



NETWORK RAIL



Bridge Detailed Examination Report

ELR: LJT1		Contract Mileage: 004m 0638yds 29.00chs		Struc. Ref: 3	
Examination Type: Bridge Detailed		NR ID: 12014822		Exam Date: 2-Aug-2022	
Area: Central West		BRS: 0		OS Ref: SH79507240	
Structure Name: BONT FURNACE STREAM		Type: BU		Exam ID: 14462980	
Route: Betws-y-Coed Branch				Complete Exam: No	

Section A: To Be Completed By The Examining Organisation

HIDDEN PARTS NOT EXAMINED (EXCLUDING FOUNDATIONS)		Part			Reason				
ITEM	DESCRIPTION	LOCATION	Est. Cost £ +/- 20%	Priority Within	Quantity	Severity	Probability	Risk Score	Works Category
1	Cut out and recast areas of voiding and loss to concrete apron. Include for removal of silt to gain access and dewatering. Previous recommendation - not viewed.	Throughout invert	5000.00	2yrs	4.5 m2	3	3	M9	Foundation Works
2	Grit blast and paint all metallic elements to deck and structure, carry out repairs to corroded steelwork revealed following grit blasting. Review if Coastal environment is applicable to structure and paint system. New recommendation.	Structure	50000.00	2yrs	1 unit	3	2	E6	Painting

History of Live Significant Defects

No	Description	Location	Exam Date	Access Gained	Exam Type	Rec Raised	Risk Score	Access Req'd	Deter - loration	Repaired	Flagged for Closure	Engineer Comments
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	19/02/13	Y	U.WA T	Y	8	N	Baseline	N	N	.
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	18/08/15	Y	U.WA T	Y	6	N	N	N	N	.
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	21/09/15	Y	V	Y	6	N	Cannot Determine	N	N	E23. Unable to ascertain deterioration at this examination; review at next exam.
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	17/06/16	Y	D	Y	6	N	N	N	N	Little deterioration noted.
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	20/10/16	N	V	N	6	Y	NV	N	N	No safe access to underside of structure.



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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
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	23/12/17	N	V	N	6	Y	NV	N	N	No safe access
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	07/06/18	N	V	N	6	Y	Cannot Determine	N	N	No access review next exam
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	20/06/18	Y	U.WA T	Y	9	N	Y	N	N	.
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	12/06/19	N	V	N	6	Y	NV	N	N	Not veiwed
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	09/06/20	Y	V	Y	9	N	N	N	N	Little deterioration noted
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	10/06/21	Y	V	Y	9	N	Cannot Determine	N	N	Examiner cannot determine
4	Decayed Timber Pilings; Associated Loose/ Missing/ Undercut/ Displaced Stonework (1.5m Long; 1.0m High).	Fronting D/S (Downstream) HM ABT Watercourse Banking.	02/08/22	Y	D	N	9	N	Cannot Determine	N	N	Examiner cannot determine, review if this defect is relevant
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	19/02/13	Y	U.WA T	Y	10	N	Baseline	N	N	.
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	18/08/15	Y	U.WA T	Y	8	Y	N	N	N	.
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	21/09/15	N	V	Y	8	Y	NV	N	N	M24. Unable to view at this exam due to silt.
5	Scour/ Voiding to	D/S Edge of Apron;	17/06/16	N	D	Y	8	Y	Cannot	N	N	Cannot determine due



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	Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	Areas to HM and LM Extents.							Determine			to overlying silt.
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	20/10/16	N	V	N	8	Y	NV	N	N	No safe access to underside of structure.
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	23/12/17	N	V	Y	8	Y	NV	N	N	No safe access
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	07/06/18	N	V	Y	8	Y	NV	N	N	No access review next exam
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	20/06/18	Y	U.WA T	Y	9	N	Y	N	N	Limited Deterioration.
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	12/06/19	N	V	Y	8	Y	NV	N	N	Not veiwed
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	09/06/20	N	V	Y	9	Y	NV	N	N	No safe access due to water level
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	10/06/21	Y	V	Y	9	N	Cannot Determine	N	N	Examiner cannot determine
5	Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).	D/S Edge of Apron; Areas to HM and LM Extents.	02/08/22	Y	D	Y	9	N	Cannot Determine	N	N	Examiner cannot determine
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	17/06/16	Y	D	Y	6	N	Baseline	N	N	Risk 2x3=6
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	20/10/16	Y	V	N	6	N	Cannot Determine	N	N	Examiner could not determine.



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8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	23/12/17	Y	V	N	6	N	Cannot Determine	N	N	Not viewed under load
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	07/06/18	Y	V	N	6	N	Cannot Determine	N	N	Not viewed under load.
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	12/06/19	Y	V	N	6	N	Cannot Determine	N	N	Not viewed under load.
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	09/06/20	Y	V	N	6	N	Cannot Determine	N	N	Not viewed under load.
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	10/06/21	Y	V	N	6	N	Cannot Determine	N	N	Not viewed under load
8	Movement of Longitudinal Timber Under Live Load.	U/S LM End Longitudinal Timber.	02/08/22	Y	D	N	6	N	Cannot Determine	N	N	Not viewed under load
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	17/06/16	Y	D	N	4	N	Baseline	N	N	BCMI score of 30.
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	20/10/16	N	V	N	4	Y	NV	N	N	No safe access to underside of structure.
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	23/12/17	N	V	N	4	Y	NV	N	N	No safe access, last detailed complete.
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	07/06/18	N	V	Y	4	Y	NV	N	N	No access review next exam
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	12/06/19	N	V	N	4	Y	NV	N	N	No safe access - fast flowing water
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	09/06/20	Y	V	N	4	N	N	N	N	Little deterioration noted
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	10/06/21	Y	V	N	4	N	Cannot Determine	N	N	Examiner cannot determine
10	Loss of Section and Corrosion.	D/S Main Girder (MGE1).	02/08/22	Y	D	Y	6	N	N	N	N	Little deterioration, BCMI score of 30. Raised to 3x2.
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	20/10/16	N	V	N	4	Y	Baseline	N	Y	No safe access to underside of structure.
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	23/12/17	N	V	N	4	Y	NV	N	Y	No safe access.
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	07/06/18	N	V	N	4	Y	NV	N	Y	No access review next exam
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	20/06/18	N	U.WA T	N	4	N	N/A	N/A	Y	Partial Examination to Scope of Underwater Examination.
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	12/06/19	N	V	N	4	Y	NV	N	Y	No safe access - fast flowing water
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	09/06/20	N	V	N	4	Y	NV	N/A	Y	No safe access due to water level
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	10/06/21	N	V	N	4	Y	NV	N/A	Y	No safe access to underside
12	PNE; Soffit and ABT's (Inaccessible).	Soffit and ABT's.	02/08/22	Y	D	N/A	N/A	N	N/A	Y	Y	Access gained
13	Decay/ Deterioration to Timber Decking.	Isolated Areas to Timber Decking.	12/06/19	Y	V	Y	5	N	Baseline	N	N	5x1
13	Decay/ Deterioration to Timber Decking.	Isolated Areas to Timber Decking.	09/06/20	Y	V	Y	5	N	N	N	N	No safe access due to water level



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13	Decay/ Deterioration to Timber Decking.	Isolated Areas to Timber Decking.	10/06/21	Y	V	Y	5	N	Cannot Determine	N	N	No safe access to underside, Anti slip panels on top side.
13	Decay/ Deterioration to Timber Decking.	Isolated Areas to Timber Decking.	02/08/22	Y	D	N	5	N	Cannot Determine	N	N	Examiner states cannot determine but evidence of repairs. Difficult access to underside due to silt not allowing planned access method to be utilised.
15	Corrosion loss to 3mm with notching and paint breakdown	All metallic elements to deck (including MGE1, LSE1 and 2)	02/08/22	Y	D	Y	6	N	Baseline	N	N	BCMI score of 30 for MGE and LSE. Possibly a coastal environment.
16	PNE - Silt build up prevented exam	Low level parts to sub structure (Abutments and wings)	02/08/22	N	D	N	4	Y	Baseline	N	N	Structure was examined at Low tide so water level low.
17	PNE - Silt build up prevented safe access	DS HM wing wall	02/08/22	N	D	N	4	Y	Baseline	N	N	Visual exam only no tactile exam. Silt build up, no safe access

Engineers Notes

Signed

For Employer

Name

Paul Wilkinson

Date

2-Sep-2022

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Struc Type BU	NR ID 12014822	Rpt ID 18065	OS Ref SH79507240			Exam ID	14462980
Dimensions	Height 5.80m Length 5.20m Span 7.40m No. Spans: 1					Exam Date	2/8/2022
Primary Material	RBE - Wrought Iron					Last Detailed	17/6/2016
Secondary Material	Not Recorded					Last Visual	10/6/2021
Structure Carries	Rail		Over	Water			
Line	Betws-y-Coed Branch						
Name:	BONT FURNACE STREAM						

Elevation Photograph



Map Extract





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Examined from ladders at numerous locations on both Abutments and at mid-point only with the 1/4 points of each girder and deck examined visually due to underfoot conditions. No obvious further significant defects noted apart from what has been noted.

