NETWORK RAIL

Bridge Visual Examination Report

ELR: COL	Contract Mileage: 189 m 0852 yds 38.73 ch	Struc. Ref: 67
Examination Type: Bridge Visual	NR ID: 12010425	Exam Date: 10/10/2024
GPS:		OS Ref: SJ83849748.
Structure Name: VIADUCT	Type: BU	Exam ID: 16390979
Route: London North Western		Complete Exam: yes

Section A: To Be Completed By The Examining Organisation

HIDDEN PARTS NOT EXAMINED (EXCLUDING FOUNDATIONS)	Part	Reason
1	piers	sheeted

ITEM	DESCRIPTION	LOCATION	Est. Cost £ +/- 20%	Priority Within	Quantity	Severity	Probability	Risk Score	Works Category
1	Please follow up Renewal WI 2136695 in CARRS, general repairs to fractures and brick general repairs, see CARRS for details, Proposed implementation year 2026/2027	throughout		3yrs	1unit	4	3	M12	Brickwork/Stone Repairs
2	Repair timber mezzanine floor, safety hazard	mezzanine floor		1yr	1unit	5	2	M10	Other

Data in this table prior to this examination date is imported from CES, Amey does not verify its completeness or accuracy

No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - ioration	Repaired	Flagged for closure	Engineer Comments
1	Unexamined parts due to sheeting	Barrel and piers	29/04/2013	Yes	D		8	Yes	Baseline	Cannot Deter mine	N	new
1	Unexamined parts due to sheeting	Barrel and piers	03/12/2013	No	V		8	Yes	Not Viewed	No	N	NR to determine/arrange removal of internal sheeting to enable a full exam. Tenant complaint about water and brick damage to D/S HM end of arch.
1	Unexamined parts due to sheeting	Barrel and piers	24/11/2014	No	V		10	Yes	Not Viewed	No	N	Water now seeping into lighting conduit
1	Unexamined parts due to sheeting	Barrel and piers	16/02/2016	No	V		4	Yes	Not Viewed	No	N	No complaints/reports of water seepage
1	Unexamined parts due to sheeting	Barrel and piers	21/02/2017	No	V		4	Yes	Not Viewed	No	N	No change
1	Unexamined parts due to sheeting	Barrel and piers	03/11/2017	No	V		4	Yes	Not Viewed	No	N	No change
1	Unexamined parts due to sheeting	Barrel and piers	05/01/2022	No	D		9	Yes	No	No	N	50pc of barrel not viewed and only 5pc of pier. RS increase due to multiple fractures noted to barrel.
1	Unexamined parts due to sheeting	Barrel and piers	13/08/2023	No	V		9	Yes	Not Viewed	No	N	Internal elements not viewed at the time of examination. See WI1502677 in CARRS at RS8
1	Unexamined parts due to sheeting	Barrel and piers	10/10/2024	Y	V	N	6	Y	No Deterioration	Y	N	Soffit fully viewed; piers remained sheeted. Risk reduced, remove sheeting for next DE, See WI1502677 in CARRS at RS8
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	29/04/2013	Yes	D		6	N/A	Baseline	Cannot Deter mine	N	new

