.

Various strategies for structured integration of maintenance worksites have been tried with none providing the volumetric increase in access that the DU requires.

In 2015 the AD North area started the construction of Junction 240, a joint Maintenance/Operations initiative to create and implement a framework for access based on pre-agreed signal box special instructions (SBSI). The framework has been developed and the planners at Newcastle & York delivery Units have provided their cyclical access requirements to the IMSM team for de-confliction before going live with the first two signal box panels (Darlington & Newcastle) in February 2016.

Initial monitoring of the Junction 240 workstream will be by the volume of SBSI planned against actually taken. This is a leading indicator to the measure of increased productivity.

A project is being undertaken to focus on a single team (Signalling Newcastle) to understand the effect of Junction 240 implementation on access and time on tools.

The implementation of PLPR on the ECM5 and ECM7 has had the effect of reducing the patrolling workload of track inspection teams by 2227 hours.

The output of the PLPR train has created a bow wave of work for the TSM Newcastle team which is borne out by the initial files being received during parallel running on ECM5 consisting of 15 pages of faults.

During this period of time there were production agency and track containment agency teams in place at Newcastle TSM

Through the removal of the defects identified by the PLPR train, this volume of reports has now reduced to 3 pages with a subsequent reduction in L2 faults being recorded on the Up & Dn Main on ECM5.

This reduction in regularly recorded faults has the effect of allowing the production teams to carry out more planned preventative maintenance.

Newcastle & Morpeth TME areas consistently rank in the top 5 LNE & EM Route areas by asset volume.

These asset volumes have been used in the IME workload study to enable comparative workloads to be measured between TME areas.

A contributory factor to the high number of track assets was the ability of the TME to input problem statements and build up the renewals workbank in the Newcastle TME area. In November 2015 assistance from the RAM team allowed 60 problem statements to be inputted into TRS thus allowing the CP6 renewals workbank to be identified for the Newcastle area.

The effect of deferred renewals contributed to the track asset defects on the ECML S&C on the Newcastle TME area. The key S&C junctions at Ferryhill, TurSDale, Birtley and KEB South had all been deferred numerous times. The life extension of these works provided an increased workload on the technical and production teams.

These key S&C locations were renewed and/or refurbished in January 2016

Sustaining and measuring the impact of the measures.

The Professional Head of Track David Godley has given a target of a 50% reduction in Level 2 Twist faults by end of 2016-17 throughout the business. This is to be monitored and actioned the AD North Control.

To get us to this point we have a plan that delivers this in stages. First is to remove Repeat L3 faults – that is 36 hour twist, gauge and Cat I cyclic, target 4 months. Then to remove all remaining L3 faults, target 6 months. Then a 50% reduction in repeat L2 twist faults and 50% reduction in L2 twist total, target 12 months.

Improvement in TSR total for maintenance derived speeds. End to end process for TSR management has been produced by DRAM. This has been cascade briefed to all TMEs. Removal and sustainability plans have been produced for the top 40 LNE route speeds and support from Works Delivery is been provided to deliver the action plans.

Update 22nd June

TME Appointment

Ben Wortham became the new TME at Newcastle in April following Andy Lucas taking a promotion in Works Delivery. Ben was the TME at York for 3 years and the challenge of the Newcastle area was a natural career progression

In accordance with TRK/001 there was a structured 9 day handover and transfer of knowledge between Andy and Ben focussing on the structure, systems and risks within the Newcastle area.

Additional ATME

The appointment of the additional ATME at Newcastle has been made with Simon Peers starting on the 25th July. Following agreement that the post was going into the organisation, the post was covered by Steve Parkes for the period March-May prior to him taking up the post of ATME at Morpeth.

The role of the additional ATME at Newcastle has been clearly defined by the TME and in the area of performance includes

- *Assist the TME in the reduction of L2's from 470 to 380 (and TME Morpeth where required)*
- *Assist the TME (and TME Morpeth where required) in eliminating repeat twists outside of the Newcastle Station area, L3 wide gauge and cyclic top (equal or greater than CAT A).*
- *Assist the TME (and TME Morpeth where required) in embedding the process for management of cyclic top (ie speed imposed for CAT B and above, then plan and remove, rather than smash and sign off)*
- *Complete interim trace reviews.*
- *Complete 30% of the annual cab riding plan.*
- *Lead the use of the 1/8th review process for improving asset quality.*
- *Lead the delivery of the repeat failures strategy and repeat failures meeting. Complete 5Y on all repeat S&C failures.*
- *Fulfil standard requirement for investigating repeat L2's*
- *Complete 25% of track walking (with potential to increase to 30% with RAM dispensation)*
- *Assist TME (and TME Morpeth where required) in the production of problem statements in TRS for the production of refurbishment and renewal proposals. Cleanse TRS and review as part of RAMP review with RAM.*

Junction 240

This SBSI (Signal Box Special Instructions) are now live on the Darlington and Newcastle panels of the IECC with shadow implementation on the Morpeth, Tweedmouth and Alnmouth panels.