Spartan were unable to utilise a pontoon due to safety concerns.

11no clips were found to be missing from the US rail during the examination, P-way attended site and replaced all the missing units.

Main Girders typically show thick lamination (requiring removal) at corroded area, where visible shows corrosion loss to 5mm at connections.

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

Inner Faces of Main Girders due to longitudinal timbers.

Parts of Abutments and Wing Walls below silt.

DS HM Wing Wall viewed from bottom of embankment only.

Has the structure been viewed under load? No

No trains running due to land slip further down line

EXAMINERS NAME Andrew Bellis

DATE 1-Sep-2022

SIGNED



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Element Status Table

Element Name	Status	Condition
Arch Ring	N/A	N/A
Ballast Plates and Boards	Examined	Poor
Bearing	Not Examined	N/A
Cross Girders	N/A	N/A
Floor / Deck	Not Examined	Fair
Longitudinal Timbers	Not Examined	Fair
Main Girders	Not Examined	Fair
Parapets and Pilasters	N/A	N/A
Rail Bearers	N/A	N/A
Spandrels	N/A	N/A
Water Proofing	Not Included	N/A
Abutments	Examined	Fair
Bedstones and Cills	Examined	Fair
Columns and Cylinders	N/A	N/A
Piers	N/A	N/A
Trestles and Crossheads	N/A	N/A
Wing and Retaining Walls	Not Examined	Fair
Debris	Examined	Fair
Drainage	N/A	N/A
Gutters And Downpipes	N/A	N/A
Handrails	Examined	Poor
Painting	Examined	Fair
Pointing	Examined	Fair
Revetment Walls	N/A	N/A
Rivets and Bolts	Not Examined	N/A
Track/Road	Examined	Poor (Red)
Vegetation	Examined	Fair

Record of Observations Under Load

Load Type	General Area Observed	Result Of Observation	Date & Time
Avongards			
Are Avongards Present?	No		
Date Tabs			
Are Date Tabs Present?	No		



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Plumbing Points

Are Plumbing Points Present? No

Environmental Factors Present: No

Item number	Description	Location
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Record of Condition by Element

Element Name	Status	Condition
Ballast Plates and Boards	Examined	Poor
Bearing	Not Examined	N/A
Floor / Deck	Not Examined	Fair
Longitudinal Timbers	Not Examined	Fair
Main Girders	Not Examined	Fair
Water Proofing	Not Included	N/A
Abutments	Examined	Fair
Bedstones and Cills	Examined	Fair
Wing and Retaining Walls	Not Examined	Fair
Debris	Examined	Fair
Handrails	Examined	Poor
Painting	Examined	Fair
Pointing	Examined	Fair
Rivets and Bolts	Not Examined	N/A
Track/Road	Examined	Poor (Red)
Vegetation	Examined	Fair

-DEFECT TRACKING-

4. Location: Fronting D/S (Downstream) HM ABT Watercourse Banking.

Description: Decayed timbers and loose / missing / undercut and displaced stonework.

Status: Cannot determine

Photo: 39

5. Location: D/S Edge of Apron; Areas to HM and LM Extents

Description: Scour/ Voiding to Apron (HM 1m Long x 400mm Deep x 200mm Wide; LM 1.2m Long x 550mm Deep x 300mm Wide).

Status: Unable to Determine due to Silt

Photos: 1-2

8. Location: U/S LM End Longitudinal Timber.

Description: Movement of Longitudinal Timber Under Live Load.

Status: Cannot determine (no trains running at time of exam due to land slip)

10. Location: D/S Main Girder (MGE1).

Description: Loss of Section and Corrosion.

Status: Little deterioration

Photoa: 17-20



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12. Location: Soffit and ABT's.

Description: PNE; Soffit and ABT's (Inaccessible).

Status: Unable to view (more than previous examined but still parts inaccessible, see notes)

13. Location: Isolated Areas to Timber Decking.

Description: Decay/ Deterioration to Timber Decking.

Status: Cannot determine (topside covered by ant-slip, not all parts reachable from under side)

-RECOMMENDATIONS-

1. Location: Adjacent to HM abutment downside.

Description: Replace decayed timber wall and recase are of loose / missing and undercut stonework behind.

Status: NOT ACTIONED

2. Location: Throughout invert.

Description: Cut out and recast areas of voiding and loss to concrete invert. Include for removal of silt to gain access and dewatering.

Status: NOT ACTIONED – Silt remains, unable to examine invert due to silt.

--INTRODUCTION--

Single span underbridge known as 'Bont Furnace Stream,' located on the LJT1 at 004m – 29.00ch. It carries a single track railway between Glan Conwy (LM) and Tal-y-Cafn (HM) over a tidal watercourse. Configuration is UP to Glan Conwy. The bridge is located next to an Armco underbridge carrying the A470 over the watercourse. Construction consists of wrought iron main girders supporting timber decks and longitudinal timbers, with masonry abutments and wingwalls.

Examined from ladders at numerous locations on both Abutments and at mid-point only, with the 1/4 points of each girder and deck examined visually due to underfoot conditions. No obvious further significant defects noted apart from what has been noted.

Spartan were unable to utilise a pontoon due to safety concerns.

I can confirm that the previous visual and detailed reports were complete; the dates of said reports are included within this report.

--MAIN GIRDERS--

The underside of the girders were tactile from ends and mid-point, the rest was viewed but not touched. Large areas of the girders have thick lamination which requires removal to determine depths of corrosion loss due to water course below.

The MGE's consist of two no. back-to-back wrought iron 'I' girders. 18no. Tee Angles are bolted to the bottom flanges joining the girders together and supporting the longitudinal timber.

-WALKWAY SUPPORTS- (LSE1 & 2 / DK1) (P8-16, 63-64)

Viewed from each Abutment and mid-point only from ladders (and Top Flange/upper reaches from track level). Both appear bodily slightly loose (new). Downside appears to bow (P63) with the Upside handrails showing poor profile (P64).

Both generally in fair condition showing areas of total paint loss particularly at the handrail fixing points to the outer web and the bottom flange up to 40% total, with associated corrosion loss, 1-3mm (worst top face of Top Flange, P9-10).

The remainder shows areas of flaking paint and some corrosion staining through paint (NFD).

Bottom Flange inner edge shows light notching at connections (new) with the Top Flange inner edge (trackside) showing light notching throughout (P10). Rest shows light corrosion loss throughout.

Upside Unit shows small area of LOS 25x10mm adjacent to the HM handrail upright (new, P15).

Upside unit also shows small area of notching to outer edge of Bottom Flange at HM ¼ point (P16).



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-DS MAIN GIRDER- (MGE1 / DK1) (P17-20)

Viewed from each Abutment and mid-point only from ladders (and Top Flange/upper reaches from track level)

TOP FLANGE: Generally in fair condition showing areas of paint loss throughout with the remainder showing corrosion staining. Where lost there is minor surface corrosion and pitting showing up to 1mm max (NFD).

WEB: Typically showing cracking paintwork throughout with very minor flaking, minor small patches of light corrosion staining and occasional blow hole with surface corrosion (NFD).

BOTTOM FLANGE: Isolated areas of flaking paintwork over approx. 20%, where lost corrosion loss 1-3mm deep increasing to 5mm at connections. Lamination present scattered throughout, unable to remove due to watercourse below.