No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - ioration	Repaired	Flagged for closure	Engineer Comments
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	03/12/2013	Yes	V		8	Yes	Yes	No	N	Repair/replace failed straps/ties to pier ends. Significant deterioration reported
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	24/11/2014	Yes	V		6	No	No	No	N	Ongoing defect
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	16/02/2016	Yes	V		6	No	No	No	N	No change
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	21/02/2017	Yes	V		4	No	No	No	N	No change. Risk reduced 2x2=4
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	03/11/2017	Yes	V		4	No	No	No	N	No change
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	05/01/2022	Yes	D		8	No	No	Yes	N	Part repaired to US LM. Low BCMI score, RS increased.
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	13/08/2023	Yes	V		8	No	No	No	N	Part repaired but still exists and No deterioration noted at this examination. See WI1502674 in CARRS at RS6
2	Straps/ties corroded,failed	DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).	10/10/2024	Y	V	N	8	Y	No Deterioration	N	N	No change, old standing, See WI1502674 in CARRS at RS6
3	vegetation	trackside and to us face	29/04/2013	Yes	D		5	Yes	Baseline	Cannot Deter mine	N	new
3	vegetation	trackside and to us face	03/12/2013	Yes	V		5	Yes	Yes	No	N	Remove vegetation to trackside (not viewed at this exam) and upside face. Tenant complaints. Estimate 10m total
3	vegetation	trackside and to us face	24/11/2014	No	V		5	Yes	Not Viewed	No	N	Ongoing defect
3	vegetation	trackside and to us face	16/02/2016	No	V		5	No	Not Viewed	No	N	No change
3	vegetation	trackside and to us face	21/02/2017	No	V		4	No	No	No	N	No change
3	vegetation	trackside and to us face	03/11/2017	No	V		4	No	No	No	N	No change
3	vegetation	trackside and to us face	05/01/2022	No	D		6	No	No	No	N	No further deterioration.
3	vegetation	trackside and to us face	13/08/2023	No	V		6	No	No	No	N	No deterioration noted at the time of examination. See WI2019462 in CARRS at RS6

No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - ioration	Repaired	Flagged for closure	Engineer Comments
3	vegetation	trackside and to us face	10/10/2024	N	V	N	6	Y	No Deterioration	N	N	Little deterioration, See WI2019462 in CARRS at RS6
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	29/04/2013	Yes	D		6	Yes	Baseline	Cannot Deter mine	N	new
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	03/12/2013	Yes	V		6	Yes	No	No	N	Continue to monitor spandrel bulging and displacement at all future visual exams, pending repairs arising from last detail exam 2013
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	24/11/2014	Yes	V		6	No	No	No	N	Ongoing defect
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	16/02/2016	Yes	V		6	No	No	No	N	No change
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	21/02/2017	Yes	V		4	No	No	No	N	No change
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	03/11/2017	Yes	V		4	No	No	No	N	No change
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	05/01/2022	Yes	D		4	No	No	No	N	No further deterioration.
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	13/08/2023	Yes	V		4	No	No	No	N	No deterioration noted at the time of examination. See WI1502676 in CARRS at RS6
4	bulged us lm spandrel around old tie bar	us lm spandrel SPW BCMI = 20	10/10/2024	Y	V	Y	4	Y	No Deterioration	N	N	No change, see renewal WI 2136695 in CARRS, Proposed implementation year 2026/2027
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	29/04/2013	Yes	D		4	Yes	Baseline	Cannot Deter mine	N	new
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	03/12/2013	Yes	V		6	Yes	No	No	N	Continue to monitor spandrel bulging and displacement at all future visual exams, pending repairs arising from last detail exam 2013
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	24/11/2014	Yes	V		4	Yes	No	No	N	Continue to monitor spandrel bulging and displacement at all future visual exams, pending repairs arising from last detail exam 2013
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	16/02/2016	Yes	V		4	Yes	No	No	N	No change
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	21/02/2017	Yes	V		4	No	No	No	N	No change

No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - ioration	Repaired	Flagged for closure	Engineer Comments
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	03/11/2017	Yes	V		4	No	No	No	N	No change
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	05/01/2022	Yes	D		9	No	Yes	No	N	Displacement has doubled since last DE (10 to 20mm) and increased by 0.5m. RS increased
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	13/08/2023	Yes	V		9	No	No	No	N	No deterioration where noted from ground level at the time of examination. See WI1502678 in CARRS at RS4
5	displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.	upside	10/10/2024	Y	V	Y	9	Y	No Deterioration	N	N	No change, see renewal WI 2136695 in CARRS, Proposed implementation year 2026/2027
6	Multiple Fractures to arch barrel soffit. 6No. Longitudinal and 2No. Transverse Varying lengths mostly HL with calcite.	Barrel soffit	05/01/2022	Yes	D		9	Yes	Baseline	No	N	New tracked defect. Significant areas of soffit remain cladded potentially hiding more fractures. Calcite build up could be disguising true width of fractures. Varying brick colours evident indicating
6	Multiple Fractures to arch barrel soffit. 6No. Longitudinal and 2No. Transverse Varying lengths mostly HL with calcite.	Barrel soffit	13/08/2023	Yes	V		9	Yes	Cannot Determine	No	N	Cannot determine at time of examination. See WI2019460 in CARRS at RS9
6	Multiple Fractures to arch barrel soffit. 6No. Longitudinal and 2No. Transverse Varying lengths mostly HL with calcite.	Barrel soffit	31/07/2024	Yes	P.A.N		12	Yes	Significant Deterioration	No	N	Defects has not been viewed for sometime and it has been noted that there is an increase in the amount of fractures in the barrel at the time of examination.
6	Multiple Fractures to arch barrel soffit. 6No. Longitudinal and 2No. Transverse Varying lengths mostly HL with calcite.	Barrel soffit	10/10/2024	Y	V	Y	12	Y	No Deterioration	N	N	No change, see renewal WI 2136695 in CARRS, Proposed implementation year 2026/2027
7	Pumping under load at construction join by 4mm. Seepage, soil and root ingress along joint.	Barrel construction joint	05/01/2022	Yes	D		9	Yes	Baseline	No	N	New tracked defect. Wil be difficult to observe when reclad.

