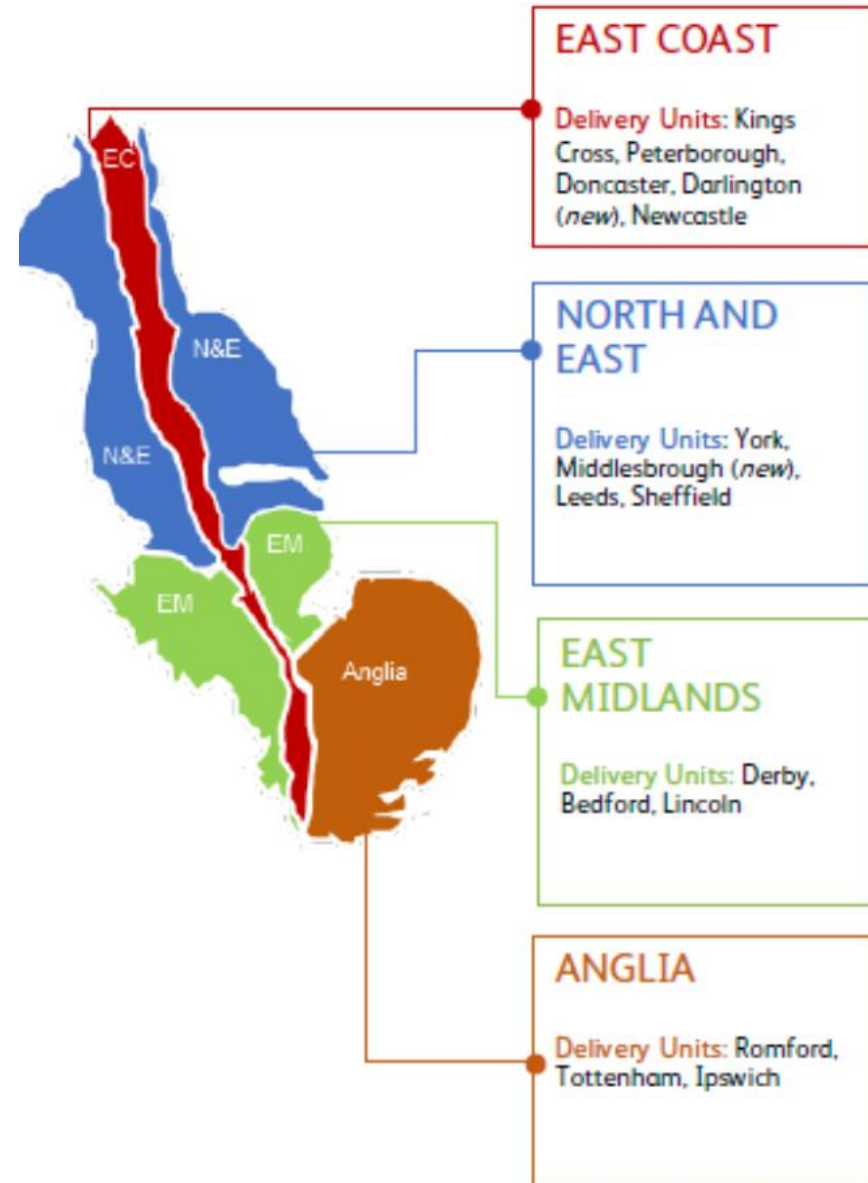


TME Conference
Birmingham

16th June 2022

Innovation on Eastern

Joshua Chambers
Phil Dutton
Sin Sin Hsu

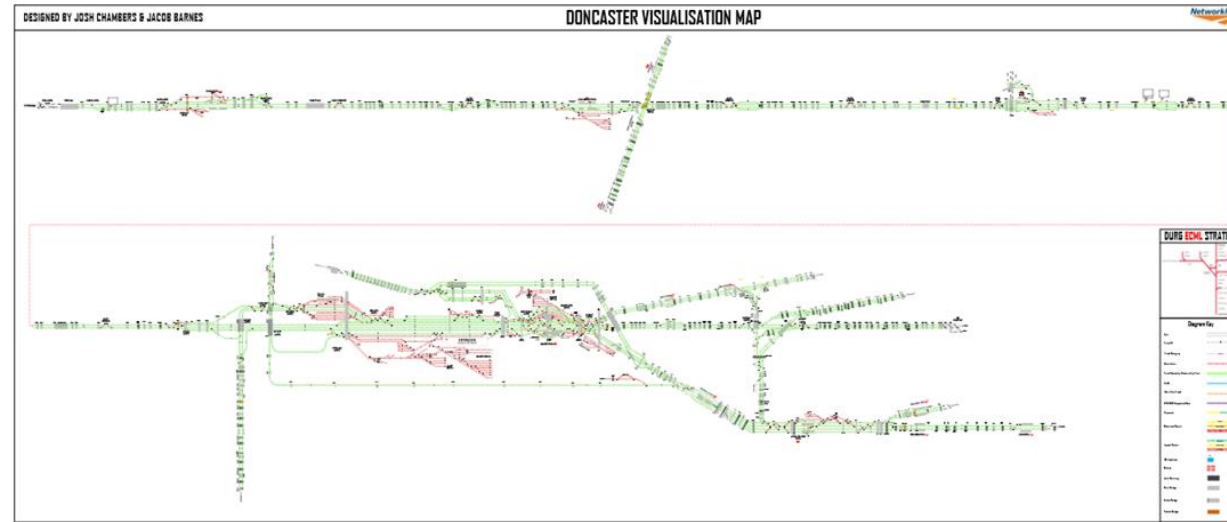


- Doncaster Visualisation Map for Managing Inspection and Maintenance
- Remote Monitoring of S&C – Our experience with Konux
- Class153 S&C Inspection train (VIU2) – AIVR

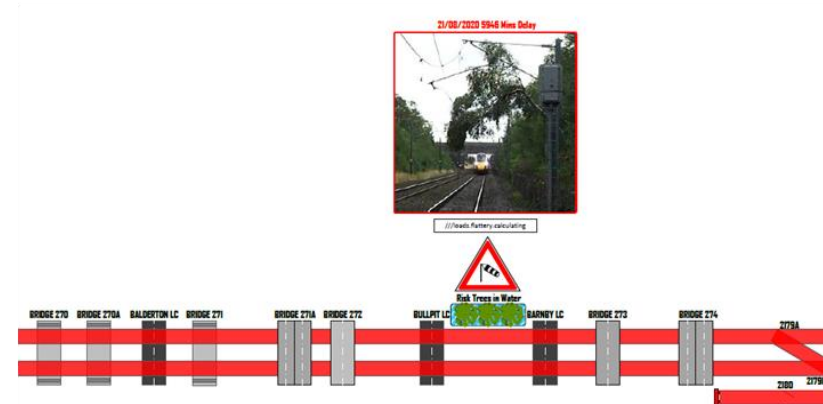
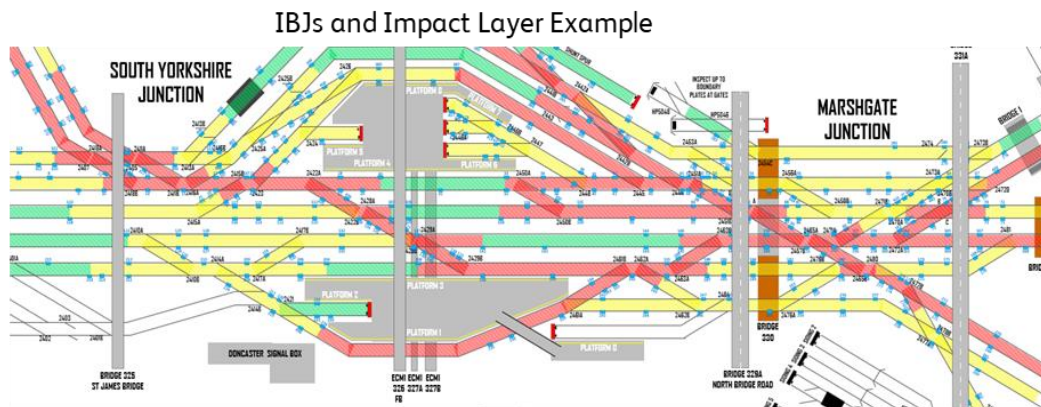
Doncaster Visualisation Map

