Pickering Corts & Summerson
Consulting Engineers & Surveyors

15 7217 0313 0001

Hess Mill Road
over
West Branch of White Clay Creek

Franklin Township
Chester County, Pennsylvania

POSTING: 17 Tons Except Combinations 28 Tons

LOAD RATING REVIEW RECOMMENDED: No

INSPECTED: January 3, 2018 - Interim

FRACTURE CRITICAL: No

PREPARED FOR:
Pennsylvania Dept. of Transportation
Engineering District 6-0

PREPARED BY:
Pickering, Corts & Summerson, Inc.
642 Newtown-Yardley Road, Suite 300
Newtown, PA 18940

HANDS-ON INSPECTION: No

MAP: 3909-G8, ADC 2008

INSPECTED BY:
Kevin E. Gross, P.E., C.B.S.I.
Blake Z. Fink

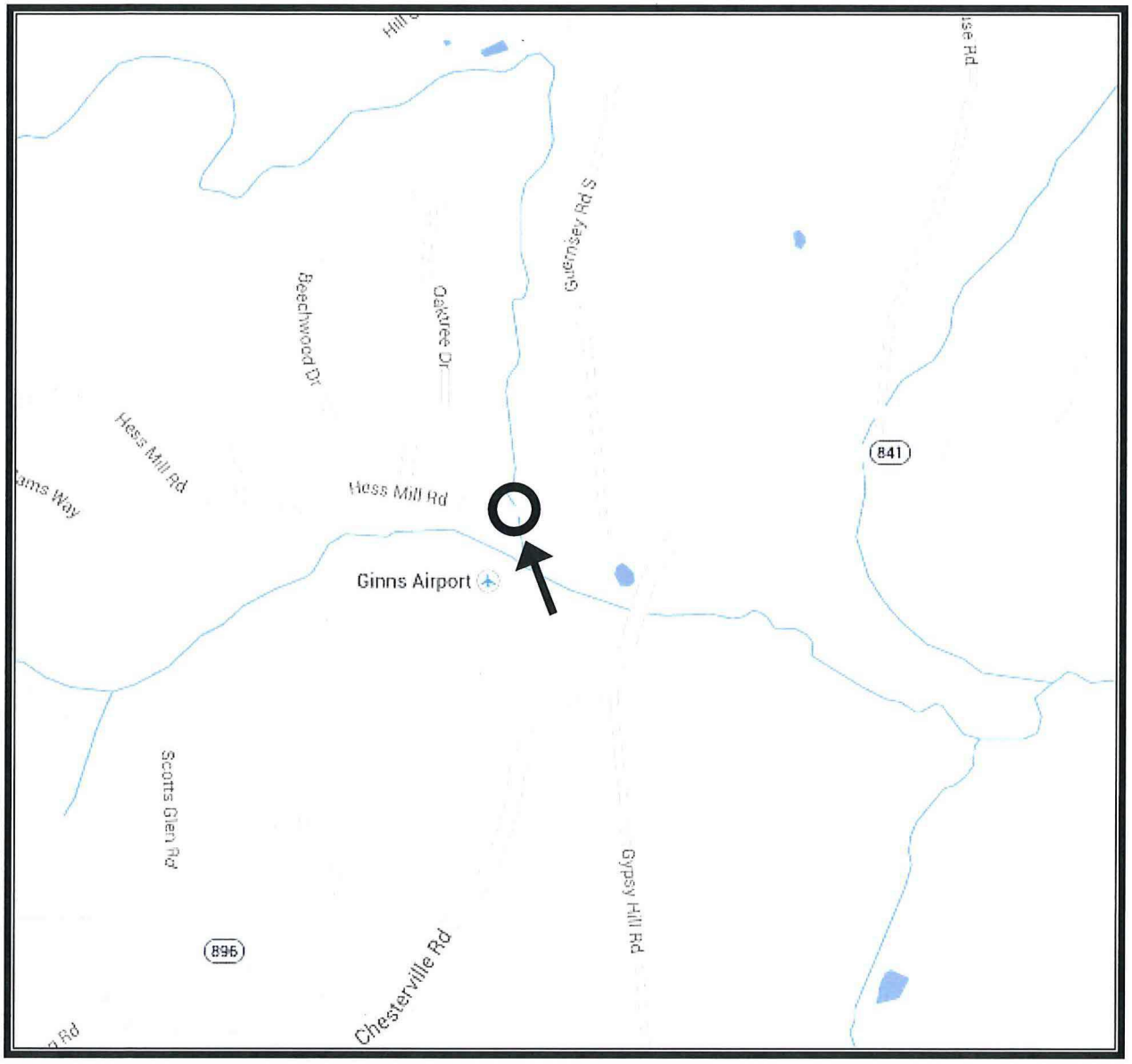
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
KEVIN E. GROSS
ENGINEER
PE37939-E