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No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - ioration	Repaired	Flagged for closure	Engineer Comments
7	Pumping under load at construction join by 4mm. Seepage, soil and root ingress along joint.	Barrel construction joint	13/08/2023	Yes	V		9	Yes	No	No	N	Cannot determine at time of examination. See WI2019460 in CARRS at RS9
7	Pumping under load at construction join by 4mm. Seepage, soil and root ingress along joint.	Barrel construction joint	10/10/2024	Y	V	N	9	Y	No Deterioration	N	N	No change, See WI2019460 in CARRS at RS9
8	Vertical fractures to spandrel walls	DS LM 1.5m x HL, US HM 2m x HL-3mm	05/01/2022	Yes	D		6	No	Baseline	No	N	New tracked defect. US fracture OS.
8	Vertical fractures to spandrel walls	DS LM 1.5m x HL, US HM 2m x HL-3mm	13/08/2023	Yes	V		6	No	No	No	N	No deterioration noted at the time of examination. See WI2019461 in CARRS at RS4
8	Vertical fractures to spandrel walls	DS LM 1.5m x HL, US HM 2m x HL-3mm	10/10/2024	Y	V	Y	6	Y	No Deterioration	N	N	No change, see renewal WI 2136695 in CARRS, Proposed implementation year 2026/2027
9	New diagonal fracture to the upside LM spandrel, and Two horizontal fractures with displacement to the upside HM spandrel	spandrels	10/10/2024	Y	V	Y	9	Y	Baseline	N/A	N	New defect, see renewal WI 2136695 in CARRS, Proposed implementation year 2026/2027
10	hole to the timber mezzanine floor	mezzanine floor	10/10/2024	Y	V	Y	10	Y	Baseline	N/A	N	new defect, safety hazard

Engineers Notes

[redacted]

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Struc. Type BU	**NR ID** 12010425	**OS Ref** SJ83849748.	**Exam ID** 16390979
Dimensions	Height 7.05m Length 14.6m Span 10.65m No. Spans 1		**Exam Date** 10/10/2024
Primary Material	RBE - Brick		**Last Detailed** 05/01/2022
Secondary Material	Masonry		**Last Visual** 13/08/2023
Structure Carries	Rail	**Over**	Land

The examiner should record any deterioration in condition or development of defects or other factors, which might place at risk the rail traffic, customers, staff or the public at large. Special reference should be made to those structures or parts of structures whose condition may require action before the next examination.

EXAMINER COMMENTS

Defect(s) present on this structure

I confirm that the previous detailed and visual reports have been reviewed and the dates of said reports are given in this report

The last Detailed Examination was incomplete

Parts not examined at last detailed exam:

50% of arch barrel cladding was removed at this exam – The rest of the soffit cladding was not removed due to how he mezzanine floor layout was constructed after cladding installed.

Pier 66 - 100% high mileage face of pier not examined (between span 66/67)

Pier 67 - 95% of Low Mileage face of pier not examined (between span 67 /68)

This was due access spans 66 and 68 to examine due tenanted arch access issues.