The volume of SBSI taken has risen from 2 in P12 15/16 to 165 in P2 16/17. There is a 90% success rate for the SBSI and the usage has reduced the waste of teams arriving at site and being rejected access due to conflicts with other teams. The principles of junction 240 are also being used to deconflict the standard line

blockage applications to the GZAC for the Darlington panel to further reduce the waste of failed Line blockages.

Twist Faults

In the period March-June there has been a 22% reduction in twist faults at Newcastle from 215 to 166.

In the same period there has been a 6% reduction in repeat twist faults from 64 to 60, and a 28% reduction in L3 faults from 7 to 5.

Previously reported to RAIB

Recommendation 2

The intent of this recommendation is to reduce the possibility of new track defects developing at Heworth, which could cause a derailment.

Network Rail should investigate why water is not draining from the track bed in the vicinity of where the train derailed (between 99 miles 220 yards and 99 miles 264 yards on the Down Sunderland line between Pelaw and Newcastle) and implement measures to control the risk of excess water affecting the track's vertical geometry. Such measures could include ballast cleaning, remedial work to improve the effectiveness of the installed track drainage, through to a renewal of the track.

ORR decision

1. Network Rail has investigated the condition of the track bed at the incident location and found the root cause of the poor asset condition to be the lack of an outfall for the drainage system. ORR is content that Network Rail has an appropriate time-bound plan in place to address the issues identified.
2. 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 30 April 2017

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

Previously reported to RAIB

3. On 4 August 2016 ORR reported that Network Rail had not responded to the recommendation and that the status of the recommendation was 'Insufficient response'.

Update

4. On 21 January 2017 Network Rail provided the following response:

The initial investigations into the condition of the track bed at Heworth revealed that:

1. *The drainage system that serves the area of derailment extends from LEN3/098.1216 to 099.0780*
2. *According to the 2012 Integrated Drainage Project data in Ellipse, the system consists of 136 assets*
3. *The fall of the system is from east to west (from low to high mileage)*

4. *No off track drainage is present in the area: no crest or slope drains are connected to the track drainage system. The drainage system serves the trackbed exclusively*
5. *The system appears NOT to have an outfall. This is the root cause of the failure of the drainage system*
6. *The logical outfall for the system is a 900mm ID sewer the runs beneath the railway at LEN3/099.0780 (approximately). This sewer is owned by Northumbrian Water and is not in CARRS and is not recorded in the Hazard Directory. No other culverts, pipes or drains run beneath the railway in the area served by this drainage system*
7. *Recent work by Works Delivery was not recorded in Ellipse.*

An order has been placed with a supplier to conduct the following survey and remedial works by February 2017:

1. *Survey drainage system from 098.1200 to 099.0780 and confirm position of outfall*
2. *Confirm suitability and status of outfall and confirm whether we have documented right of discharge.*
2. *Enter asset condition and confirmed system configuration into Ellipse*
3. *Jet and prove system from 099.0780 (outfall) to 098.1216 (commencement of system)*
4. *Repair any damage found during survey.*

Recommendation 3

The intent of this recommendation is to reduce the risk of derailment in the Newcastle Track Section Manager area due to track defects that are not repaired after being found by the inspection regime.

Network Rail should review the condition of the track assets in the area covered by the Newcastle Track Section Manager against the records on its system for maintaining its track assets (Ellipse). The aim of the review should be to identify track defects requiring maintenance action which are either not recorded on Ellipse, do not have a planned date for repair, or have not been correctly prioritised for repair. Once identified, these defects should be recorded on Ellipse, prioritised and given a date for repair.

ORR decision

5. Network Rail has carried out a review to identify track defects requiring maintenance in the Newcastle TME area. ORR has asked Network Rail to provide confirmation that track defects requiring maintenance action are recorded in Ellipse, have been correctly prioritised and give a date for repair.

6. 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 detailed plan or timescales for completion.

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

Previously reported to RAIB

7. On 4 August 2016 ORR reported that Network Rail had not responded to the recommendation and that the status of the recommendation was 'Insufficient response'.

Update

8. On 21 January 2017 Network Rail provided the following response:

The TME now runs a fortnightly 1/8th by 1/8th review for both the Newcastle TME and Morpeth TME areas which is attended by the track SMs and planners. The review aims to identify track defects requiring maintenance action which are either not recorded on Ellipse, do not have a planned date for repair, or have not been correctly prioritised for repair.

The IME is scheduled to attend one 1/8 by 1/8 per period for each TME to understand the risk associated with each section and the controls in place/support required for each TME. From August the RME has also been attending the 1/8 review.

This comprises a review of each line using HD footage and the workbank in Ellipse to correctly identify and prioritise the workbank.