Created for planning and assurance

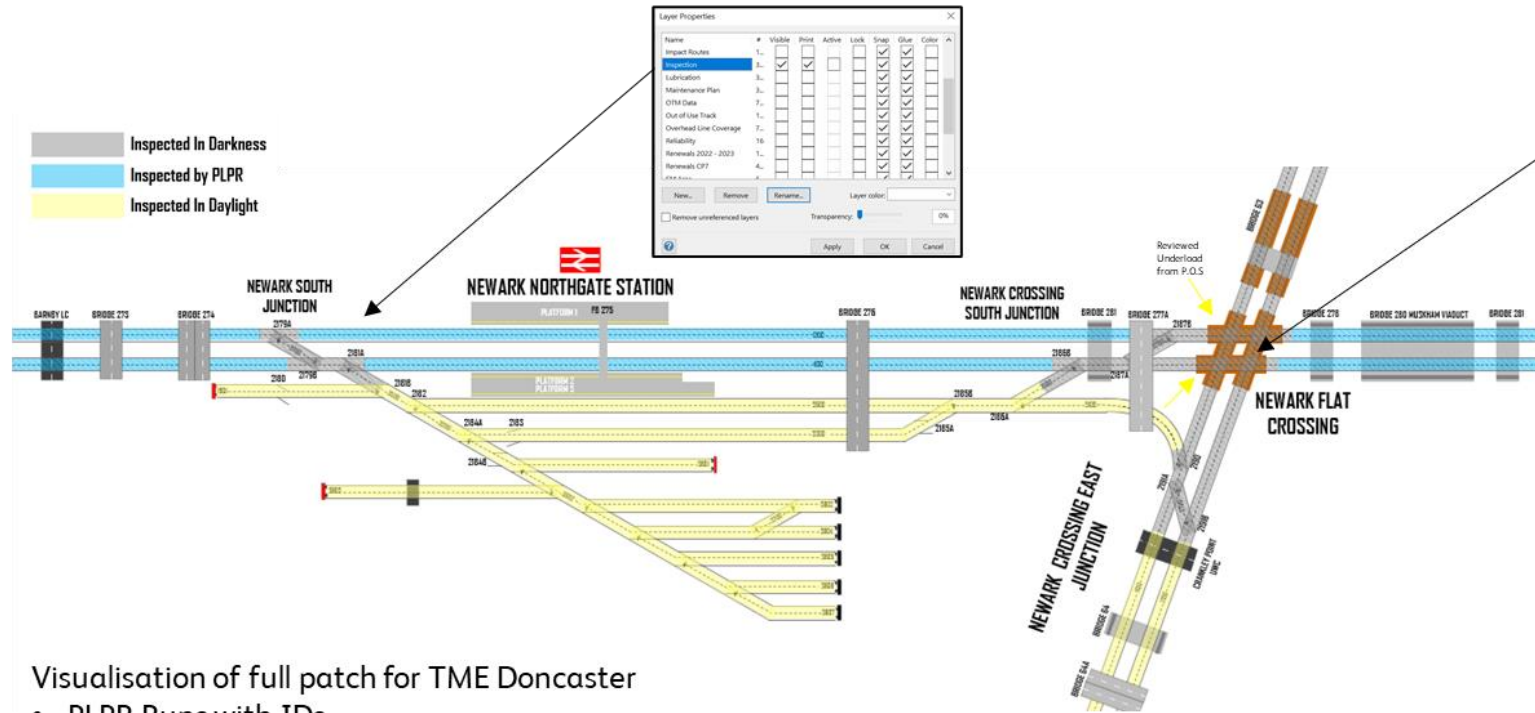
- Track IDs
- Track Cats
- IMN Data
- RSTs / Blackholes
- Track Inspection
- Track Components / Omissions
- Clearances
- Renewals
- Maintenance Plans
- IBJs and Impact Routes
- OTM Data
- Grinding and Lubrication
- Out of use Track and Boundaries
- OHL Coverage
- EWAT – Tree & Flood Risk sites
- SM Patch for Control (3 SMs at Doncaster)



EWAT Layer Example

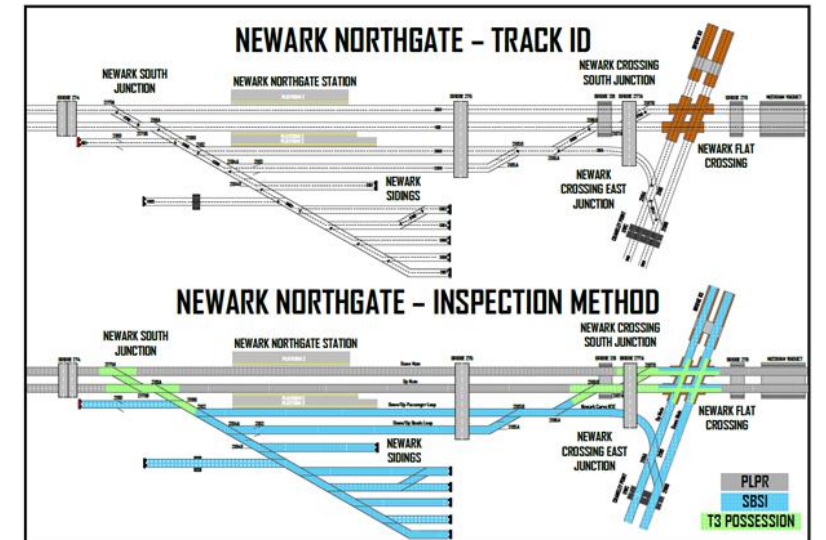


Track Inspection

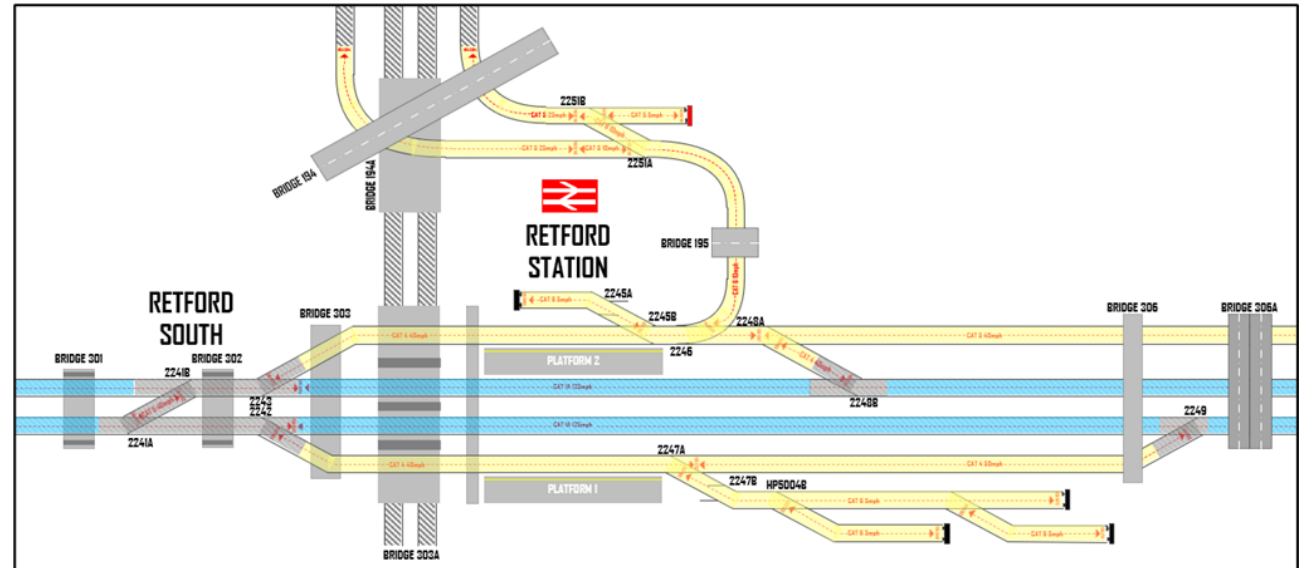
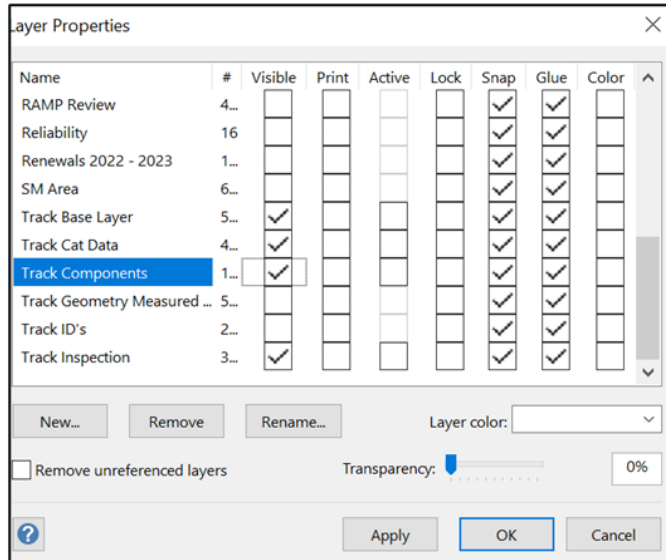


Visualisation of full patch for TME Doncaster

- PLPR Runs with IDs
 - Track inspected in Darkness
 - Track inspected in Daylight
- Assurance with full coverage (all boundary plates are highlighted on the diagram includes out of use track layer).
 - Identifies S&C units which could be reviewed from a P.O.S on the daylight patrols. (2179A/B & 2187A/B 125mph Inspected in darkness).