No indications of failure at track level

Has all the structure been viewed? no (if no, see report for details)

The piers are fully sheeted and not seen.

The downside elevation has no access into this area, only small areas of the parapet have been seen with dense vegetation growth also noted.

[redacted]

Name Of Part	Status
Main Girders	Not Applicable
Cross Girders	Not Applicable
Rail Bearers	Not Applicable
Deck / Floor	Not Applicable
Rivets and Bolts	Not Applicable
Arch Ring / Barrel	Viewed
Spandrels / Headwalls	Not Included
Abutments	Not Applicable
Piers	Not Included
Wing and Retaining Walls	Not Applicable
Pointing	Not Applicable
Parapets and Pilasters	Not Included
Columns and Cylinders	Not Applicable
Trestles and Crossheads	Not Applicable
Bedstones and Cills	Not Included
Bearing	Not Applicable
Ballast Plates and Boards	Not Applicable
Longitudinal Timbers	Not Applicable
Water Proofing	Not Included
Drainage	Not Included
Gutters and Downpipes	Viewed
Handrails	Viewed
Painting	Viewed
Track / Road Condition	Viewed
Revetment Walls	Not Applicable
Vegetation	Yes
Debris	Yes
Rubbish	Yes
Signs/Plates	Viewed
OLE Attachments	Viewed

Elements not Included and reason

1. Spandrels / Headwalls: No access to view the downside spandrel

2. Piers: Piers fully sheeted.

3. Parapets and Pilasters: The downside trackside and elevation faces of the parapet is largely obscured by vegetation.

4. Bedstones and Cills: Bedstones fully sheeted.

5. Water Proofing: Water proofing would not have been expected to be viewed at a visual.

6. Drainage: Drainage would not have been expected to be viewed at a visual.

Record of Observations Under Load

Load Type	Area Observed	Result Of Observation	Date & Time
Loco-hauled Passenger Train	Arch soffit at the construction joint	Excessive Deflection - Defect Added	10/10/2024 13:39

Comments	Pumping to the soffit at the construction joint.

ADDITIONAL GENERAL COMMENTS

The piers are fully sheeted, with large areas of the downside elevation not seen.

Extensive fracturing to the arch soffit show no obvious deterioration since the PAN report dated 31/07/24.

New diagonal fracture to the downside low mileage spandrel, please see photo P17.

New horizontal fractures to the downside high mileage spandrel with displaced brickwork up to approximately 20mm also noted please see

photos P18.

There is a hole to the timber mezzanine floor due to water seepage under the construction joint, this was close called at the time of this examination reference CC-000021640 photo P19.

METHOD OF EXAM/TOOLS USED

Visual examination undertaken on 10-10-24 to view all off track elements, the trackside elements were viewed inside a safeguarded possession on 18-08-24.

NEW DEFECT(S)

NONE

PREVIOUSLY RECORDED SIGNIFICANT (OPEN) DEFECT(S)

DEFECT NUMBER 1
Defect Location: Barrel and piers
Defect Description: Unexamined parts due to sheeting
Identified on: 29/04/2013
Status: Part repaired
Defect Comment: Soffit fully viewed, piers remained sheeted.
Previous Defect Photo: 7 - P07 Live defect 1, soffit now viewed fully (10/10/2024)

DEFECT NUMBER 2
Defect Location: DS LM (IS1 INS1 BCMI 0) and US HM (IS2 INS1 BCMI 15).
Defect Description: Straps/ties corroded,failed
Identified on: 29/04/2013
Status: No deterioration
Defect Comment: Some repairs previously undertaken no deterioration to older elements
Previous Defect Photo: 8 - P08 Live defect 2, low mileage straps (10/10/2024)
Previous Defect Photo: 9 - P09 Live defect 2, high mileage straps (10/10/2024)

DEFECT NUMBER 3
Defect Location: trackside and to us face
Defect Description: vegetation
Identified on: 29/04/2013
Status: Little deterioration
Defect Comment: Continued growth
Previous Defect Photo: 10 - P10 Live defect 3 vegetation throughout the trackside face of the downside parapet (18/08/2024)