BMS No. 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

TABLE OF CONTENTS

BMS No. 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

LOCATION MAP



BMS No. 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

BRIDGE DESCRIPTION

Year Built:	1974
Structure Type:	Nail Laminated Timber
Category:	D-1
Structure Length:	25.5'
Number of Spans:	1
Curb-Curb Width:	25.2'
Approach Roadway Width:	20.0'
Underclearance:	N/A
Skew Angle:	76°
S.C.B.I:	4

INSPECTION SUMMARY

An interim inspection was completed on January 3, 2018 as per PennDOT Publication 238, Part IP, Chapter 2, Section 2.3.2.4., Table IP 2.3.2.4-1, Maximum Interval of Routine Inspections. Interim inspections required due to the 17 Tons Except Combinations 28 Tons posted weight limit.

Approach Slab:

Prior Condition Rating N
Current Condition Rating N

None.

Approach Roadway:

Prior Condition Rating 7
Current Condition Rating N/A

The approach roadway condition was not evaluated as part of the January 3, 2018 interim inspection. Only problem areas and elements related to the bridge posting were evaluated. The following approach roadway condition description is taken from the 2017 NBIS inspection report.

The bituminous approach roadway is in overall good condition. There is moderate wear and sealed and unsealed fine to medium longitudinal cracking along the centerline of the roadway beyond the repaved portions. The new bituminous patches along the left travel lane of the deck extend up to 4.0' into both approach roadways. There previously reported minor roadway

embankment erosion at the far left corner, adjacent to the bridge has been repaired with small placed rock.

Deck Wearing Surface:

Prior Condition Rating 7
Current Condition Rating N/A

The deck wearing surface condition was not evaluated as part of the January 3, 2018 interim inspection. Only problem areas and elements related to the bridge posting were evaluated. The following deck wearing surface condition description is taken from the 2017 NBIS inspection report.

The bituminous wearing surface is in overall good condition with minor to moderate wear and a few sealed/unsealed (up to 1/4" wide) longitudinal cracks in the right travel lane. A large bituminous patch in the left travel lane is new since the 1/20/16 interim inspection.

Deck:

Prior Condition Rating 4
Current Condition Rating 4

The top of deck is not visible due to the bituminous wearing surface overlay. There is no separate structural deck for this bridge type. The deck rating is controlled by the superstructure rating.

Superstructure:

Prior Condition Rating 4
Current Condition Rating 4

The 3" x 12" nail laminated longitudinal treated timbers on edge are in overall poor condition. There is typical tar seepage and misalignment between the planks and active water leakage. The planks exhibit several splits and checks throughout with random areas of rot with up to 3/8" awl penetrations. There is a 12" x 6" transverse timber tie that spans the full-width at mid-span. The tie has a split with propagating cracks at the right end.

Paint Condition:

Prior Condition Rating N N
Current Condition Rating N N

None.