TEE ANGLES: 18no. Tee Angles joining the girders together and supporting the longitudinal timber. Generally in fair condition. Typically every angle shows minor areas of loss of paint, with the occasional angle showing total loss throughout. Where paintwork lost – surface corrosion and pitting to 1-2mm.

STIFFENERS: Generally in same condition as web. To the Inner Girder: the HM end plate shows to the US edge a slight loss of thickness 3-4mm and pitting 3mm across full width and height, with slight loss of section up to 5mm wide intermittently along the US edge.

Inner faces show light notching at connections with bottom angles (new).

-US MAIN GIRDER- (MGE2 / DK1) (P21-26)

Viewed from each Abutment and mid-point only from ladders (and Top Flange/upper reaches from track level)

Generally in same condition as MGE1, but showing further patches of paint loss to the outer faces of the webs <10% with surface corrosion and pitting to 1mm where lost, and some minor loss paint to the stiffeners where the deck timbers meet the girders, again with surface corrosion and pitting to 1mm where lost.

--TIMBER FLOOR-- (DCK1, 2 & 3 / DK1) (P27-30)

Timber walkway decks, supported by steel angles, examined tactilely topside where possible around the anti-slip, the underside was viewed and probed where reachable.

PAN reported at previous detailed examination, these walkway timbers have now been replaced.

All three decks similarly show areas of dampness to the underside, shakes and splits up to 1mm wide and odd areas of surface softness to 10mm deep.

The Upside Walkway (DK3) is displaced adjacent to the 3rd handrail upright from LM, timbers displaced with anti-slip bulged up (new, P30).

Downside Walkway slightly loose in same area, possibly just anti-slip (new).

The steel angles where visible appear to be in fair condition showing minor patches of paint loss with associated surface corrosion and pitting to 1mm.

--ABUTMENTS--**-LOW MILEAGE ABUTMENT- (ABT1 / ES1) (P31-33)**

1.5m² OJs 300-400mm deep max, particularly at low level to US half (P33).

Facial weathering / spalling throughout with 1.5-2m² of further spalling to 50mm max beyond the pointing line max, typical 10-20mm (NFD).

At midpoint, 2-3 courses down from the top: 3no. stones show evidence of fracturing and breaking up, this has now been pointed around (P32).

Run down stain throughout, damp with mud caking and algae growth at low level caused by tide changes (NFD).

Thick silt at lower reaches.

-HIGH MILEAGE ABUTMENT- (ABT1 / ES2) (P34-38)

1.75m² OJs particularly to low level and around mid-height to 400mm deep, typical 200-300mm (NFD, odd areas of repointing, P35-36).

1no. stone at DS quoin, and 2nd course (visible) from ground level shows surrounding joints open intermittently on either side of the quoin x 400mm+ deep (NFD, P35-36); now also to US quoin (new).

At DS quoin, top course: 1no. stone appears to be displaced forwards up to 10mm (P37).

1no. stone at midpoint, 2nd course from visible ground level shows a full height vertical through fracture x 10mm



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open (NFD), with OJs surrounding (as above) and 1no stone at GL split to its DS top corner (P38). Remainder shows facial weathering / spalling throughout with further 1.5m² spalling to 30mm deep max beyond the pointing line, typical 10mm. Run down stain throughout, damp with mud caking and algae growth at low level caused by tide changes. Thick silt at lower reaches.

--WINGWALLS--

In front of both Downside wingwalls there is a dry stone 'fronting' wall which forms part of the adjacent road bridge over the A470. Both typically are uneven and slightly loose throughout, showing the occasional missing stone and void to 350mm deep.

In front of the DS / LM Wingwall, there is a timber retaining wall 450mm wide x 600mm high, which shows significant rot and loss of section throughout – it appears that the wall may have continued another 400mm to the DS but is now missing.

-DS / HM Wingwall- (WWL1 / ES2) (P39-41)

Viewed from bottom of the embankment only due to an unsafe, silted, slippery embankment.

What can be reached shows 0.5m² OJs to lower reaches, 40-60mm (new, P40). Odd slip/shattered face (P41).

Odd area of repointing including to below fracture. Light vegetation scattered throughout and overhanging.

Previous report noted the following defects:

Generally in fair condition showing: 500mm from outer end, beneath the copings: Diagonal through fracture (through 1 stone) 2.3m long x 10-25mm wide (10mm through, 25mm joints), with slight 6mm displacement at the top (this appears to have now been pointed up, unknown if any reopens or if displacement remains, P39).

Remainder shows facial weathering throughout with minor spalling to 10mm max beyond the pointing line, run down stain throughout with damp patches at low level, some patches of moss growth, veg growth down from copings <0.5m² and seaweed at the base.

-DS / LM Wingwall- (WWL1 / ES1) (P42-44)

Generally in fair condition. Odd minor OJs (repairs carried out to previous noted OJs).

Facial weathering throughout with minor spalling 5-10mm beyond the pointing line. Run down stain throughout, mud stained and damp at low level, some weed growth to top half <0.5m² total and patches of lichen growth (NFD).

The topmost coping is missing (possibly removed), 400mm long (NFD, P43). Light overgrowing vegetation (new).

Newel shows missing stonework with retaining wall as noted above adjacent (SSD).

-US / HM Wingwall- (WWL2 / ES2) (P45-48)

Examined from GL with hammer and tapping pole.

Generally in fair condition. 0.5m² OJs to 60mm deep max, typical 20-30mm (P46, was 0.75m², some repointing works carried out).

1no. stone at GL on the newel shows spalling on the edge to 150mm deep beyond the pointing line x 250mm high (NFD, P47), with stone 2nd course from top shattered (new, P48).

The remainder shows facial weathering throughout and approx. 0.5m² of further spalling to 20mm max beyond the pointing line.

Copings are secure but the topmost coping is missing (possibly removed), 400mm long (NFD), with stone adjacent sat below the others. Light overhanging vegetation.

Thick silt to lower reaches.

-US / LM Wingwall- (WWL2 / ES1) (P49-53)

Examined from GL with hammer and tapping pole.

Generally in fair condition. 0.75m² OJs (was 0.5m²) to 50mm deep max, typical 20-30mm, notable to lower reaches (P50), repointing carried out to upper reaches (P51).

Bed joint fracture below Copings noted in lower half, open to 5mm (new, P52).

Numerous cosmetic pointing fractures with odd shattered faces (new).

Facial weathering throughout, minor spalling 5-10mm beyond the pointing line. Run down stain throughout, mud stain damp and algae at low level, approx. 0.5m² ivy growth at high level typically from joints and patches of lichen growth. Light overhanging vegetation.

Newel stone also shattered to its inner quoin, with Coping above spalled 250mm back 100mm (new).

Thick silt to lower reaches.



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--BEARINGS-- (BGL1 & 2 / DK1) (P54-56)

Very little visible due to debris and ballast covering them over each Abutment (P55), where visible they appear in fair condition. The only real view is to their outer edge, these show corrosion loss to their soffits adjacent to the Abutments, 2-3mm (P54).

Odd examples of mortar to the outer edges at connection with Main Girder, appear to have been done at time of repointing works (P56).

--BALLAST WALLS-- (P57-59)

Small breeze block ballast walls up to 400mm high, located above all four wingwalls. Used to form the base for wing fencing.

All the walls show vertical full height fractures where the old wing fencing posts used to sit, open H/L – 5mm and some minor spalling to 20mm deep (SSD, P57).

Previously reported loose/displaced blocks to the inner end of the DS / LM wall are now missing (P58), this is allowing ballast to fall (SSD). This wall also bodily leans away from the track approx. 20-30mm (P59). 1no. block spalling to 100mm deep at one of the old post holes remains. 2no VFs at old post hole are causing a small section to be loose (new).

US LM wall is overgrown (new).

--LONGITUDINAL TIMBERS--(P60)

Generally in good condition showing only minor shakes 1-4mm wide and areas of water staining throughout (previously reported as water stained but extensively wet at this examination due to heavy rainfall).

Previously reported bouncing under load to the US timber at the LM end could not be viewed due to no trains running at time of exam.