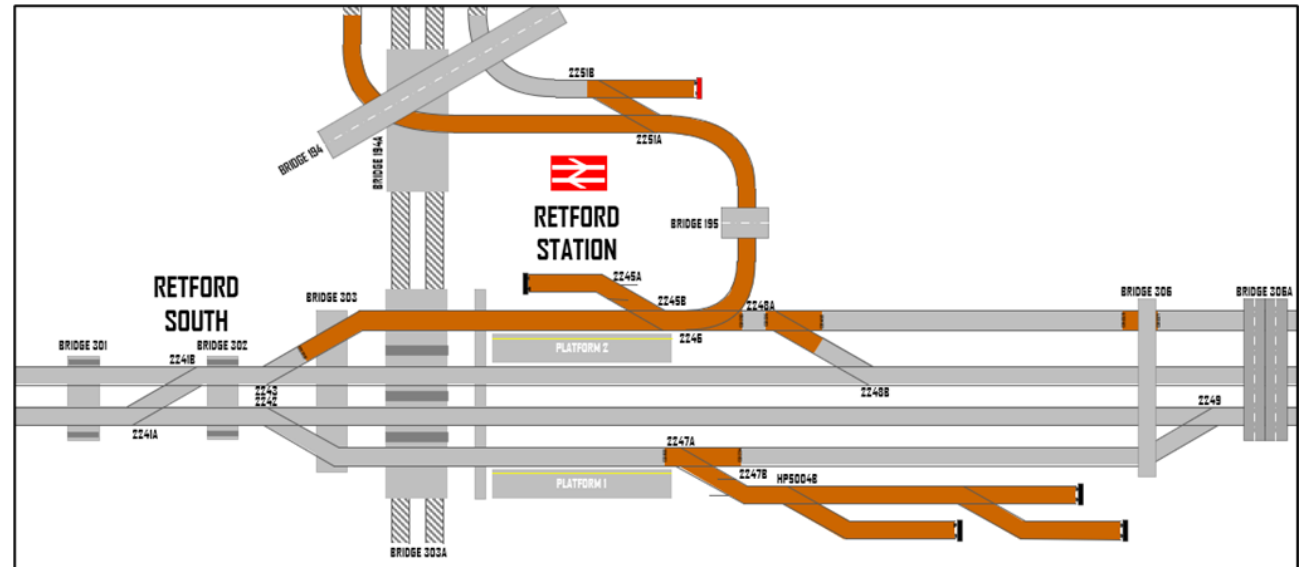
Track Inspection



Track Inspection Review / Management

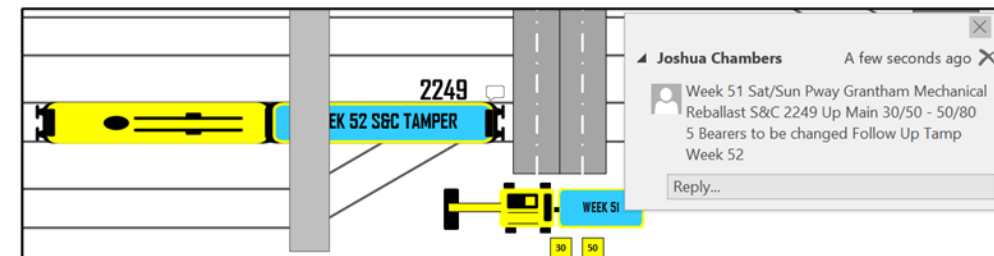
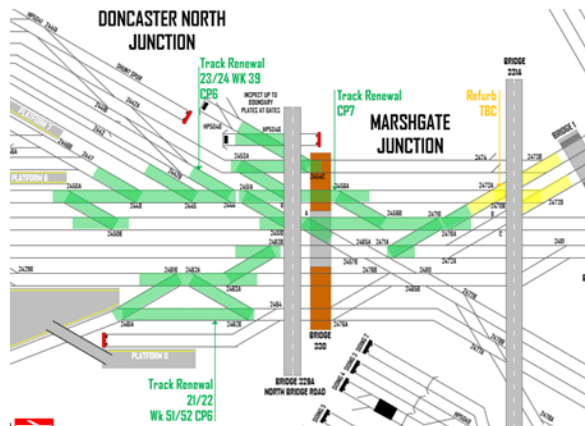
Track inspection frequencies reviewed using the layers – allowing full visibility of the asset.

Retford Station – Timber assets inspected during daylight also allowing the look across at S&C inspected in the dark.



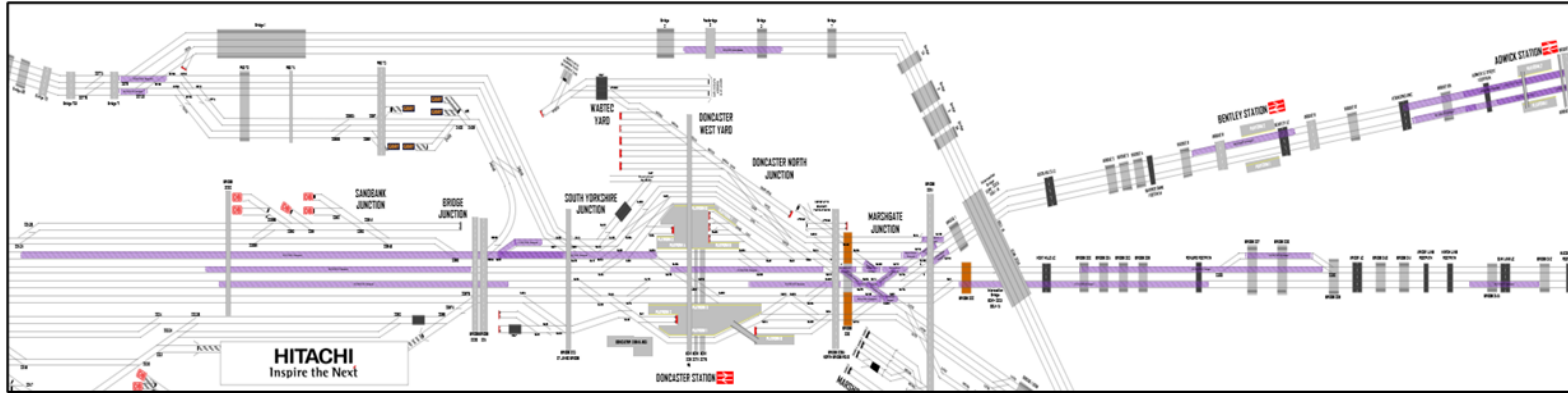
Maintenance and renewal plans integrated under one layer. Identifies key works and locations with currently no plan.