Substructure:

Prior Condition Rating 5
Current Condition Rating N/A

The substructure condition was not evaluated as part of the January 3, 2018 interim inspection. Only problem areas and elements related to the bridge posting were evaluated. The following substructure condition description is taken from the 2017 NBIS inspection report.

The substructure is in overall fair condition and is comprised of timber lagging spanning between timber piles. There are a few small gaps between lagging boards and misalignment (up to 1/2"). Since the 1/20/16 interim inspection, additional new piles and new timber caps were installed along the wingwalls. The original exposed tops of the piles exhibit center rot, up to 6" deep.

Channel:

Prior Condition Rating 6
Current Condition Rating N/A

The channel condition was not evaluated as part of the January 3, 2018 interim inspection. Only problem areas and elements related to the bridge posting were evaluated. The following channel condition description is taken from the 2017 NBIS inspection report.

The channel flows from left to right with a 30 degree skew upstream, flows parallel to the abutments and continues straight downstream. The streambed material is comprised of large stones, cobbles and sand. The deepest section of the channel is at the 2/3 point. Placed rock protection is in place at both upstream wingwalls and at the downstream far wing. There is placed rock along the abutments. Timber debris was observed along the near left (upstream) bank (5 CY) and the far left (upstream) bank (1 CY).

The S.C.B.I. was calculated in iForms on 2/6/17 and returned a code of '8'. Based on the S.C.B.I. code of '8', the bridge is not considered scour critical.

Safety Features:

Prior Condition Rating 4888
Current Condition Rating N/A

The traffic safety features were not evaluated as part of the January 3, 2018 interim inspection. Only problem areas and elements related to the bridge posting were evaluated. The following traffic safety feature condition description is taken from the 2017 NBIS inspection report.

The bridge railing consists of structure mounted timber guiderail that is in overall good condition. The far left (northeast) post is slightly out of plumb. The transitions consist of 2'-8" high, 25' long, gradually stiffened, double nested Type 2SC W-beam guiderail with timber and plastic offsets and rubrail. The approach guiderail is comprised of 2'-5" high, 25' long, Type 2S W-beam guiderail with plastic offsets. There are SKT-350 end treatments in the clear zone at each corner.

Additional Notes:

Based on the superstructure and deck condition ratings ('4 - Poor'), the bridge is considered structurally deficient.

Only problem areas and elements related to the bridge posting were evaluated during the 2018 interim inspection.

Work done since the 1/25/17 routine inspection:

- None.

BMS No. 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

LOAD RATING SUMMARY

The chart shown below is a summary of the current ratings. These ratings are based upon an allowable stress analysis performed during a previous inspection cycle. A copy of that analysis is not included in this report. These ratings are still valid, as the current condition of the bridge is similar to the condition noted during the previous inspection cycle.

LOAD RATING SUMMARY			
	INV RATING (TONS)	**OPR RATING (TONS)**	**SLC RATING (TONS)**
H20	**12**	**18**	**18**
HS20	**21**	**32**	**28**
ML80	**13**	**19**	**17**
TK527	**15**	**23**	**20**

POSTING REVIEW

The bridge is currently posted for 17 Tons Except Combinations 28 Tons. This posting level may remain until the next inspection. At that time, the posting level should be reviewed again.

BMS No. 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

RECOMMENDATIONS

Maintenance

The following maintenance program is provided for the bridge. The estimated costs listed below are based on PennDOT Bridge Management System unit costs. The actual costs will vary due to site-specific conditions.

Priority Code 0 - Critical

None. $0

Priority Code 1 - High Priority

None. $0

Priority Code 2 - Priority

Repair/replace the cracked superstructure timbers.

21 EA	x	$1,165	$24,465

Mill existing bituminous, install waterproof membrane and repave the deck wearing surface (thickness not to exceed 3").

72 SY	x	$48	$3,456

Reset the leaning near advance posting signs at Newark Road.

1 EA	x	$360	$360

Priority Code 3 - Schedule

Repair the rotted piles where exposed.