2no transoms, one at either end of the structure remain generally in fair condition showing surface corrosion and pitting throughout <1mm.

--WATERPROOFING--

Not examined, evidence of water ingress suggests it has failed or does not exist.

--HANDRAILS-- (P61-64)

1.38m high steel RSA posts with 3no. 30mm galvanised steel tube rails.

All remain solid but the posts show total loss of paint with surface corrosion throughout and pitting 1-3mm, worst in lower 50mm. The rails show patches of slight surface corrosion.

Upside units show thick lamination throughout (new, P62).

All appearing slightly loose, possible the walkway girder below (see notes above, new).

Downside unit appears to bow (P63) with Upside showing poor profile (P64), also see walkway notes above.

--TRACK-- (P6-7, 65)

Track is jointed on timber sleepers / longitudinal timbers across the structure.

11no clips were found to be missing from the Upside rail with 4no chairs in a row with no clips remaining (new, P65), reported to P-way who where signed in on my line blockage at the time. P-way attended site and replaced the missing clips, Robert Williams reported the issue back.

Both track and cess remain in good condition with no deformation noted. The nearest joint is at mid span.

1no loose wire now runs along the US cess, replacing a previously rotten S&T trough.

3no wires run full length on the DS, 1no. attached to a channel on the handrail, the others running along the decking.

--BRACINGS-- (BRG2 / DK1) (P28, 3)

5no. bracing bars located underneath DCK2 bracing the two main girders, attached to the stiffeners.

All appear to be in similarly fair condition showing only minor loss of paintwork with associated surface corrosion.

--VISIBILITY OF SIGNS-- (P6-7)

Limited clearance plates erected at track level at all four corners, all remain in good condition.



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No bridge I.D or location plates could be found on this structure.

--WING FENCING-- (P6-7)

Timber wing fencing above each wingwall, all remains in good solid condition throughout.

--DIMENSIONS--

Span: 7.4m

Length: 4.5m

Height to Water Level: 5.8m (Low Tide)

CLEARANCES:

DS / LM: 1100mm

DS / HM: 1600mm

US / LM: 1235mm

US / HM: 1290mm

LEVEL 0:

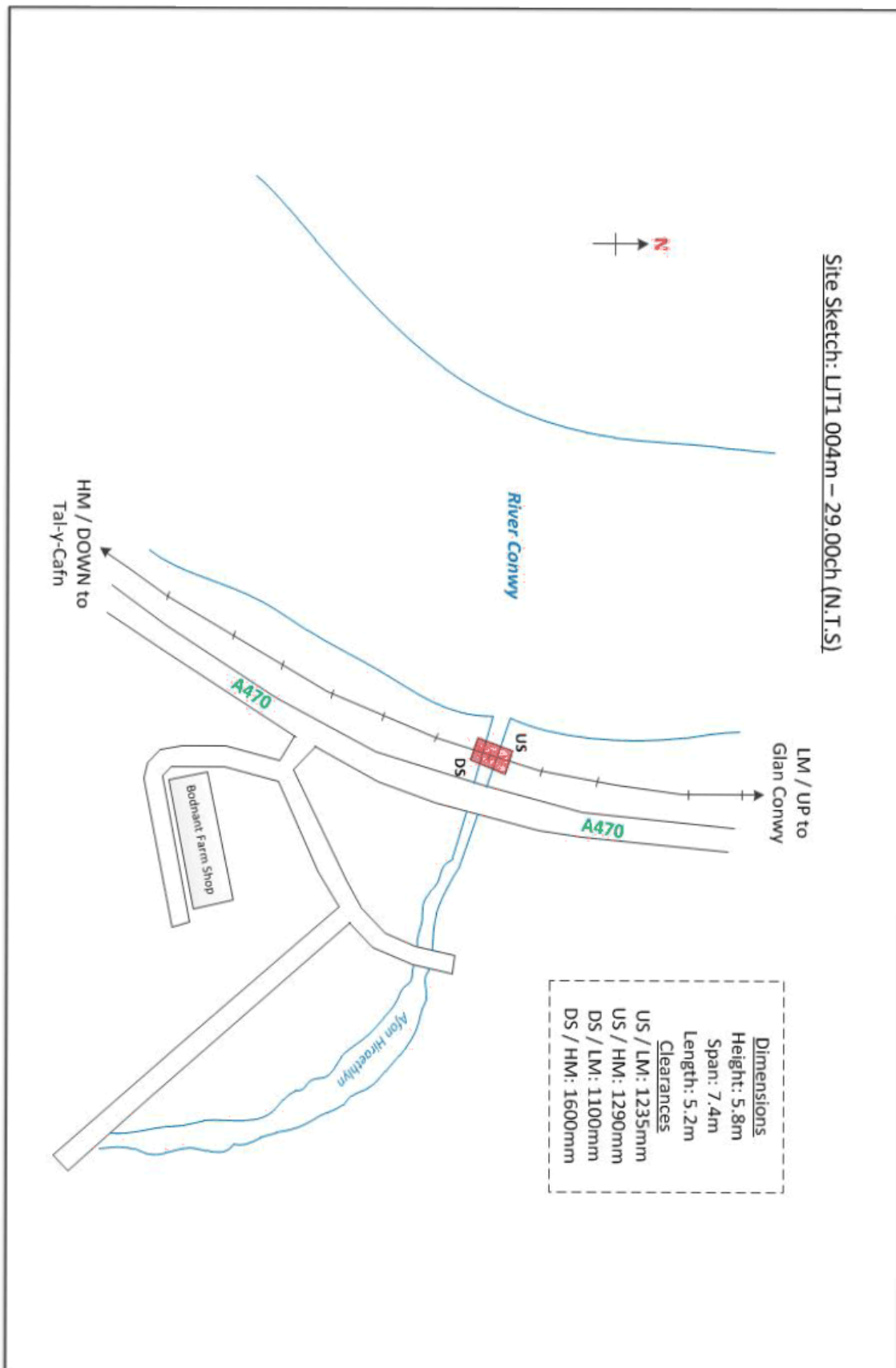
US Rail: 170mm above MGE2.

DS Rail: 280mm above MGE1.