-



6

Asset Performance

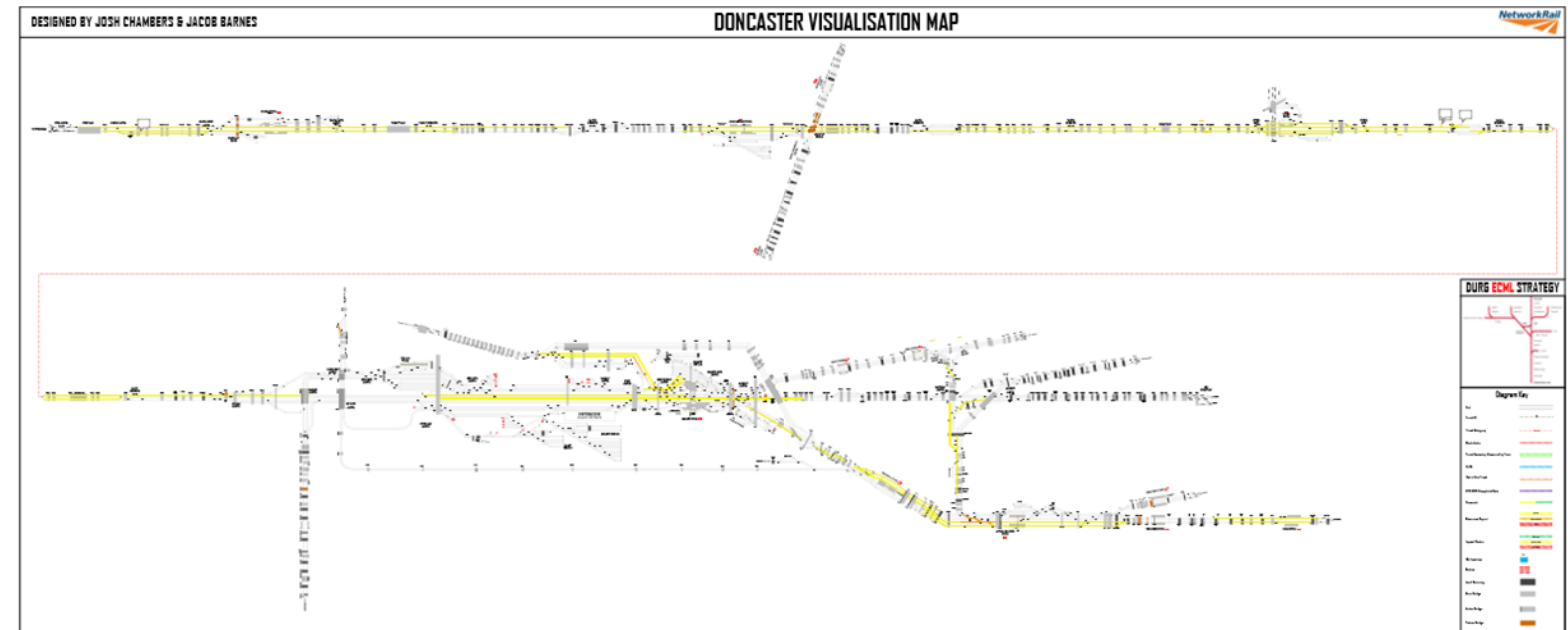


OTM Management

- Full Year completed OTM shifts mapped, visually see treated and untreated areas.
- Highlights locations treated twice prompting alternative methods – Scheme / Stoneblower / Scope Renewal.

Lubrication

- All TOR / Solar / Hydraulic lubricators mapped for TME Doncaster.
- Yellow – Assets covered by lubrication.
- White – Currently no lubrication regime.
- Diagram utilised by RME department to plan new lubrication locations showing predicted coverage to improve asset life at key junctions.



LA 2282

▼

HEALTH STATUS

TB FR

KONUX LOAD FACTOR

4.7

IMPORTANCE

● ● ● ●

WEATHER

17°C 60%

DETAILS

GRAPH

▼ Switch section

Blade

Frog

▼ Overlay

Temperature

Precipitation

High/Low Range

7-Day Average

Prediction

▼ Train Speed

0 km/h — 350 km/h

▼ Train Types

High Speed Trains

Passenger Trains

Cargo Trains

Unknown Trains

VERTICAL DISPLACEMENT

At Frog - in mm

+

THRESHOLD 3.00MM

TRAIN AVERAGE

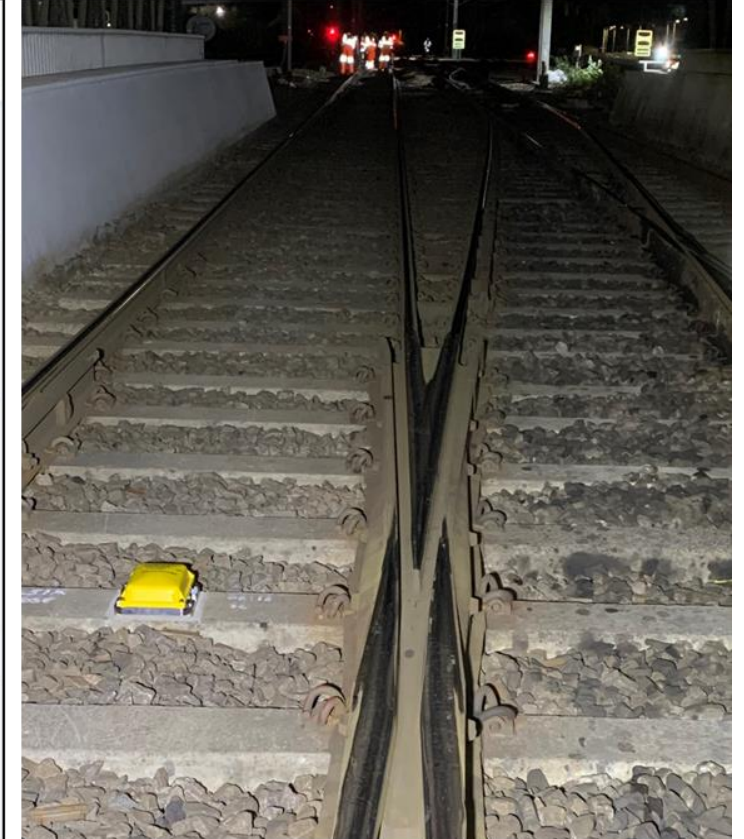
The scatter plot displays vertical displacement data points (blue dots) over a period from May 8 to May 16. The y-axis represents displacement in millimeters, ranging from 0 to 3. A horizontal threshold line is drawn at 3.00 mm. The data points are clustered between approximately 0.2 mm and 0.9 mm, with most values falling between 0.4 mm and 0.8 mm. The x-axis is labeled with dates and times, showing a repeating pattern of data points every day.



What Good looks like (Vertical Displacement)

:

KONUX – TME Doncaster



Marshgate Junction 2457A

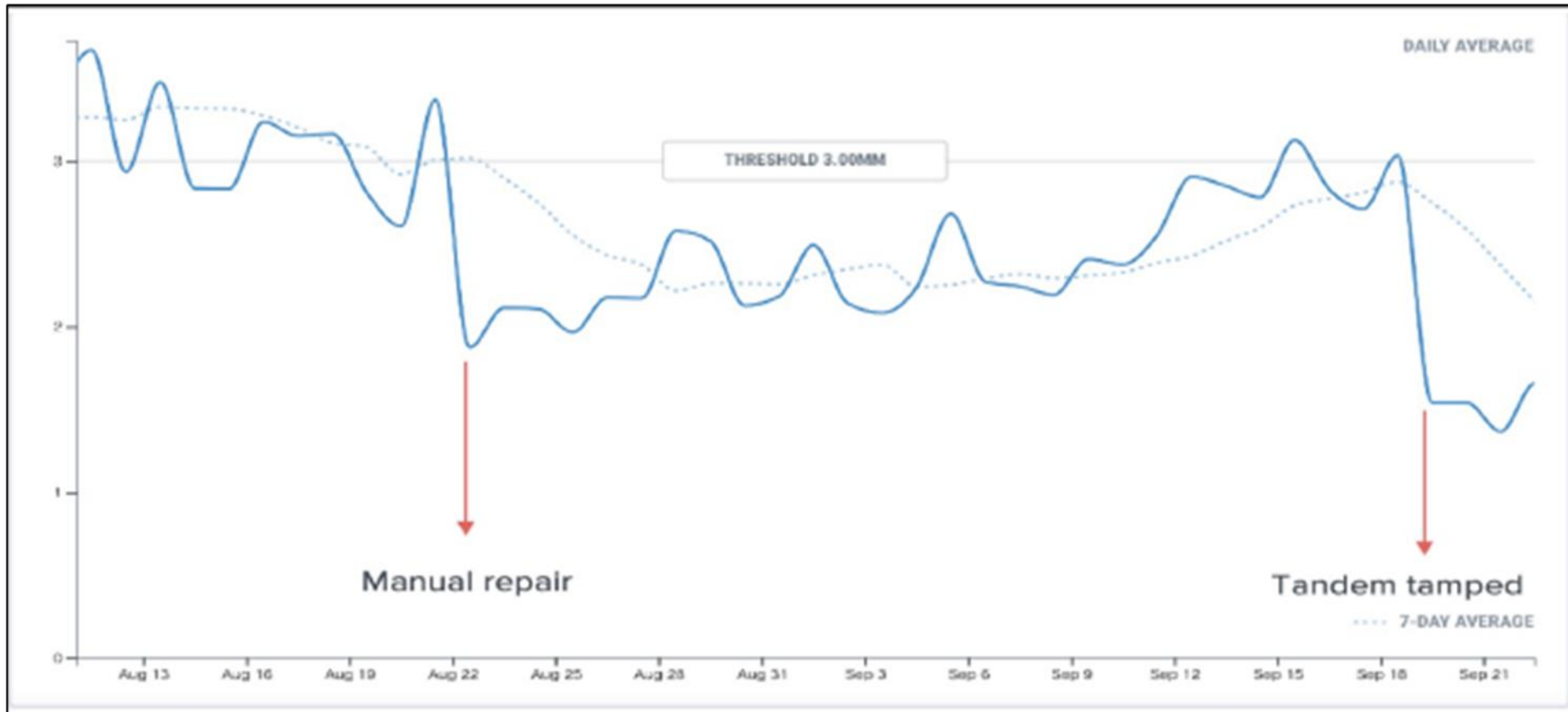
What poor looks like (Vertical Displacement)

2 Devices fitted Unable to review under traffic due to location and complexity 1 in 13 EA (Located on bridge restricted with wire heights)

KONUX – TME Doncaster

2457A Following Maintenance Activities

- Initial Robel – No Impact
- Lifted throughout with Duff Jacks – Vertical Displacement dropped significantly
- Parallel Tamped through Junction – Vertical Displacement less than 2mm with a predicted downward trend.