6 EA	x	$2,120	$12,720

Priority Code 4 - Program

Seal the cracks in both approach roadways.

1 SY	x	$75	$75

Remove the timber debris from the near left and far left (upstream) banks.

6 CY	x	$24	$144

Priority Code 5 - Routine

None. $0

Total Repair Costs **$41,220**

BMS No. 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

Inspection Schedule:

In addition to the regular biennial NBIS inspections, interim/partial inspections are required on a twelve month cycle in accordance with the PennDOT Bridge Safety Inspection Manual, Pub 238, 2nd edition, March 2010, Part IP, Chapter 2, Table 2.3.2.4-1. The shortened interval is recommended due to the 17 Tons Except Combinations 28 Tons posted weight restriction.

Inspection Equipment:

Special inspection equipment was not required for the interim inspection.

Waterway Information:

The substructure units were fully accessible for the interim inspection. An underwater inspection is not warranted at this time.

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SITE DATA
Form A

Form D-450A

5A01 SR ID: 15721703130001 | 5A03 BR Key: 45932 | 7A01 Inspection Date: January 03, 2018

1A09 **Inspection Status:** 2 - Submitted
7A02 **Team Leader:** 2126 Pickering, Corts & S Gross
7A03 **Inspection Type:** I - Interim (special)
7A05 **Inspected By:** 8 - Consulting Firm

Structure Description

5A08 **FHWA Facility Carried:** Hess Mill Road
5A07 **Features Intersected:** W. Br. White Clay Creek
5A09 **Location:** 1/4 Mi W PA-841 3909-G8
5C01 **Roadway Name:** Hess Mill Road
5A06 **City / Borough Name:** 15/217 - FRANKLIN
6B48 **Combust. Mat. Under Bridge:**
Combust. Mat. Under Bridge Note:

Structure Type

Main

6A26 **Material Makeup:** 5 - Timber
6A27 **Physical Makeup:** 9 - Other or none
6A28 **Span Interaction:** 1 - Simple, non-comp
6A29 **Structural Config:** 99 - Other

Approach

6A26 **Material Makeup:**
6A27 **Physical Makeup:**
6A28 **Span Interaction:**
6A29 **Structural Config:**

Sign Information

ID01	ID02	ID03	ID04	ID06	ID07	ID05	
Type of Sign	Sign Needed	Sign Message	Near Adv	Bridge Site Near	Bridge Site Far	Far Adv	Comments
0 - Bridge	Yes		D	G	G	G	N ADV (Newark Road Intersection): "1 1/4 MILE AHEAD". Signs leaning.
1 - Bridge Weight Limit	Yes	17 Tons	D	G	G	G	
2 - Except Combinations	Yes	28 Tons	D	G	G	G	N ADV (Conard Mill Road intersection): "1 MILE AHEAD".
3 - One Truck at a Time	No						NEAR: Good condition; no problems noted. FAR: Good condition; no problems noted.
4 - Vertical Clearance On	No						F ADV (South Guernsey Road intersection): "500 FT AHEAD".
5 - Vertical Clearance Under	No						
6 - One Lane Bridge	No						
7 - Narrow Bridge	No						
8 - Hazardous Clearance	No						
9 - Other	No						

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SITE DATA
Form A

Form D-450A

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

Features Intersected

6C02 SR	6C02 Seg	5C03 On/ Under	5B09 Skew Angle	5C06 Dir	5C29 NHS	4A20 Min Lat Cl Left	4A19 Min Lat Cl Right	6C18 Tot Hor Cl Left	6C19 Tot Hor Cl Right	6C20 Min Vrt Cl Left	6C21 Rdwys Vrt Cl Right	6C22 Over 10ft Left	6C23 Over 10ft Right	6C24 VT Sign	6B17 ADT
_	_	1	-1	N/A	0 - Not on NHS	-1.0	0.0	-1.0	25.2	99.9	99.9	99.9	99.9	0	500
		2	-1	N/A		-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1