DEFECT NUMBER 4
Defect Location: us lm spandrel SPW BCMI = 20
Defect Description: bulged us lm spandrel around old tie bar
Identified on: 29/04/2013
Status: No deterioration
Defect Comment: No obvious deterioration
Previous Defect Photo: 11 - P11 Live defect 4 bulging to the upside spandrel (10/10/2024)

DEFECT NUMBER 5
Defect Location: upside
Defect Description: displaced spandrel wall, 2.5m L x 20mm max. Associated area of wetness along joint.
Identified on: 29/04/2013
Status: No deterioration
Defect Comment: No deterioration.
Previous Defect Photo: 12 - P12 Live defect 5 bulging spandrel upside elevation (10/10/2024)

DEFECT NUMBER 6
Defect Location: Barrel soffit
Defect Description: Multiple Fractures to arch barrel soffit. 6No. Longitudinal and 2No. Transverse Varying lengths mostly HL with calcite.

Identified on: 05/01/2022
Status: No deterioration
Defect Comment: No deterioration from the PAN report dated 31/07/24
Previous Defect Photo: 13 - P13 Live defect 6 significant fractures to the arch soffit (10/10/2024)
Previous Defect Photo: 14 - P14 Live defect 6 significant fractures to the arch soffit (10/10/2024)

DEFECT NUMBER 7
Defect Location: Barrel construction joint
Defect Description: Pumping under load at construction join by 4mm. Seepage, soil and root ingress along joint.
Identified on: 05/01/2022
Status: No deterioration
Defect Comment: No deterioration
Previous Defect Photo: 15 - P15 Live defect 7, soffit pumping at the construction joint in the soffit (10/10/2024)

DEFECT NUMBER 8
Defect Location: DS LM 1.5m x HL, US HM 2m x HL-3mm
Defect Description: Vertical fractures to spandrel walls
Identified on: 05/01/2022
Status: No deterioration
Defect Comment:
Previous Defect Photo: 16 - P16 Live defect 8, vertical fracture to the upside parapet (10/10/2024)

PREVIOUS RECOMMENDATION(S)
- See Recommendation(s) below

NONE

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Monitoring Devices Present (if Yes - see Element detail for advice)	
Date Tab	No
Plumb Points	No
Avongards	No
Inclinometers	No
Total stations	No

Environmental Factors Present: No

Photos



Photo 1: P01 Upside elevation (10/10/2024)



Photo 2: P02 Downside elevation (10/10/2024)



Photo 3: P03 Soffit general view from the upside (10/10/2024)