KONUX – TME Doncaster

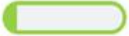
Maintenance quality check following weekend work – 2457B Marshgate Junction.

What works and what doesn't !

22/05/2022

 Trackbed maintenance

2457B | Marshgate Jn.

 7 of 60 days evaluated...

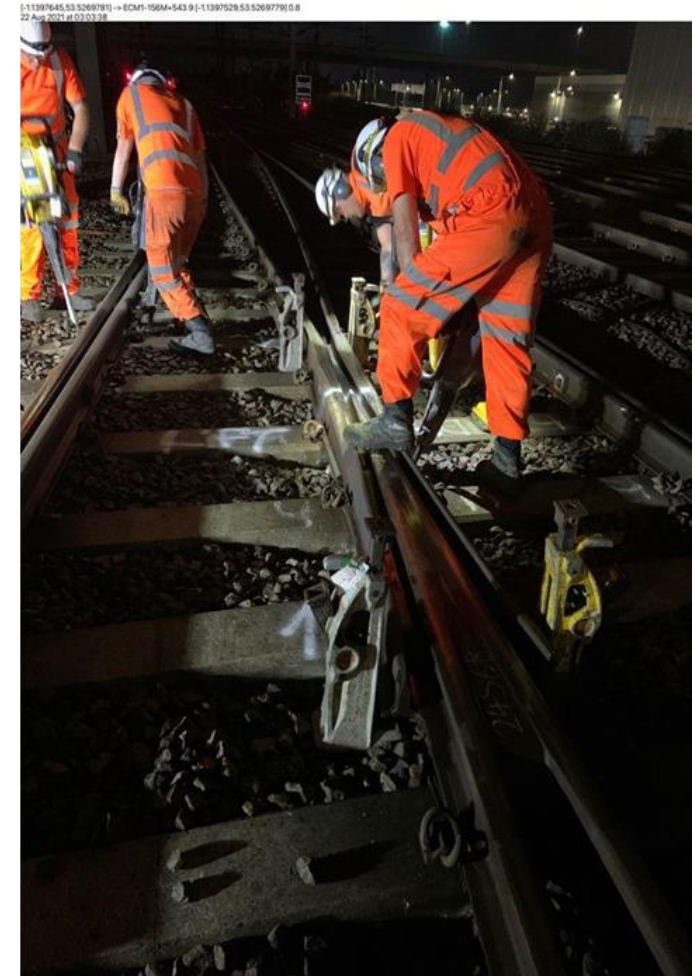
The maintenance activity appears to be effective so far.



Evaluation details ?