6B15 **Design Exceptions:**
6A50 **Sup Latent Problem:**
6A51 **Sub Latent Problem:**

Deck Geometry

Table Used for Appraisal: 1 - 2A/2B

Controlling Values

5C10 **ADT:** 500
5C27 **Bridge Road Width:** 25.2

4A10 **Appraisal:** 4 - Tolerable
Notes: Bridge Roadway width 25' - 3" curb to curb. Use estimated 500 vpd for ADT. (estimated from PennDOT Traffic Volume Map - 2009)

4A11 **Underclr Appr:** N - Not applicable (NBI)
6B13 **Controlling Vertical:** 0.0 FT
Controlling Lateral:

Traffic Safety Features

Feature Type	IA01 Location	IA02 Adequacy Rating	IA03 Description	5C08 Posted Spd Lmt (mph)
1 - Railing		4 - does not meet code 6		35

Comment: The far left (northeast) post is slightly out of plumb.

Bridge Rail - 24" high x 5" wide timber rail with 6' center to center post spacing mounted on 5" high x 11" wide timber rail with an additional 4" high x 11" wide timber blocks firmly mounted to the timber deck planks.
End Posts - 12" x 12"
Interior Posts - 6" x 12"
Timber Spacers - 11" high x 2 1/4" thick (new in 2013)
Curbs - 4" high x 11" wide

2 - Transition	8 - good cond/meets stds	35

Comment: NL, NR, FL, FR: 2'-8" high, 25' long gradually stiffened, nested Type 2SCC & 2SC W-beam guiderail with timber and plastic offsets and rubrail.

3 - Approach Guiderail	8 - good cond/meets stds	35

Comment: NL, NR, FL, FR: 2'-5" high, 25' long Type 2S W-beam guiderail with plastic offsets.

4 - Approach railend	8 - good cond/meets stds	35

Comment: NL, NR, FL, FR: SKT-350 in the clear zone. All corners considered continuous at 87.5' or greater from the bridge.

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

Approach Alignment

4A02 **Code:** 8 - Equal Desirable Crit

Comment: No sight restrictions. No speed reduction required.

Approach Roadway

6B39 **Code:** 7 - Good

Pavement: THE APPROACH ROADWAY CONDITION WAS NOT EVALUATED AS PART OF THE JANUARY 3, 2018 INTERIM INSPECTION. ONLY PROBLEM AREAS AND ELEMENTS RELATED TO THE BRIDGE POSTING WERE EVALUATED. THE FOLLOWING APPROACH ROADWAY CONDITION DESCRIPTION IS TAKEN FROM THE 2017 NBIS INSPECTION REPORT.

Moderate wear and sealed and unsealed fine to medium longitudinal cracking along the centerline of roadway beyond the repaved portions. New bituminous patches along left travel lane of deck extend up to 4.0' into approaches.

Drainage: Natural with small rock protection. The minor erosion at far left corner at the bridge (1 CY) has been repaired with small rock protection.

Shoulders: None.

Approach Slab

6B38 **Code:** N - N/A

Pavement:

6B04 **Bump at Bridge:** No Bump

6A39 **Relief Joints:** 0 - Joints not present 6A41 **Number of Joints:** 0

Comment:

6B02 **New Wearing Surface Under Bridge:** No

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DECK AND SUPER STRUCTURE DATA

Form B

Form D-450B

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

Deck Wearing Surface

Main

5B02 **Type of Wearing Surface:** 6 - Bituminous
5B03 **Type of Memb. Water-Proof:** 0 - None
5B04 **Deck Corrosion Protection:** 8 - Unknown
6A33 **Thickness:** 3.0
6A34 **Date Recorded:** 02/17/2011

Approach

6A30 **Type of Wearing Surface:**
6A31 **Type of Memb. Water-Proof:**
6A32 **Deck Corrosion Protection:**
6A33 **Thickness:** -1.0
6A34 **Date Recorded:** 01/01/1901