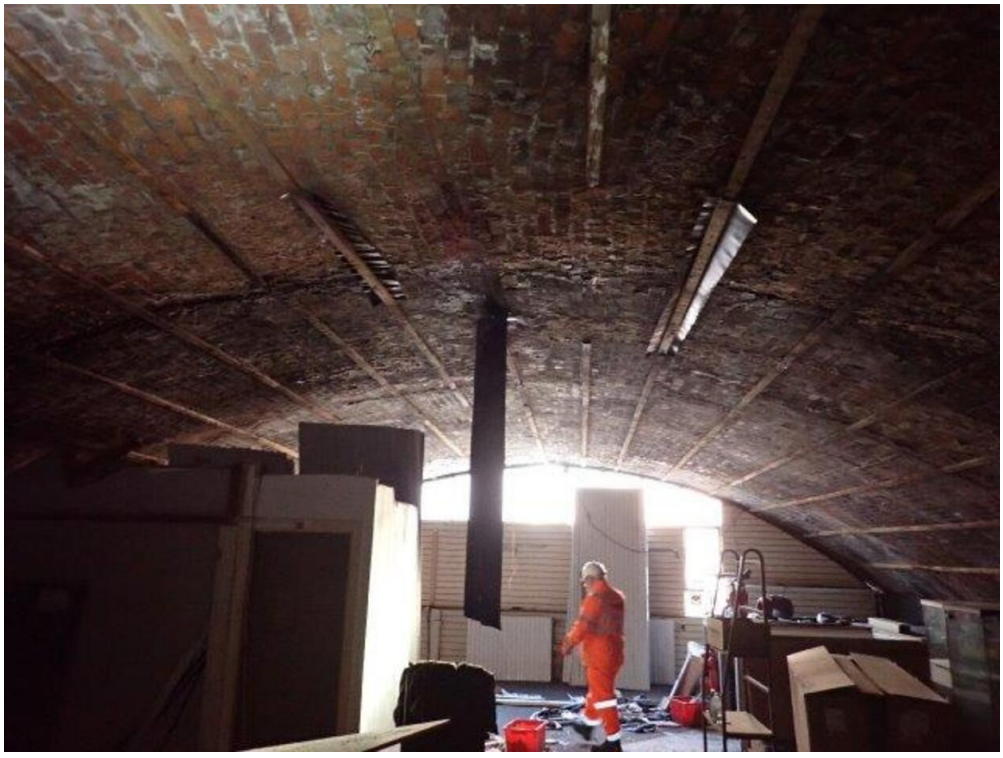


Photo 4: P04 Soffit general view from the downside (10/10/2024)



Photo 5: P05 Track view from low mileage (18/08/2024)

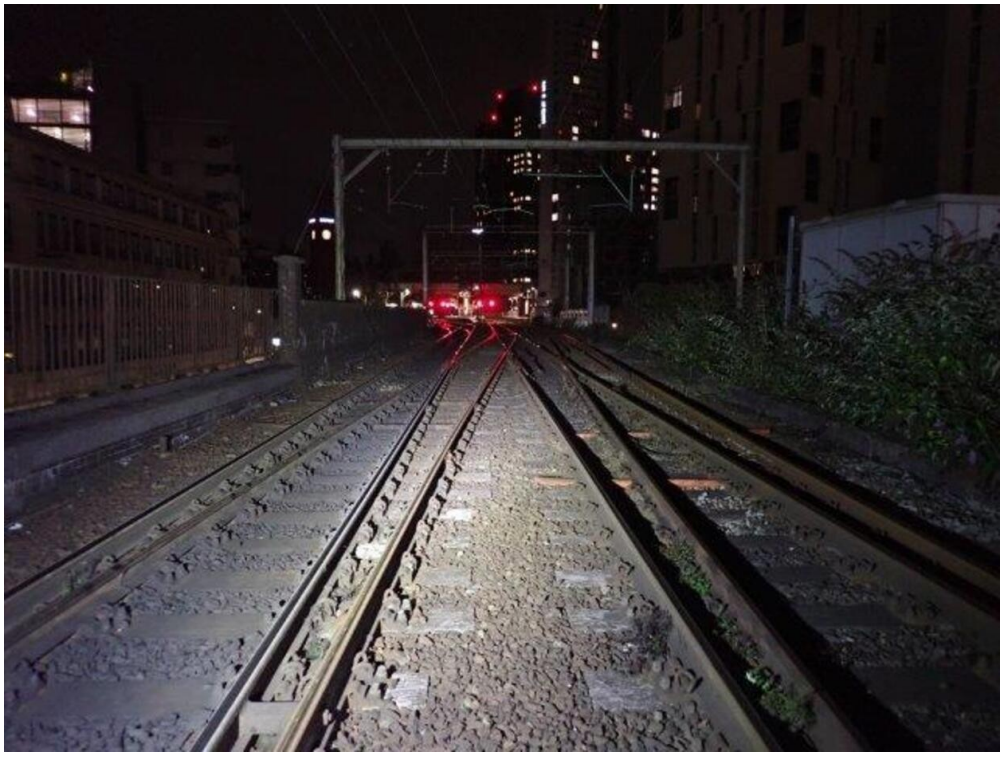


Photo 6: P06 Track view from high mileage (18/08/2024)



Photo 7: P07 Live defect 1, soffit now viewed fully (10/10/2024)