Vertical displacement at Switch

Before	2.8 mm
After 1 day	1.5 mm -46 %
Current (after 7 days)	1.6 mm -42 %





TXF 2221-3B

HEALTH STATUS TS FR KONUX LOAD FACTOR 4.7 ▲ IMPORTANCE ● ● ● WEATHER 8°C 85% 🔊 📄 DETAILS 📊 GRAPH

▼ Switch section

Blade

Frog ☒

▼ Overlay

Temperature ☐Precipitation ☐High/Low Range ☐7-Day Average ☐Prediction ☐

▼ Train Speed

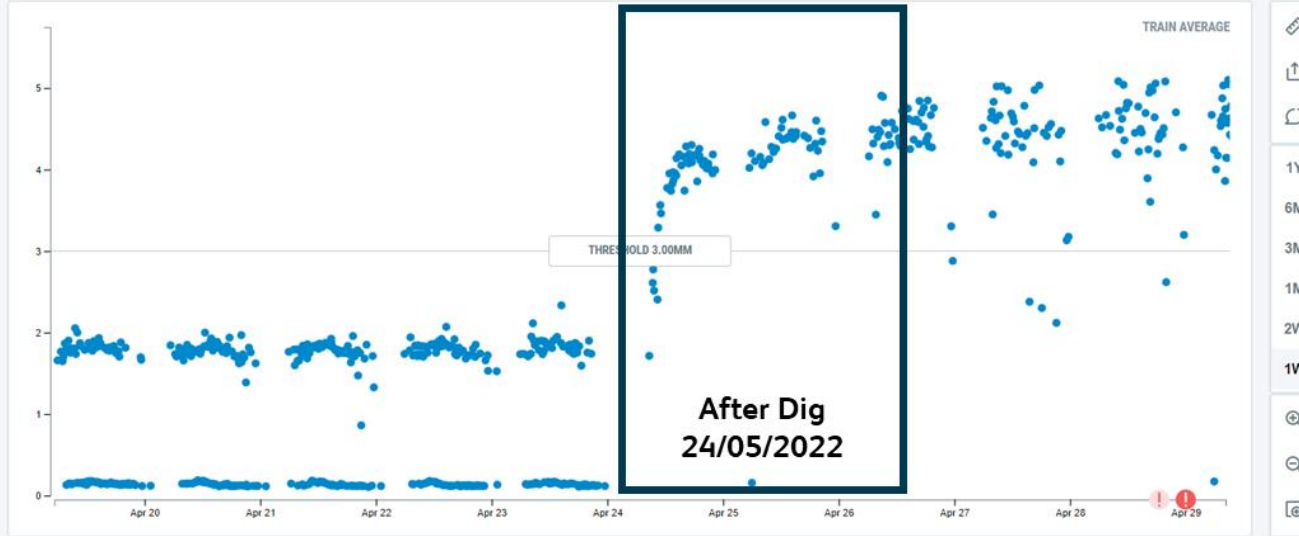
0 km/h — 350 km/h

▼ Train Types

▶ High Speed Trains ☐▶ Passenger Trains ☐▶ Cargo Trains ☐▶ Unknown Trains ☐

VERTICAL DISPLACEMENT ⌵
At Frog - in mm

+



TXF 2221-3B

HEALTH STATUS TS FR KONUX LOAD FACTOR 4.7 ▲ IMPORTANCE ● ● ● WEATHER 8°C 85% 🔊 📄 DETAILS 📊 GRAPH

▼ Switch section

Blade

Frog ☒

▼ Overlay

Temperature ☐Precipitation ☐High/Low Range ☐7-Day Average ☐Prediction ☐

▼ Train Speed

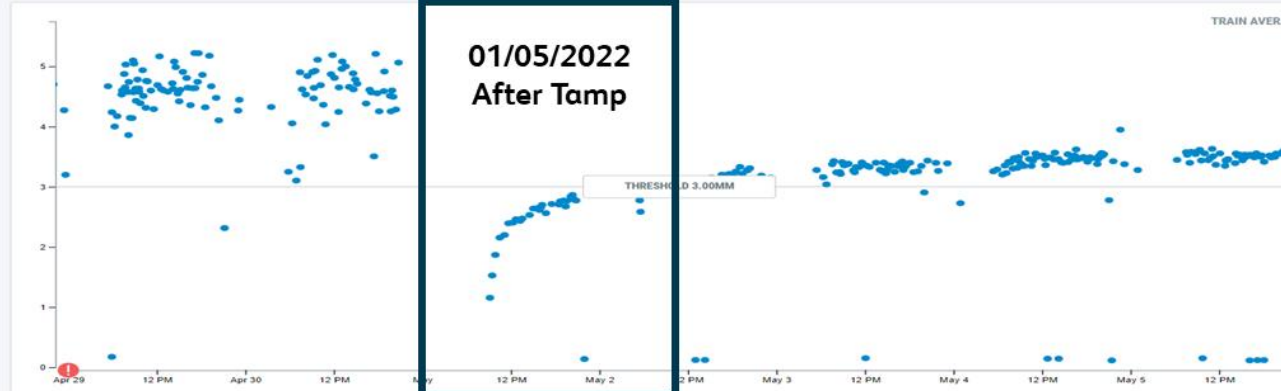
0 km/h — 350 km/h

▼ Train Types

▶ High Speed Trains ☐▶ Passenger Trains ☐▶ Cargo Trains ☐▶ Unknown Trains ☐

VERTICAL DISPLACEMENT ⌵
At Frog - in mm

+



KONUX – TME Doncaster

2221 2A following Reballast

TXF 2221-3B

TB FR

4.7

9°C 91%

DETAILS

GRAPH

Switch section

Blade

Frog

Overlay

Temperature

Precipitation

High/Low Range

7-Day Average

Prediction

Train Speed



Train Types

- High Speed Trains
- Passenger Trains
- Cargo Trains
- Unknown Trains



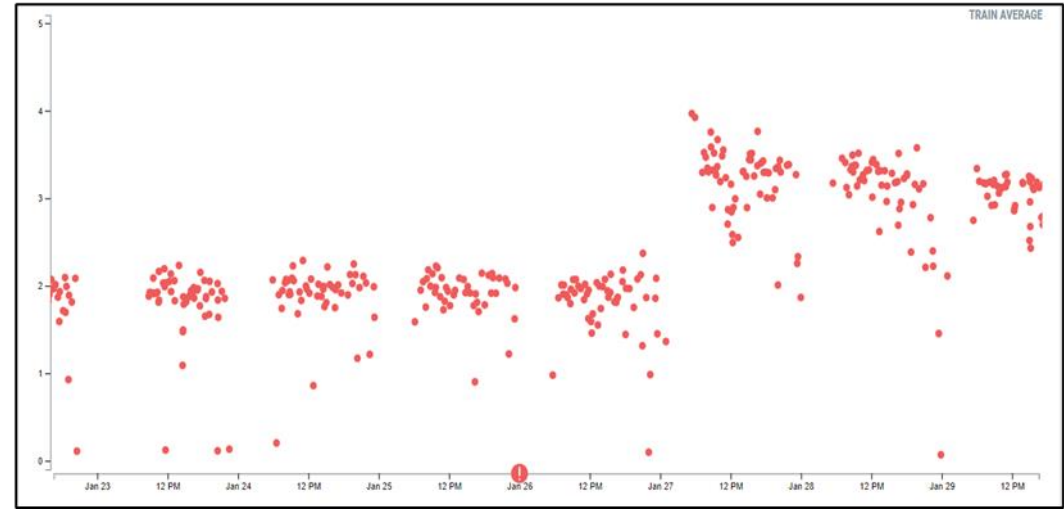
KONUX – TME Doncaster

2456B following installation of new crossing nose

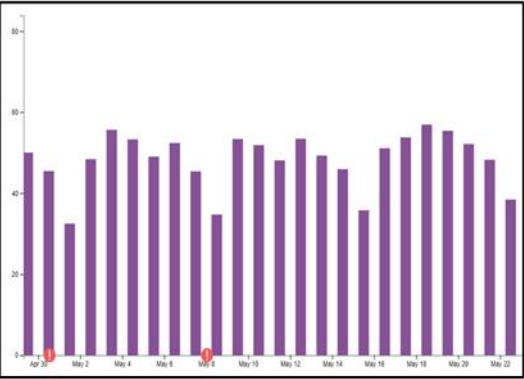


KONUX – TME Doncaster

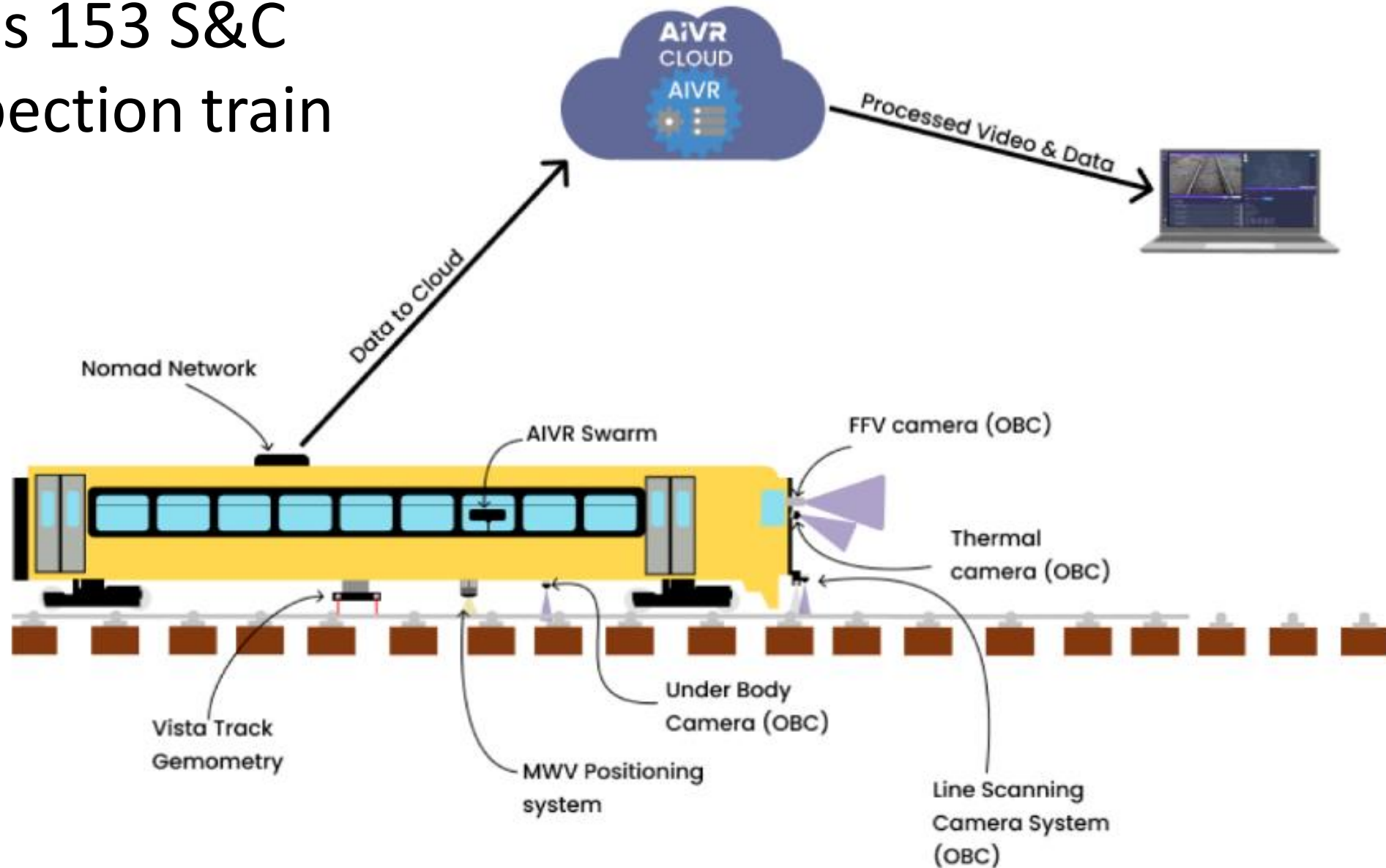
2221 2A following weld repair on crossing nose



Estimated Tonnage 2221 2A



Class 153 S&C Inspection train



Hide Route History

Session: VIU 3- POD 9- Thermal/NIR Micheldever to Reading

10/03/2022 23:51:19 GMT

Travelling North

Travelling South

10/03/2022 23:51:02 GMT

Speed: 1.0x

Type: Video

Sessions

Shortcuts

Markup Feed

Search for a session

#107143

VIU 3- POD 11- 4k Micheldever to Reading

10/03/2022 23:51:02 GMT

00:50

Night

Search

Video

Star

#107140

VIU 3- POD 9- Thermal/NIR Micheldever to Reading

10/03/2022 23:50:59 GMT

00:50

Night

Backward

Thermal Hotspot

Search

Video

Star

SWINDON

MLN1

RLBOROUGH

BHL

BHL

ANDOVER

STOCKBRIDGE

SALESBURY

WINCHESTER

READING

BRL

BRACKNELL

GTW2

BML1

BML1

WPH1

NGL

RS

B

Search Location

Leaflet | © MapTiler © OpenStreetMap contributors

☒ Show Markers
 ☐ Follow Video/Images on Map
 ☒ Show Snapped Route

Info

Session Content

History

Marker Info

VIEWING

#107143 VIU 3- POD 11- 4k Micheldever to Reading

Rail Inspection

ELR (ESTIMATE)