6B40 **Condition Rating:** 7 - Good-some minor problems

IC02 **Dk WS Notes:** THE DECK WEARING SURFACE CONDITION WAS NOT EVALUATED AS PART OF THE JANUARY 3, 2018 INTERIM INSPECTION. ONLY PROBLEM AREAS AND ELEMENTS RELATED TO THE BRIDGE POSTING WERE EVALUATED. THE FOLLOWING DECK WEARING SURFACE CONDITION DESCRIPTION IS TAKEN FROM THE 2017 NBIS INSPECTION REPORT.

(Bituminous) Minor to moderate wear. Few sealed/unsealed (up to 1/4" wide) longitudinal cracks in right travel lane (45 LF). Large bituminous patch (200 SF) in left travel lane is new since the 1/20/16 interim inspection.

Expansion Joints

6A41 **Number of Expansion Joints:** 0

Joint Number	VD25 Joint Type	VD26 Movement Class	VD27 Manufacture Code	VD31 Bridge Seat Cleaning	VD32 Bridge Seat Cleaning Note	VD33 Scuppers w/ Downspouts	VD34 Scuppers w/o Downspouts
0				0		0	0

Deck

1A01 **Condition Rating:** 4 - Poor-advanced section loss, deterioration, spalling or scour.
6B07 **Est. Spall Delamination:** 0.00 %
6B08 **Date:** 01/01/1901
6B10 **Est. Chloride Content:** 0.00 %
6B11 **Date:** 01/01/1901
1A07 **Unrepaired Spalls:** 0.00 SF
6B47 **Deck Cracking Metric :** 0.00 YD/SY

Deck Top: The top of the deck is not visible due to the bituminous wearing surface overlay.

Top of deck was visible in 11/2010 during repaving:
Throughout - top 1/8" - 1/4" of timber was soft.
NL Quadrent - top 1/2" of timber was soft.
FAR Center - top 3/4" of timber was soft.

Deck Underside: See superstructure. There is no separate deck for this structure type.

Deck Drainage: Scuppers spaced under curbs are open and functional.

Expansion Joints: N/A

Deck Notes: N/A

Superstructure

1A04 **Condition Rating:** 4 - Poor-adv. section loss, deterioration, spalling or scour.

5A01 **SR ID:** 15721703130001 5A03 **BR Key:** 45932 7A01 **Inspection Date:** January 03, 2018

Narrative: The 3"x12" nail laminated longitudinal treated timbers on edge (105 planks in total) exhibit typical checks, splits and knots throughout with random areas of soft timber with up to 3/8" awl penetrations. There are several areas of soft rot, tar seepage and active water leakage.

BAY 1 -
Plank 30 - Full-width diagonal split located 39" from midspan with no deflection.
Plank 35 - Diagonal split in bottom 90" from NAB with no deflection.
Plank 36 - Full-width horizontal split located 70' from NAB with 1" deflection from plank 35.
Plank 38 - Full-width diagonal split with 1" downward vertical displacement located 24" from NAB.
Plank 41 - Full-width horizontal split located 3' from midspan.
Plank 44 - Full-width horizontal split located 34" from NAB.
Plank 45 - Full-width horizontal split located 2' from midspan with 3/4" deflection from plank 44.
Plank 47 - Full-width diagonal split with 2" downward vertical displacement located 8' from NAB. Full-width horizontal split located 50" from the NAB.
Plank 49 - Horizontal split at midspan.
Plank 51 - 10" long diagonal split with 3/4" downward vertical displacement from plank 52 located 32" from the NAB.
Plank 53 - Diagonal split 1/4" deflection, located 75" from NAB.
Plank 55 - Full-width diagonal split with 1/2" downward vertical displacement located 75" from the NAB.
Plank 57 - Full-width diagonal split with 1" downward vertical displacement located 9' from the NAB.
Plank 64 - Full-width horizontal split located 9' from the NAB with 1/2" deflection from plank 63.
Plank 66 - Full-width intermittent horizontal split at 74" from the NAB.
Plank 79 - 40" long longitudinal split with a 12" x 1" wide x 1" deep void at 32" from the NAB.
Plank 95 - Horizontal split 92" from the NAB with 3/4" deflection from plank 96.