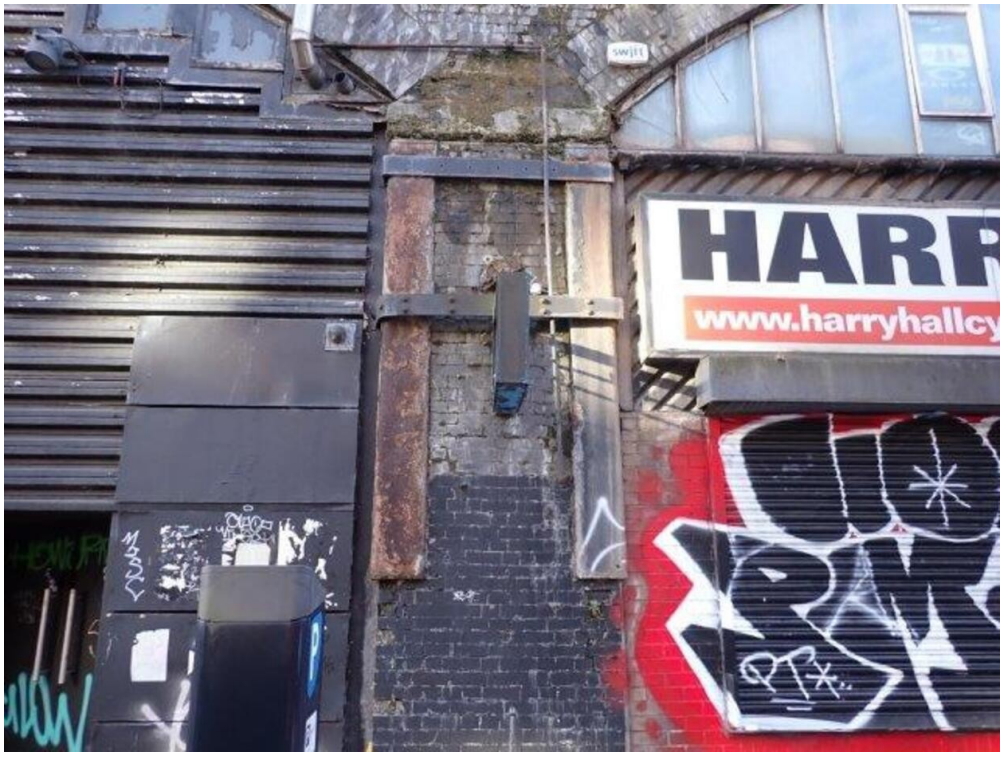


Photo 8: P08 Live defect 2, low mileage straps (10/10/2024)



Photo 9: P09 Live defect 2, high mileage straps (10/10/2024)