ELR: BML1 MILE: 60 CHAIN: 31 TRACK: 1500

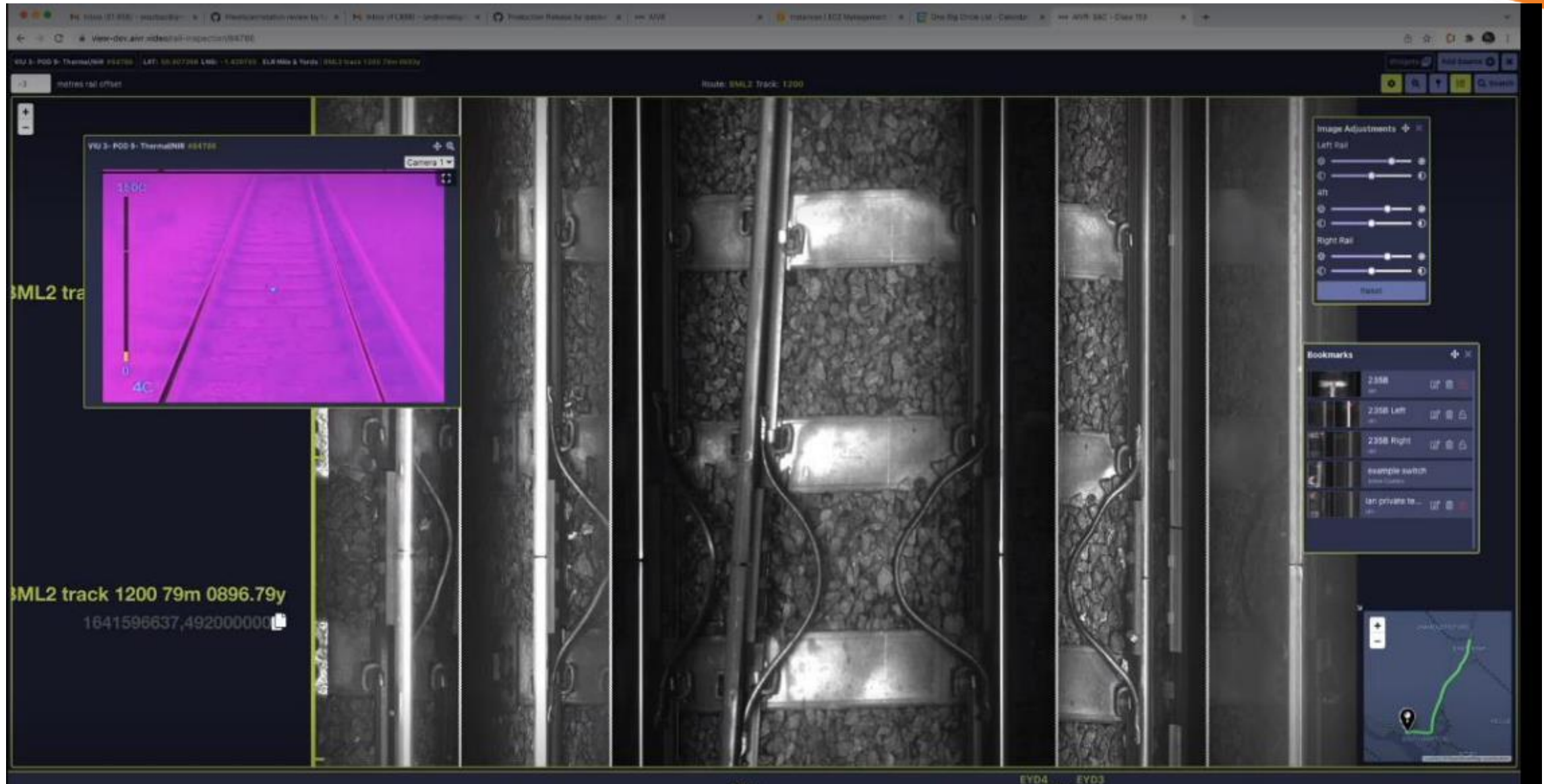
SPEED, BEARING & ALTITUDE

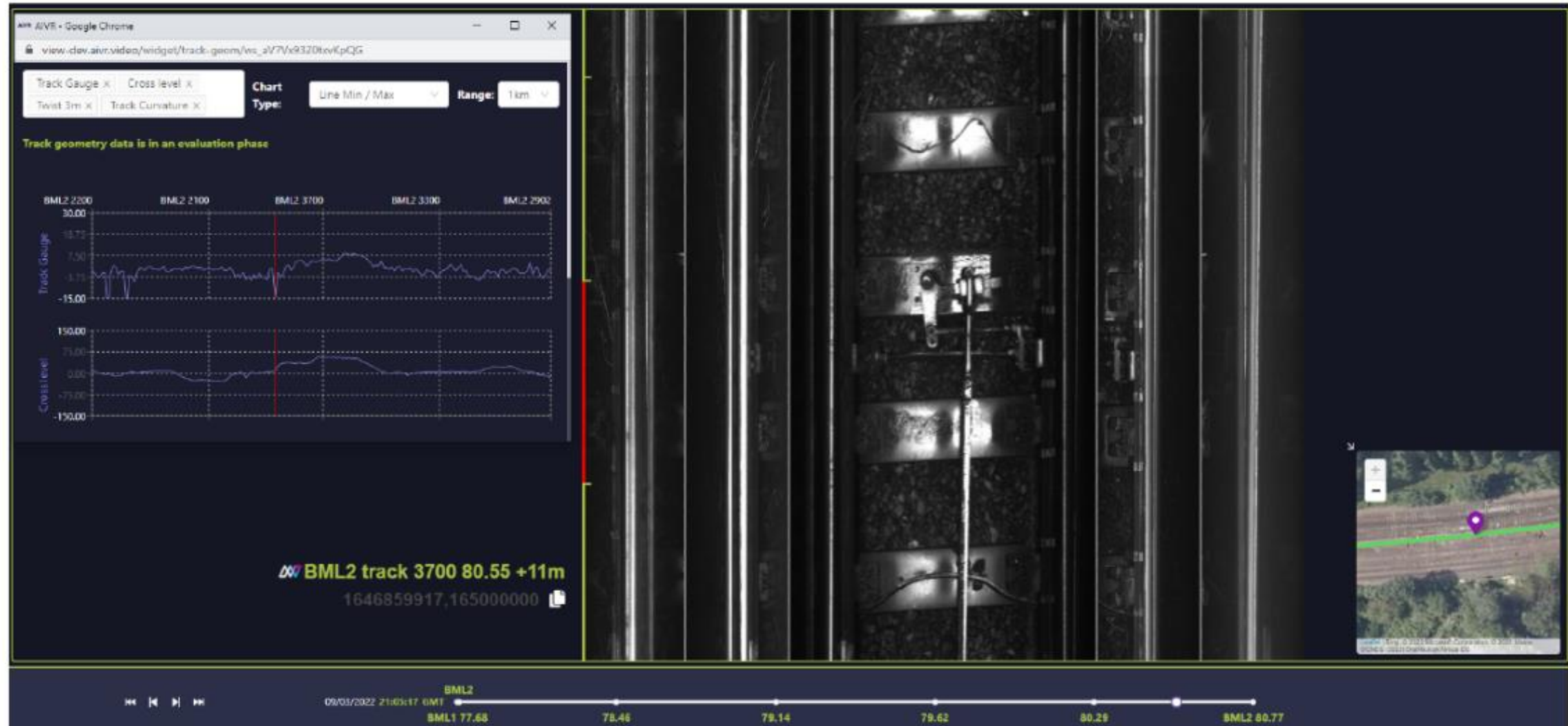
0 MPH North 96m

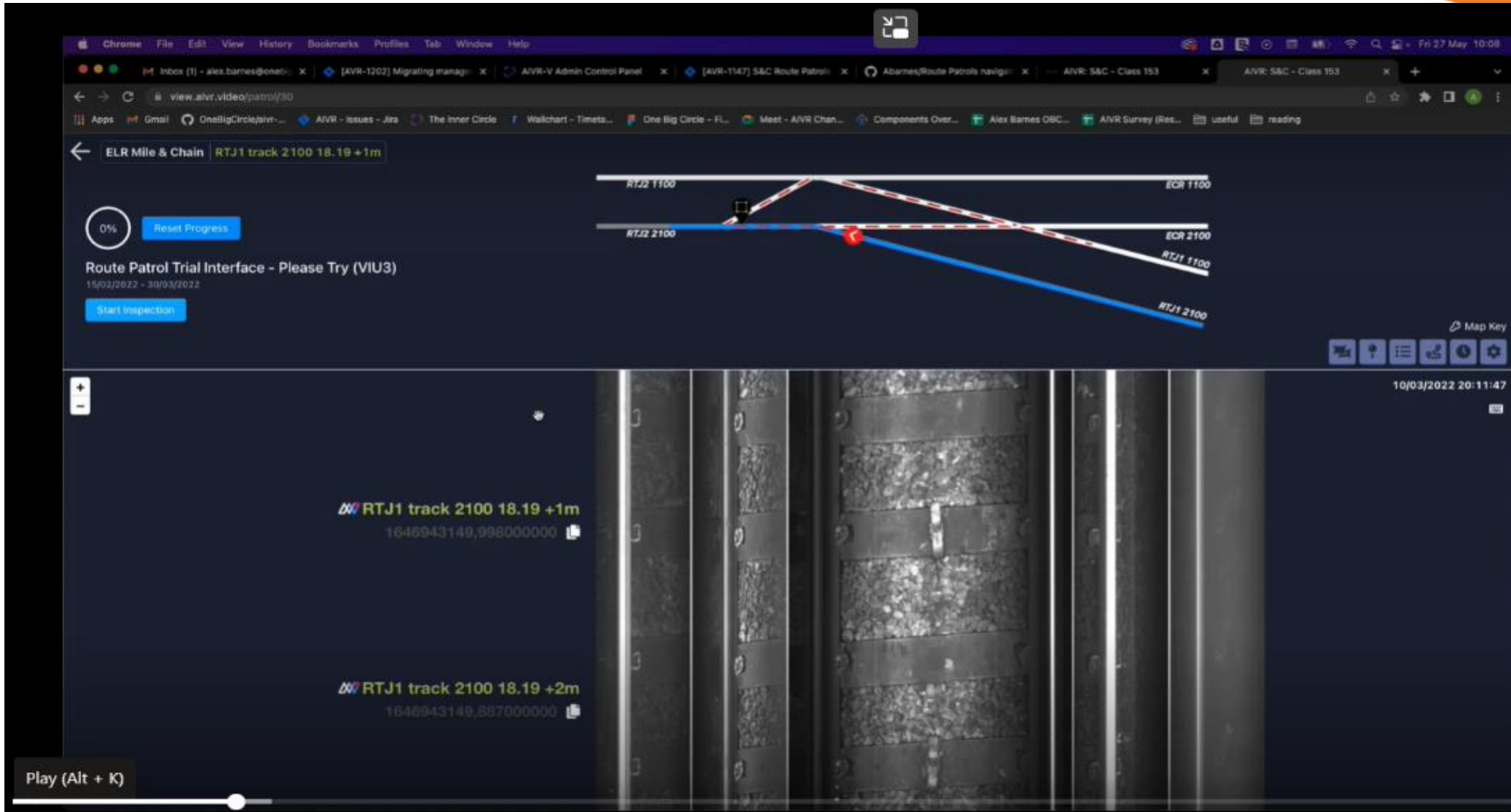
MARKERS

No Route Markers

POSITION







The screenshot displays the Route Patrol Trial Interface (VIU3) within a web browser. The browser's address bar shows the URL `view.alvr.video/patrol/3D`. The interface includes a top navigation bar with various tabs and a main content area. On the left, there is a sidebar with a back arrow, the text "ELR Mile & Chain", and a highlighted "RTJ1 track 2100 18.19 +1m". Below this, a circular progress indicator shows "0%" and a "Reset Progress" button. The main content area features a 3D diagram of the track layout, with labels for "RTJ2 1100", "ECR 1100", "RTJ2 2100", "ECR 2100", "RTJ1 1100", and "RTJ1 2100". A red dot is visible on the track. Below the diagram, there is a "Start Inspection" button. On the right side of the main content area, there is a "Map Key" button and a set of icons. The bottom section of the interface shows a video feed of the track, with two labels: "RTJ1 track 2100 18.19 +1m" and "RTJ1 track 2100 18.19 +2m". A play button and a progress bar are visible at the bottom left, with the text "Play (Alt + K)".