Girders/Beams: BAY 2 -
Plank 6 - 4' longitudinal split from midspan toward FAB.
Plank 35 - Diagonal split extending 1' toward to the FAB located at the middle diaphragm.
Plank 38 - Horizontal split with 1" deflection, 6" from midspan.
Plank 43 - Full-width horizontal split with 1 1/2" downward vertical displacement located 5' from FAB.
Planks 44, 48,49 - Full-width horizontal splits with 1" vertical displacement located 5' from the FAB.
Plank 61 - 12" long longitudinal split 60" from the FAB.
Plank 93 - Diagonal split with 1" deflection, 8" from midspan.

Floorbeams: N/A

Stringers: N/A

Diaphragms: Full-width 12" high x 6" wide lateral bracing across midspan. There is a split with propagating checks at right end and several checks throughout.

Truss Members: N/A

Portals/Bracings: N/A

Bearings: Pile caps exhibit random checks.

Drainage System: N/A

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ABUTMENT DATA

Form C

Form D-450C

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

1A02 **Substructure Condition Rating:** 5 - Fair-all primary structural elements are sound but may have minor section loss, cracking, spalling.

Notes: THE SUBSTRUCTURE CONDITION WAS NOT EVALUATED AS PART OF THE JANUARY 3, 2018 INTERIM INSPECTION. ONLY PROBLEM AREAS AND ELEMENTS RELATED TO THE BRIDGE POSTING WERE EVALUATED. THE FOLLOWING SUBSTRUCTURE CONDITION DESCRIPTION IS TAKEN FROM THE 2017 NBIS INSPECTION REPORT.

Near Abutment

Backwall: Not visible.

Bridge Seats: Treated timber, 12 1/4" x 12 1/4". Active water stains and random checks throughout.

Cheekwalls: None.

Stem: 3" x 12" timber lagging with 12" diameter treated timber piles with aluminum caps. Pile spacing ranges from 56" to 65". Lagging board one row up from stream is displaced 1/2" outward from the other lagging boards with a void behind board. 1/2" and 1/4" gap between some boards with stone fill visible. Area behind right side of abutment was excavated, plywood placed against back of lagging to help retain new geotextile wrapped stone fill. The previous undermining along the near abutment is now filled with silt and placed rock with isolated 1" vertical gaps.

Wings: Treated timber lagging behind treated timber piles. Lagging boards 12" x 3". Since the 1/20/16 interim inspection, additional new piles and new timber caps were installed along the wingwalls. The original exposed tops of the piles exhibit center rot, up to 6" deep. Rock protection lines the left wingwall.

Footing: Not visible.

Piles: 12" diameter timber with a few checks throughout. The pile at the left end of the near left wingwall has center rot at the top up to 6" deep x full diameter. Piles 2 & 6 are out of plumb (from construction).

IN20 **Scour Undermine:** 0 - No

Settlement: None observed.

Embank Slope-wall: N/A

Wall Drainage: 4" pipe at base of WNR - Appears clear and functional.

Far Abutment

Backwall: Not visible.

Bridge Seats: Treated timber, 12 1/4" x 12 1/4". Active water leakage and checks throughout.

Cheekwalls: None.

Stem: 3" x 12" timber lagging with 12" diameter treated timber piles with aluminum caps. Pile spacing ranges from 56" to 65". The previous undermining along the far abutment is now filled with placed rock.

Wings: Treated timber lagging behind treated timber piles. Lagging boards 12" x 3".
WFL 12' long. Since the previous (1/20/16) interim inspection, additional new piles and new timber caps were installed along the wingwalls. The original exposed tops of the piles exhibit center rot, up to 6" deep. Placed rock lines the wingwall.