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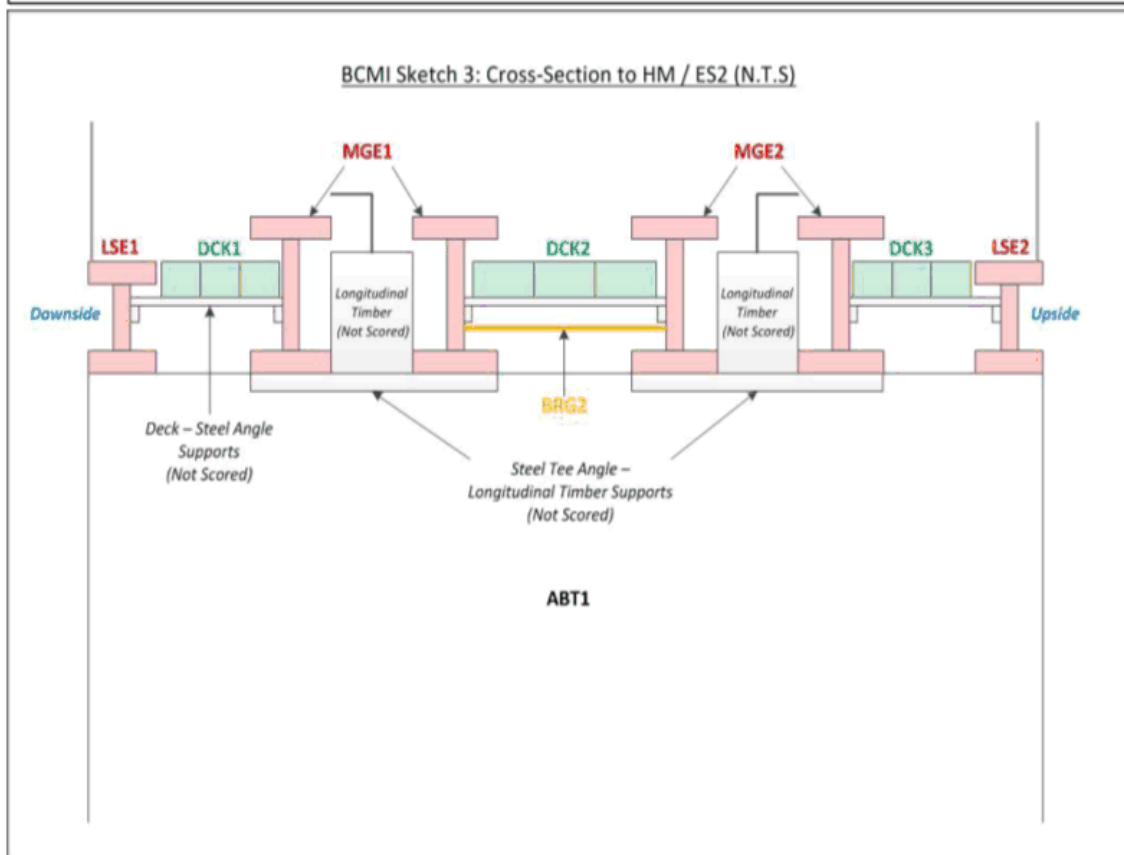
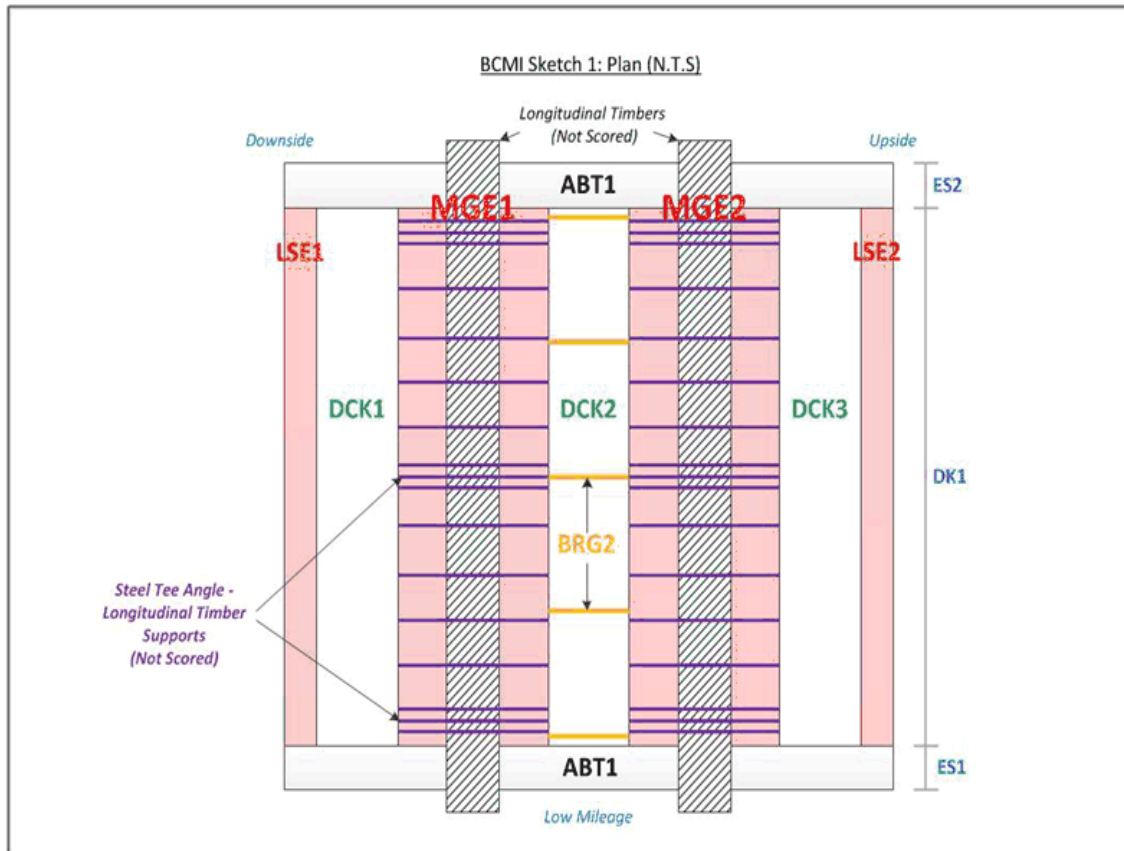




Photo 1: Upside Elevation (02/08/22)



Photo 2: Downside Elevation (02/08/22)

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Photo 3: Soffit View (02/08/22)



Photo 4: Watercourse away from DS (02/08/22)



Photo 5: Watercourse away from US (02/08/22)



Photo 6: Track towards HM (02/08/22)



Photo 7: Track towards HM (02/08/22)



Photo 8: Downside Walkway Support Girder (02/08/22)

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Photo 9: Inner face of DS Walkway Girder (02/08/22)

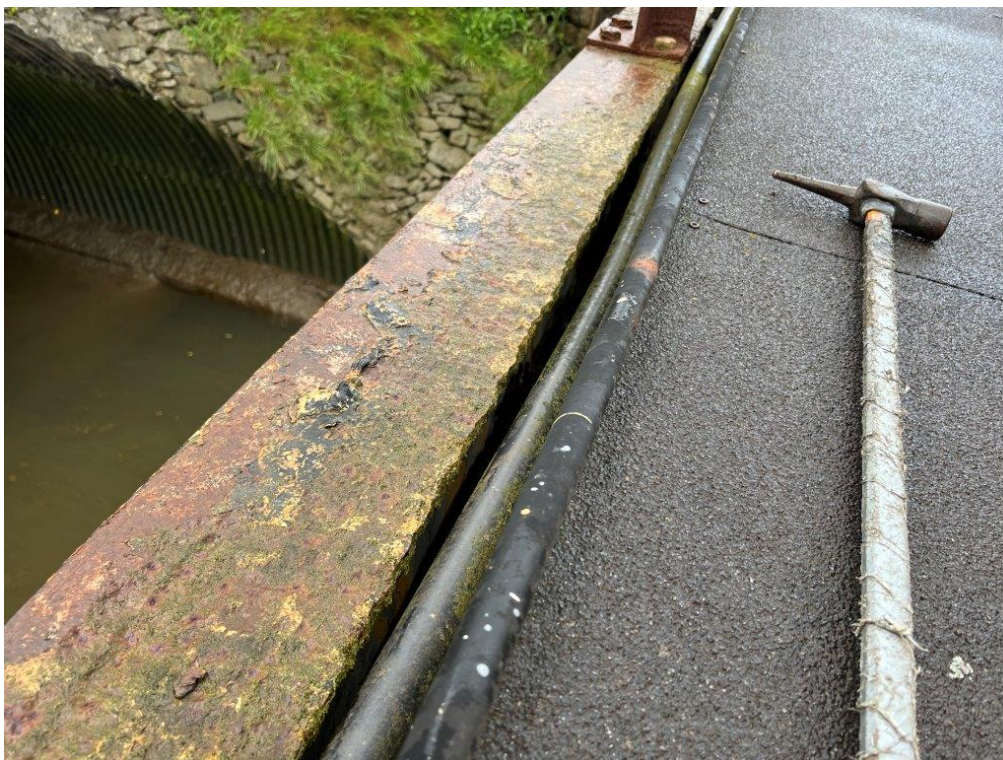


Photo 10: Top Flange of DS Walkway Support Girder (02/08/22)



Photo 11: Upside Walkway Support Girder, mid-point towards HM (02/08/22)



Photo 12: Upside Walkway Support Girder, mid-point towards LM (02/08/22)

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Photo 13: Inner Face of US Walkway Support Girder (02/08/22)



Photo 14: Odd example of corrosion loss to US Walkway Support Girder (02/08/22)



Photo 15: LOS to US Walkway Support Girder (02/08/22)



Photo 16: Area of notching to US Walkway Support Girder, HM 1/4 point (02/08/22)



Photo 17: Downside Main Girder, DS Face (02/08/22)



Photo 18: Downside Main Girder, US Face (02/08/22)



Photo 19: Soffit of DS Main Girder (02/08/22)



Photo 20: Typical view of condition of DS Main Girder, note corrosion loss at connections and lamination (02/08/22)