This provides a detailed review and assessment of the planned work and enables the team to fully understand the condition of their asset.

Part of the output from the 1/8 review is the population of the potential TSR register to build up and provide knowledge and actions around the areas of risk.

In addition to the 1/8 by 1/8 review the IME now chairs a 4 weekly track risk review meeting with the TME Newcastle, TME Morpeth and RAM Representative.

The purpose of this meeting is to review any unmitigated risks within each area and identify areas of support/funding required for each engineer.

Any issues requiring escalation from this meeting are then taken forward to the monthly Route Reliability and Compliance meeting with the AD, IMDM.

The IME self-assurance documentation has been amended to include additional checks on the following:

Additional checks on reviews on repeat rough ride locations, repeat super red 1/8ths and repeat track geometry faults.

The SM/TME/Technical self-assurance process is being amended to review if the VPE & Super Reds are being managed in accordance with the standard

The 1/8 review is attended periodically by the IME to allow a review of the process and to meet DU self-assurance requirements on the management of track geometry.

The effectiveness of this regime will be measured through the additional ATME post at Newcastle carrying out monthly technical light touch assurance (to maintain focus on technical compliance in key areas). This would measure compliance to some key items such as Super red inspections, L2 management, 053, 054, loss of rail section.

The Additional ATME will provide assistance to reduce the VPE/Super Red inspections that are currently in backlog.

9. On 15 March 2017 ORR asked Network Rail if they could provide confirmation that from the review track defects requiring maintenance action have been identified; that they are recorded in Ellipse; and have been correctly prioritised and give a date for repair.

Recommendation 4

The intent of this recommendation is to reduce the risk of derailment due to track assets not being maintained by better understanding the reasons for the problems found in this investigation.

Network Rail should investigate why its track assets within the area covered by the Newcastle Track Maintenance Engineer consistently have the highest numbers of reportable track geometry defects and sections of track in the super-red category on LNE Route. The investigation should include consideration of:

- the number of staff needed to maintain the track assets in the Newcastle Track Section Manager area, so that both reactive and planned volumes of preventative maintenance activities are delivered;
- the effect that changes to safe systems of work used by the track maintenance teams has had on the time spent working on the track;
- the effect that the introduction of PLPR within the track inspection regime has had on increasing the track maintenance workload;
- the types and numbers of track assets in the Newcastle Track Maintenance Engineer's area, their age, and their condition, in comparison to the other Track Maintenance Engineer areas on LNE Route; and
- the effect that any other factors have had in contributing to the high number of track asset defects.

Based on the findings of the above investigation, Network Rail should determine what the appropriate target values are for the numbers of reportable track geometry defects and sections of track in the super-red category in the Newcastle Track Maintenance Engineer area. Network Rail should then take action to improve the maintenance of the track assets in this area to a level that allows these targets to be met.

ORR decision

10. ORR has asked Network Rail to confirm if they have determined appropriate target values for reportable track geometry defects and 'super red eighths'.

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 by 31 March 2017.

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

Previously reported to RAIB

12. The Network Rail response refers to the national target of a 50% reduction in level 2 twist faults by the end of 2016-17, but is silent on super red eighths. ORR has asked Network Rail to confirm the target (in percentage and number) for level 2 twist faults for the Newcastle Track Maintenance Engineer area; over what duration this target has to be achieved; and the action that has been taken to improve maintenance of the track assets in this area to a level that allows these targets to be met. ORR also asked Network Rail to confirm the target level for portions of track categorised as super red eighth, and timescale to achieve that target.

Update

13. On 21 January 2017 Network Rail provided the following response: *Network Rail have investigated why its track assets within the area covered by the Newcastle Track Maintenance Engineer consistently have the highest numbers of reportable track geometry defects and sections of track in the super-red category on LNE Route. The investigation considered:*

- *the number of staff needed to maintain the track assets in the Newcastle Track Section Manager area, so that both reactive and planned volumes of preventative maintenance activities are delivered;*
- *the effect that changes to safe systems of work used by the track maintenance teams has had on the time spent working on the track;*
- *the effect that the introduction of PLPR within the track inspection regime has had on increasing the track maintenance workload;*
- *the types and numbers of track assets in the Newcastle Track Maintenance Engineer's area, their age, and their condition, in comparison to the other Track Maintenance Engineer areas on LNE Route; and*
- *the effect that any other factors have had in contributing to the high number of track asset defects.*

Network Rail's Head of Track has set a target of a 50% reduction in Level 2 Twist faults by end of 2016-17 throughout the business.

The LNE AD North Area has established a plan that delivers this in stages. First is to remove Repeat L3 faults – that is 36 hour twist, gauge and Cat I cyclic, target 4 months. Then to remove all remaining L3 faults, target 6 months. Then a 50% reduction in repeat L2 twist faults and 50% reduction in L2 twist total.