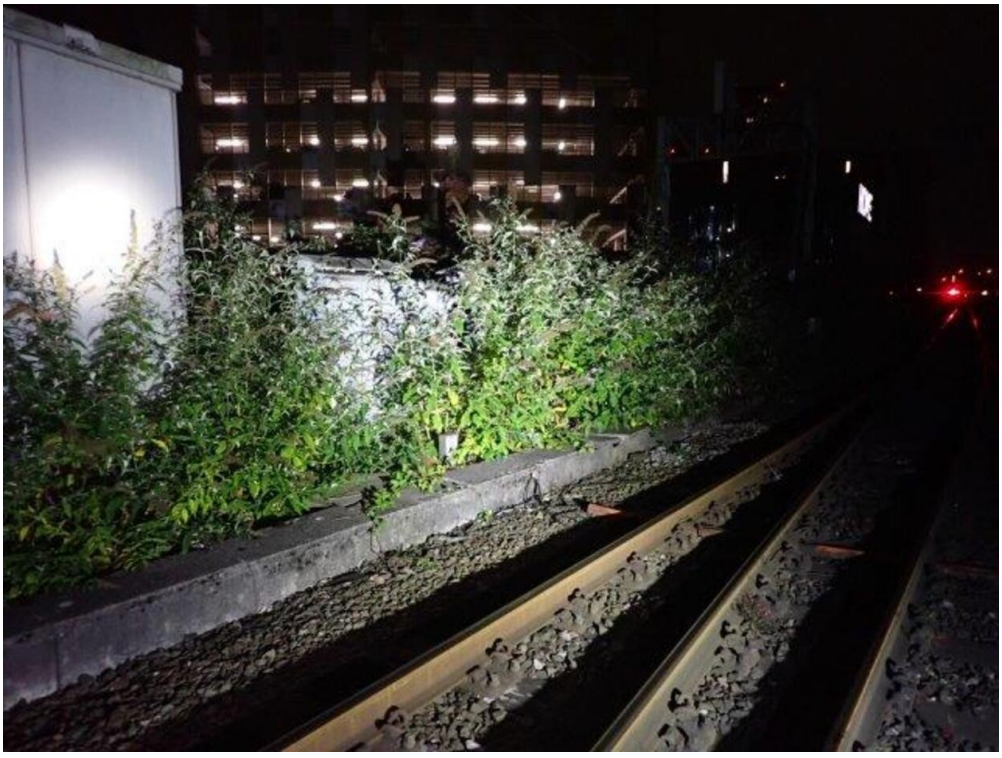


Photo 10: P10 Live defect 3 vegetation throughout the trackside face of the downside parapet (18/08/2024)



Photo 11: P11 Live defect 4 bulging to the upside spandrel (10/10/2024)



Photo 12: P12 Live defect 5 bulging spandrel upside elevation (10/10/2024)



Photo 13: P13 Live defect 6 significant fractures to the arch soffit (10/10/2024)



Photo 14: P14 Live defect 6 significant fractures to the arch soffit (10/10/2024)

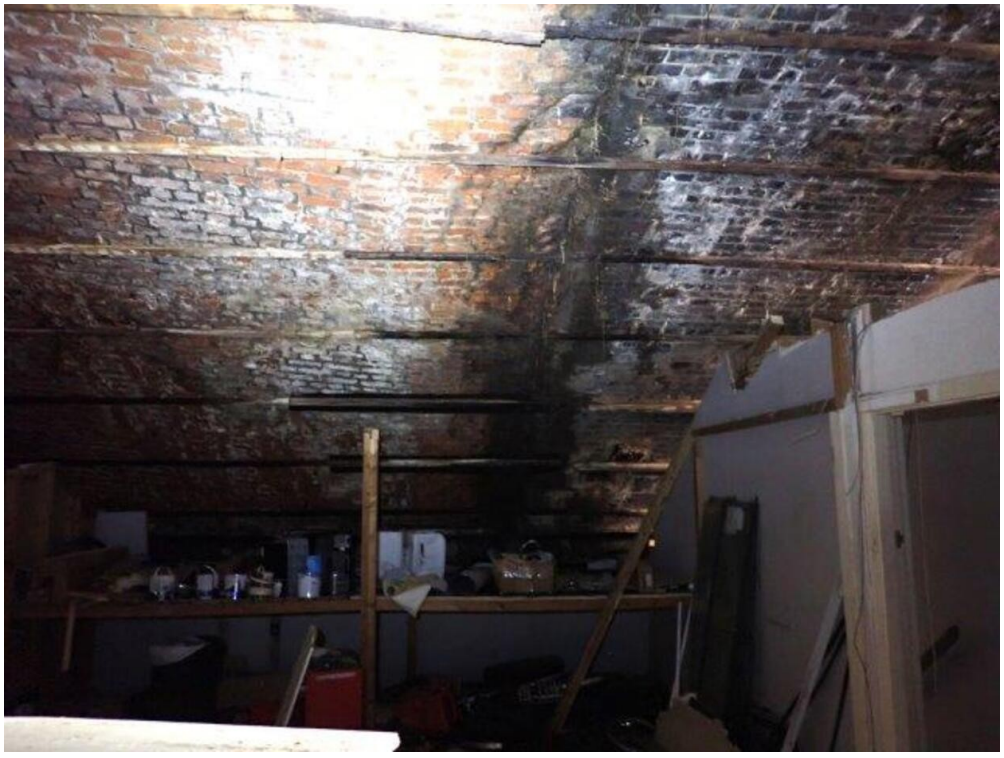


Photo 15: P15 Live defect 7, soffit pumping at the construction joint in the soffit (10/10/2024)



Photo 16: P16 Live defect 8, vertical fracture to the upside parapet (10/10/2024)



Photo 17: P17 New diagonal fracture to the upside low mileage spandrel (10/10/2024)



Photo 18: P18 Two horizontal fractures with displacement to the upside high mileage spandrel (10/10/2024)



Photo 19: P19 Loss of section to the timber mezzanine floor, close called (10/10/2024)