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Photo 21: Upside Main Girder, US Face (02/08/22)



Photo 22: Upside Main Girder, DS Face (02/08/22)

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**Photo 23: Soffit of US Main Girder (02/08/22)****Photo 24: Typical corrosion loss to US Main Girder (02/08/22)**



Photo 25: Further view of corrosion loss to US Main Girder (02/08/22)



Photo 26: Increased corrosion loss to US Main Girder at connections (02/08/22)

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Photo 27: Downside Walkway / DCK (02/08/22)

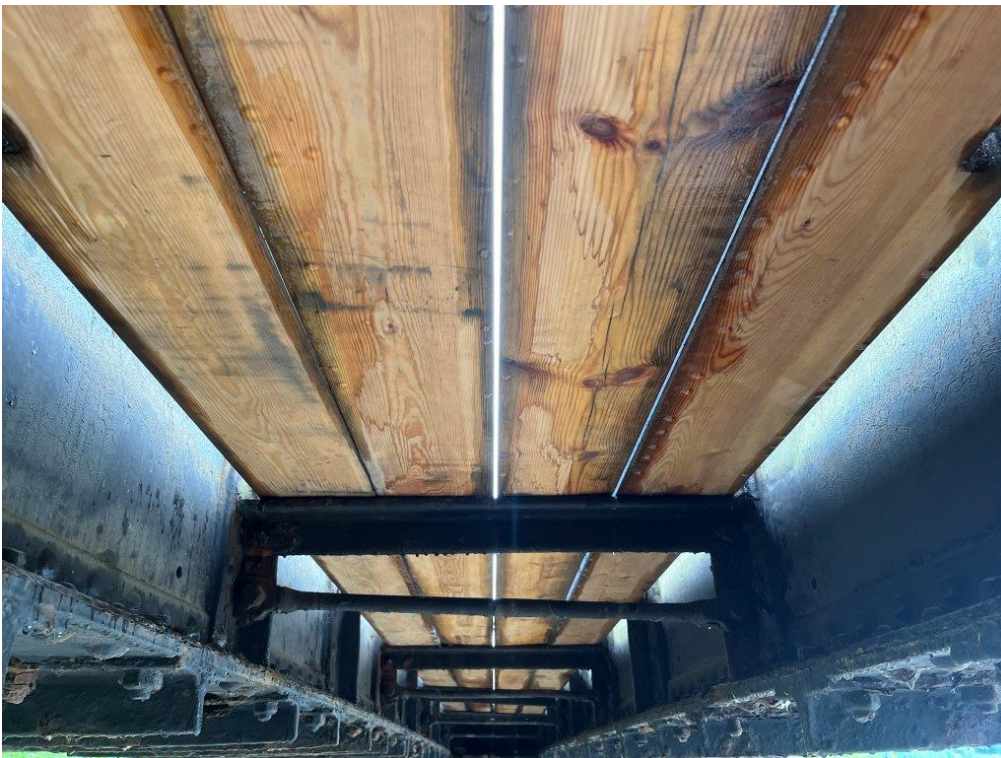


Photo 28: 4 foot DCK (02/08/22)

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Photo 29: US Walkway / DCK (02/08/22)



Photo 30: Displacement to US Walkway (02/08/22)



Photo 31: Low Mileage Abutment (02/08/22)



Photo 32: Area of split stones to LM Abutment (02/08/22)



Photo 33: OJs to LM Abutment (02/08/22)



Photo 34: High Mileage Abutment (02/08/22)

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Photo 35: OJs to lower reaches of HM Abutment (02/08/22)



Photo 36: View of depth of OJs to HM Abutment (02/08/22)

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Photo 37: 1no stone to DS quoin, top course, set forward 10mm (02/08/22)



Photo 38: 1no split stone to HM Abutment with stone adjacent split to its corner (02/08/22)



Photo 39: Downside High Mileage Wing Wall (02/08/22)



Photo 40: OJs to DS HM Wing Wall (02/08/22)



Photo 41: View of split stones, DS HM Wing Wall (02/08/22)



Photo 42: Downside Low Mileage Wing Wall (02/08/22)

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Photo 43: Missing top coping stone, DS LM Wing Wall (02/08/22)



Photo 44: Displaced/missing to Newel and adjacent Retaining Wall (02/08/22)

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Photo 45: Upside High Mileage Wing Wall (02/08/22)



Photo 46: OJs to US HM Wing Wall (02/08/22)



Photo 47: Newel quoin stone spalled to 150mm, US HM Wing Wall (02/08/22)



Photo 48: Shattered stone to Newel, US HM Wing Wall (02/08/22)

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Photo 49: Upside Low Mileage Wing Wall (02/08/22)



Photo 50: OJs to US LM Wing Wall (02/08/22)



Photo 51: Repointing works to upper reaches, US LM Wing Wall (02/08/22)



Photo 52: Bed joint fracture below copings, US LM Wing Wall (02/08/22)



Photo 53: Newel stone shattered with spalled coping above, US LM Wing Wall (02/08/22)



Photo 54: Typical view of bearing plate (02/08/22)



Photo 55: Typical view of ballast/debris to bearing shelf/Abutment (02/08/22)



Photo 56: Mortar to outer edge of bearings (02/08/22)

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Photo 57: Typical fracture to Ballast Wall (02/08/22)



Photo 58: Section of DS LM Ballast Wall now missing (02/08/22)

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Photo 59: Lean to DS LM Ballast Wall (02/08/22)



Photo 60: Typical view of Longitudinal Timbers (02/08/22)



Photo 61: General view of Handrails (02/08/22)

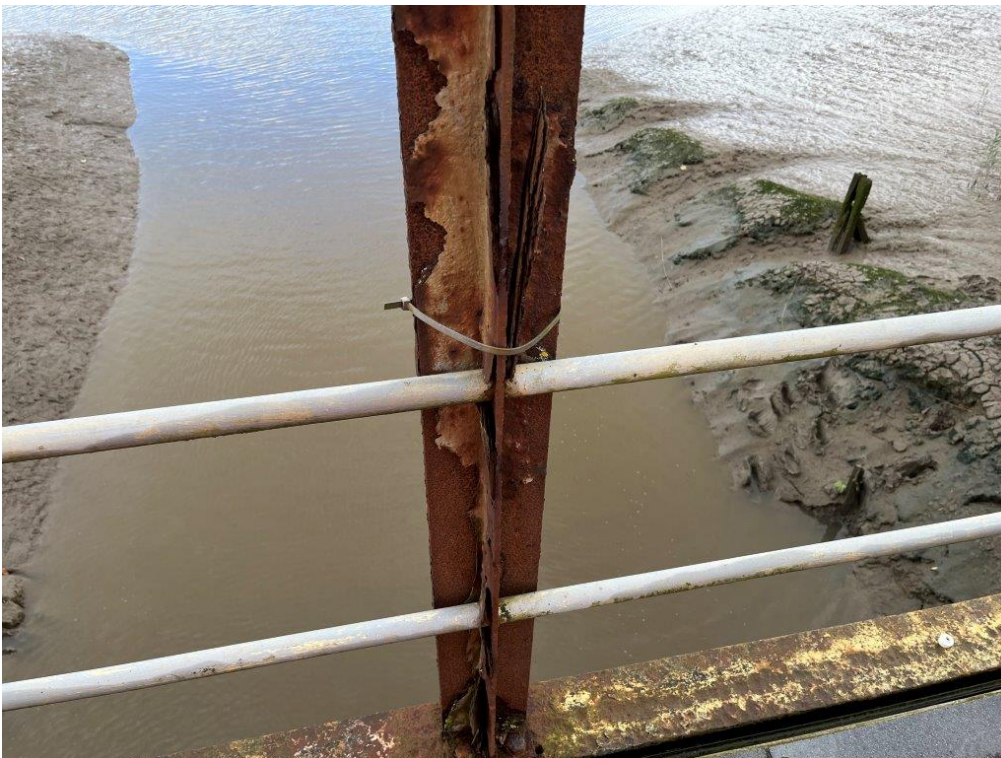


Photo 62: Thick lamination to US Handrail uprights (02/08/22)



Photo 63: Downside Handrails appearing to bow (02/08/22)