Chrome File Edit View History Bookmarks Profiles Tab Window Help

view.alvr.video/patrol/3D

Apps Gmail OneBigCircle/alvr-... AVR - Issues - Jira The Inner Circle Walkchart - Timeta... One Big Circle - FL Meet - AVR Chan... Components Over... Alex Barnes OBC... AVR Survey (Res... useful reading

← ELR Mile & Chain RTJ1 track 2100 18.19 +1m

0% Reset Progress

Route Patrol Trial Interface - Please Try (VIU3)

15/02/2022 - 30/03/2022

Start Inspection

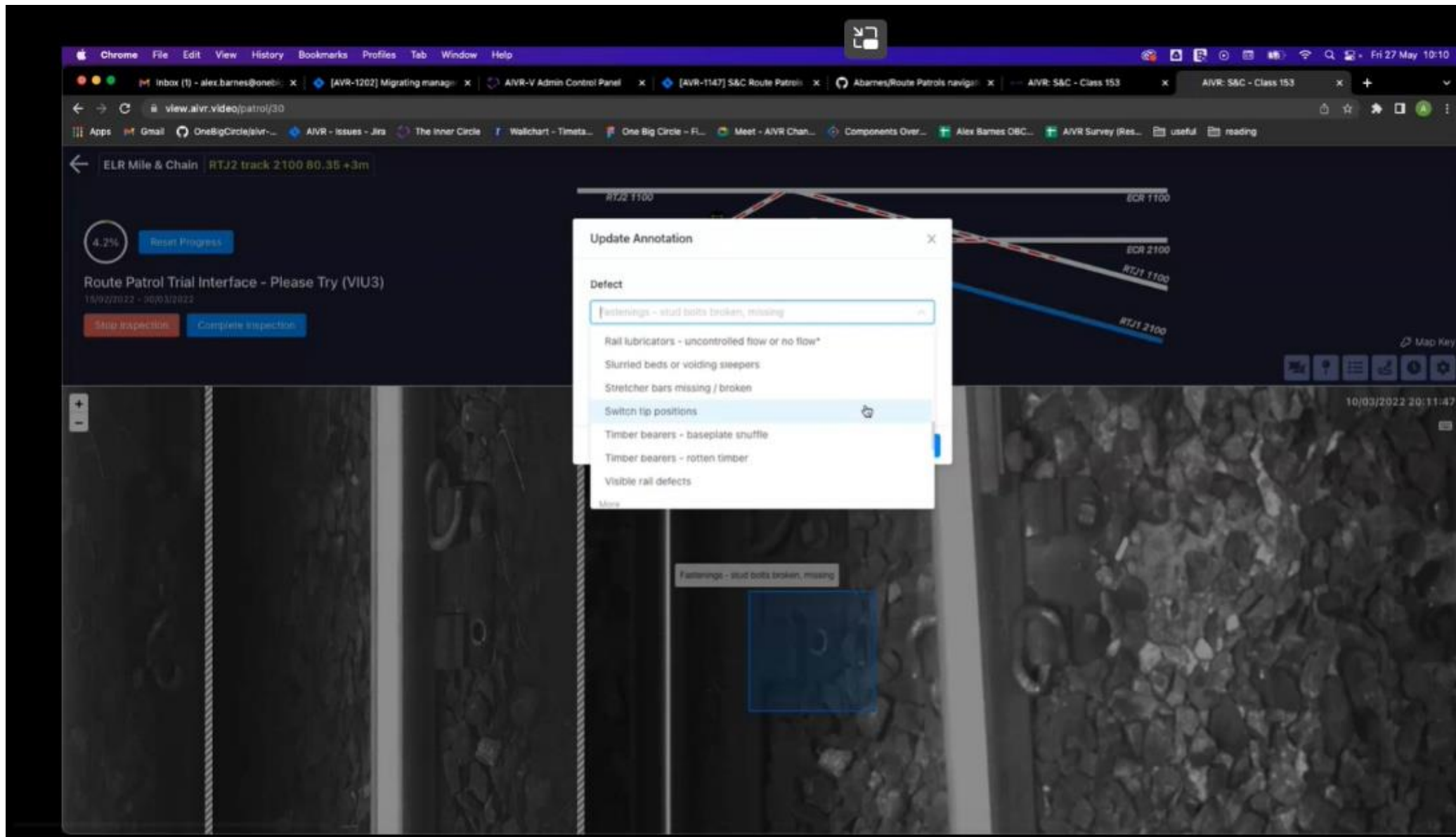
Map Key

10/03/2022 20:11:47

RTJ1 track 2100 18.19 +1m
1646943149,998000000

RTJ1 track 2100 18.19 +2m
1646943149,887000000

Play (Alt + K)



view.alvr.video/patrol/30

ELR Mile & Chain RTJ2 track 2100 80.35 +2m

Basic Visual Inspection Report 5.1%

Patrol No. Patroller's Name Scheduled Date of Patrol Actual Date of Patrol

Coverage

Defects [Add Defect](#)

ELR	Track ID	Position	Defect Type	Description	Urgent	View	Delete
RTJ1	2100	18m 400.10y		Test	☐	View	
RTJ2	2100	80m 773.62y	Broken Rail	Extra notes	☐	View	
ELR	Track ID	Position	Defect Type	Description	☐		Delete

Was this patrol fully completed? ☐

If patrol was not completed please state reason why

[Cancel](#) [Print Report](#)