Photo 64: Poor profile to US Handrails (02/08/22)

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Photo 65: Missing clips prior to replacement (02/08/22)

NETWORK RAIL BCMI EXAMINATION REPORT FORM

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Territory	ELR	Structure No	Start Mileage	Group	Type	RAR ID	Structure Name	Exam Date	Task Year	Exam Type	Examiners Name	Weather
TLNW	LJT1	3	4.0638	BB	BBU		BONT FURNACE STREAM	02/08/2022	22 23	D	Andrew Bellis	Fair

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NETWORK RAIL BCMI EXAMINATION REPORT FORM

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NETWORK RAIL BCMI EXAMINATION REPORT FORM

Note: This spreadsheet (bcmirep_issue3.6.xls) is for use with SCMI Handbook Issue 3

Description of Field Names used on BCMI Examination Report Form

Field Name	Field Description
Territory	Four letter Territory Code: TLNE for London North East, TLNW for London North West, TSCO for Scotland, TSEA for South East, TWES for Western
ELR	Engineers Line Reference
Structure No	Full structure/bridge number
Mileage	Expressed in form 25.0357 (not 25M 357Y)
Group	Structure Group
Type	Structure Type
RAR	RAR identifier (optional)
Structure Name	Structure name
Exam Date	Examination date (if exam is split over two or more days, use first date only)
Task Year	Task Year in form yy_yy e.g. 03_04. This field may be left blank.
Exam Type	'D' for detailed examination
Examiner Name	Examiner's name
Weather	Weather description
Minor Element Material	"C" for concrete, "M" for metal, "B" for masonry, "T" for timber, "U" for unknown
Metal / Masonry / Concrete / Timber	Enter S/Ex codes only for relevant minor elements formed with these materials
Coated Metal / Cracked Masonry	Enter S/Ex codes only for relevant minor elements with coated metal or cracked masonry
V	✓ is shown if data is valid ✗ is shown if data is invalid or incomplete
Comments	Text box for comments
General Note	Once started all data on a record must be finished or the SCMI database will not accept the entry.

BCMI Score Calculation

To calculate BCMI scores, click on the 'Refresh Scores' button on the 'BCMI Scores' worksheet.

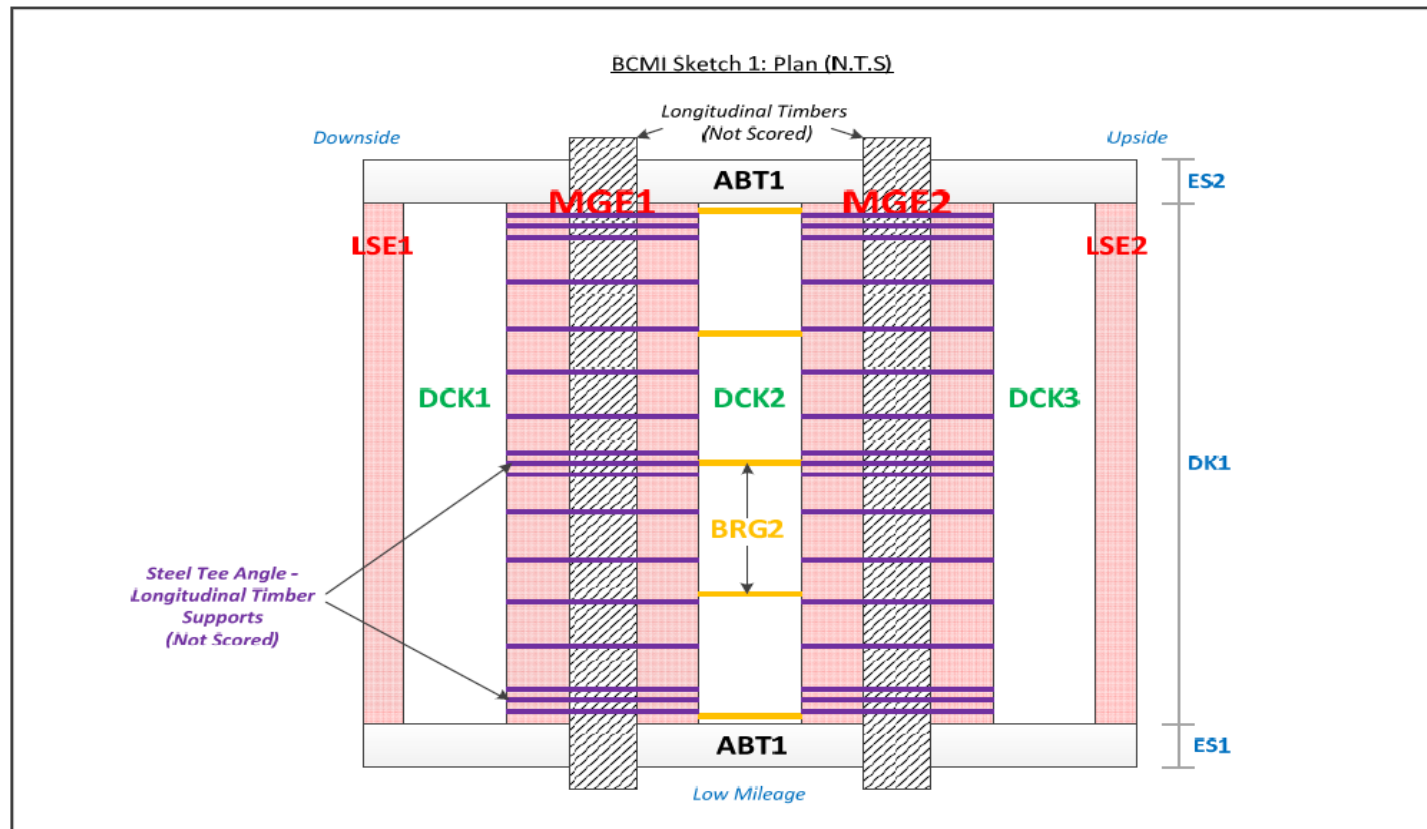
If there is invalid data, then a message box appears and the BCMI scores are not calculated.
If all data is valid, then the minor element entries are copied into the 'BCMI Scores' worksheet and BCMI scores are automatically calculated at the minor element, major element and overall bridge levels.
The algorithm and factors used in the calculation are the same as in SCMI database Issue 3.5.

NETWORK RAIL BCMI EXAMINATION REPORT FORM

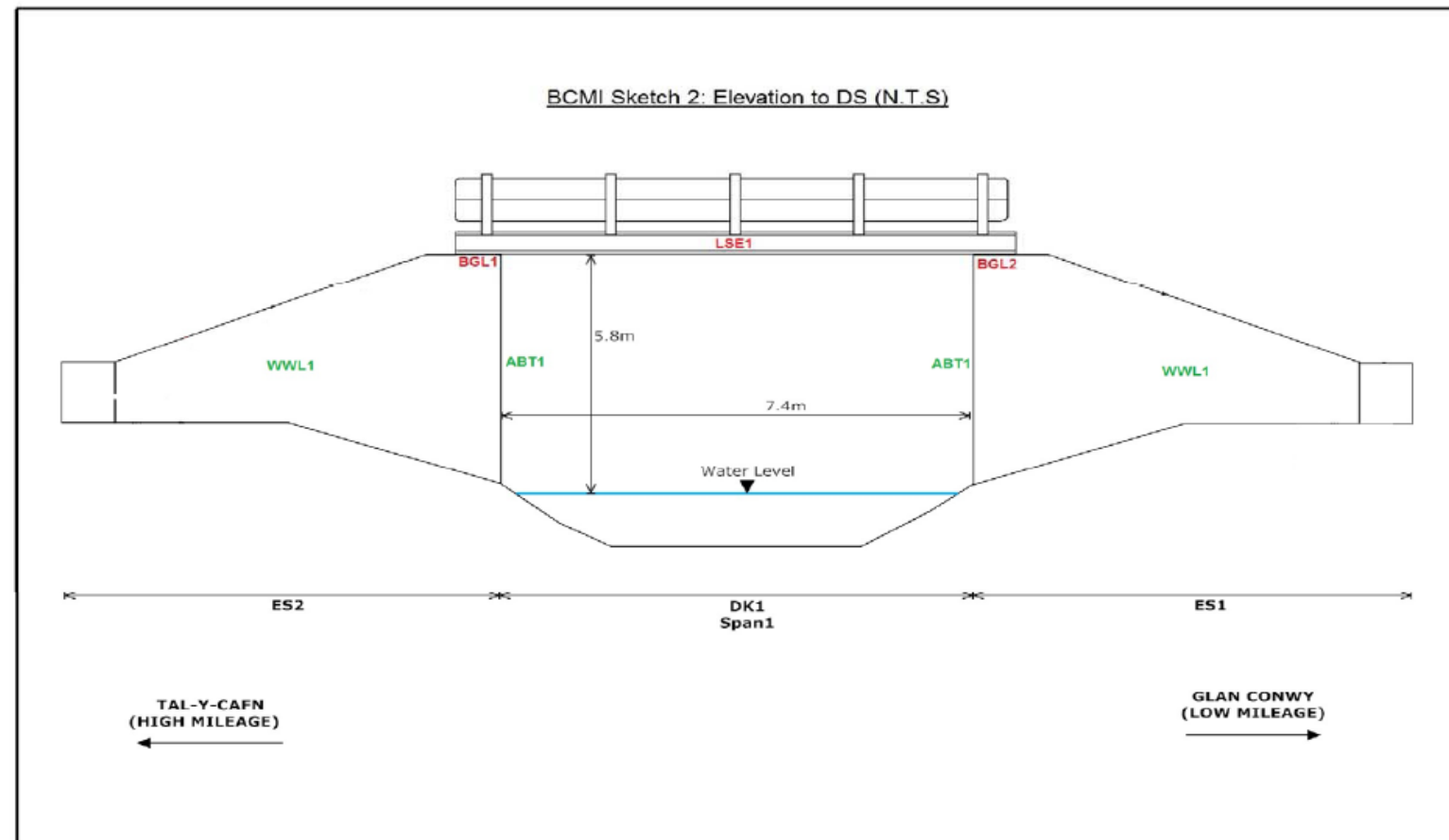
Validation Tables

Materials					CMaterials				
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B2	B2	B2	B2		G10	A1	I2	A1	
B3	B3	B3	B3		G11		I3		
B4	B4	B4	B4		G7		I4		
B5	B5	B5	B5		G8		I5		
B6	B6	B6	B6		G9		I6		
C2	C2	C2	C2		H10		J2		
C3	C3	C3	C3		H11		J3		
C4	C4	C4	C4		H7		J4		
C5	C5	C5	C5		H8		J5		
C6	C6	C6	C6		H9		J6		
D2	D2	D2	D2		I10		K2		
D3	D3	D3	D3		I11		K3		
D4	D4	D4	D4		I7		K4		
D5	D5	D5	D5		I8		K5		
D6	D6	D6	D6		I9		K6		
E2	E2	E2	E2		J10		L2		
E3	E3	E3	E3		J11		L3		
E4	E4	E4	E4		J7		L4		
E5	E5	E5	E5		J8		L5		
E6	E6	E6	E6		J9		L6		
Ex2	F2	F2	F2		K10		NE		
Ex3	F3	F3	F3		K11				
Ex4	F4	F4	F4		K7				
Ex5	F5	F5	F5		K8				
Ex6	F6	F6	F6		K9				
F2	G2	G2	G2		L10				
F3	G3	G3	G3		L11				
F4	G4	G4	G4		L7				
F5	G5	G5	G5		L8				
F6	G6	G6	G6		L9				
NE	NE	NE	H2		M10				
			H3		M11				
			H4		M7				
			H5		M8				
			H6		M9				
			NE		N11				
					N10				
					N9				
					N8				
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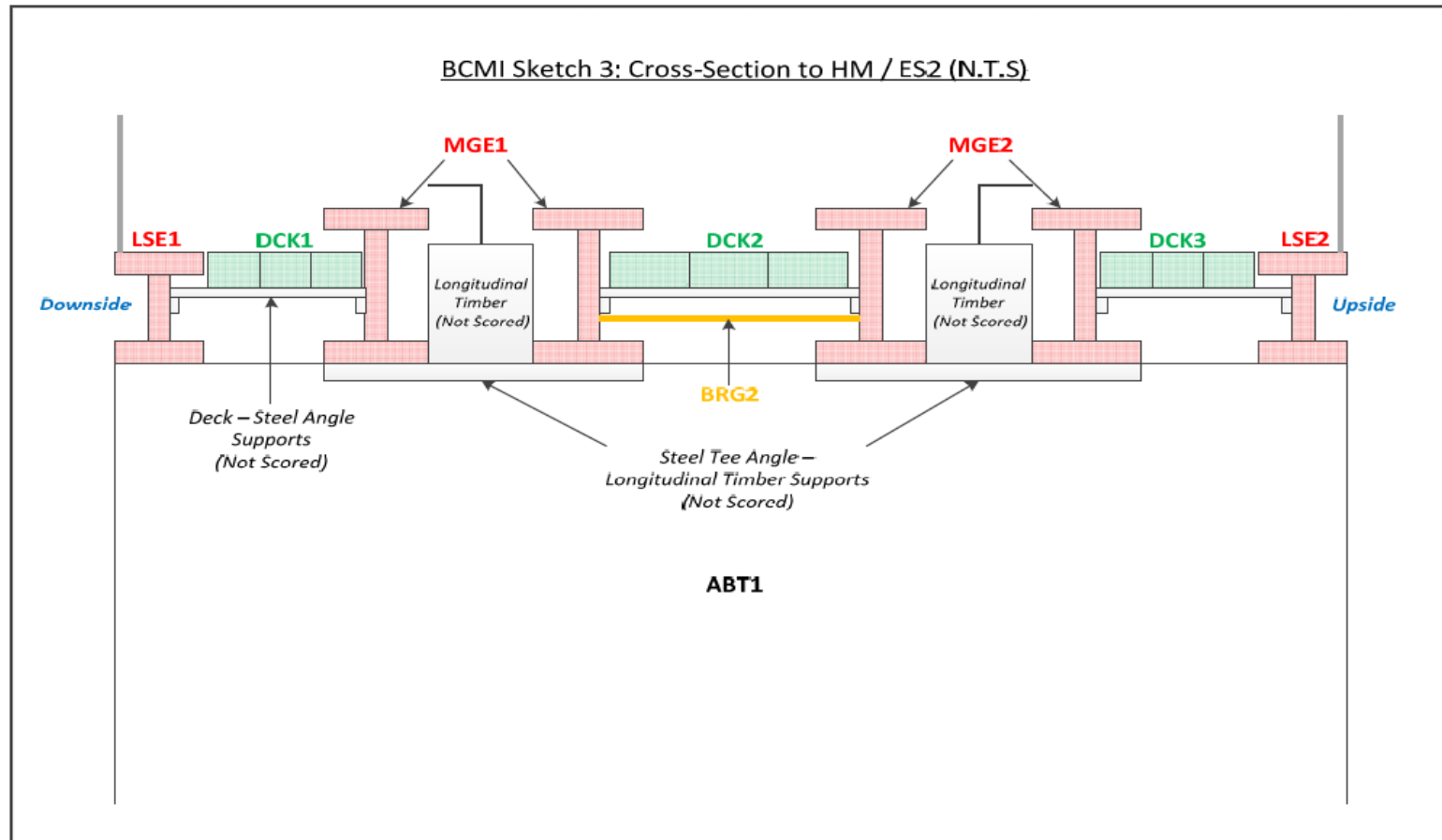
NETWORK RAIL BCMI EXAMINATION REPORT FORM



NETWORK RAIL BCMI EXAMINATION REPORT FORM



NETWORK RAIL BCMI EXAMINATION REPORT FORM



NETWORK RAIL BCMI EXAMINATION REPORT FORM

Territory	ELR	Structure No	Start Mileage	Group	Type	RAR ID	Structure Name	Exam Date	Task Year	Exam Type	Examiners Name	Weather
TLNW	LJT1	3	4.0638	BB	BBU		BONT FURNACE STREAM	02/08/2022	22_23	D	Andrew Bellis	Fair

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