Footing: Not visible.

Piles: 12" diameter treated timber. Far left pile is split 18" x 2" at the top along the back. Piles 3 & 4 are sistered. Piles 1, 2, 4 and 5 are out of plumb (from construction).

IN20 **Scour Undermine:** 0 - No

Settlement: None observed.

Embank Slope-wall: N/A

Wall Drainage: None.

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FRACTURE CRITICAL
Form F

Form D-450F

5A01 SR ID: 15721703130001 | 5A03 BR Key: 45932 | 7A01 Inspection Date: January 03, 2018

Main

6A44 Group: 9 - Group 9
6A45 - 6A48 Critical Ranking Factor: 9993
6A49 Total Critical Ranking Factor: 30

Structure Type (Dept)

6A26 Material Makeup: 5 - Timber
6A27 Physical Makeup: 9 - Other or none
6A28 Span Interaction: 1 - Simple, non-comp
6A29 Structural Config: 99 - Other

Approach

6A44 Group:
6A45 - 6A48 Critical Ranking Factor: 000
6A49 Total Critical Ranking Factor: 0

Structure Type (Dept)

6A26 Material Makeup:
6A27 Physical Makeup:
6A28 Span Interaction:
6A29 Structural Config:

Fracture Critical Details

IF01 Location: | IF02 Type: | IF05 FC Stress Category:
IF03 Member:

IF04 Member Detail:
IF06 Notes:

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UNDERWATER INSPECTION
Form G

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

IU00a **UW Reviewer Action:**

IU00b **Reviewer Comments:**

IU02 **Number of Units:** 0 | IU01 **Recalculate SCBI:** 0 - no recalc needed

IU03 **SCBI Source:** O - observed | 4A08 **SCBI:** 8 - Stable Above Footing

IU04 **Overall SCBI:** 8 | IU05 **SAR:** 78.00

IU04b **SCBI Recalculated:** ☐

IU06 **Streambed Material #1:** A5 - Stable nat alluvium

IU06 **Streambed Material #2:**

IU07 **Notes:** Boulders, gravel and sand.

Current Countermeasures

CM Num	IU21 Type	IU22 Location	IU23 Condition	IU24 Subunit

Possible Countermeasures

PCM Num	IU25 Location	IU26 Work Candidate

SAR Calculation Data

IU08 **Debris Potential:** 1 - Medium

IU09 **Trapping Potential:** 2 - High

IU10 **Pressure Flow:** 0 - No

IU11 **NAB Location:** 2 - Right | IU12 **FAB Location:** 1 - Left

US Left Wingwall

IU13 **Presence:** 1 - Yes | IU14 **Condition:** 1 - Good

US Right Wingwall

IU15 **Presence:** 1 - Yes | IU16 **Condition:** 1 - Good

Horizontal Debris Blockage

IU17 **Start:** 0 | IU18 **End:** 0

Vertical Debris Blockage

IU19 **Start:** 0 | IU20 **End:** 0

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UNDERWATER INSPECTION

Form G

5A01 SR ID: 15721703130001 5A03 BR Key: 45932 7A01 Inspection Date: January 03, 2018

Sub Unit OSA Data

Observed Scour Rating Components

IN01 Sub Unit	IN12 Pier/ Abut Type	IN13 Inv. Found Type	IN14 Found Type	IN15 Strmbd Mat	IN19 Move Ind	IN04 Chg Since Last Insp	IN05 Scour Hole	IN06 Debris Potential	IN07 Scour-ability	IN08 Opening Adeq. / Channel	IN09 Sediment	IN10 Alignment	IN11 Velocity/ Stream Slope	IN03 Observed Scour Rating
FAB	7	G	3	A5	0	8	9	6	5	8	8	6	7	6
NAB	7	G	3	A5	0	8	9	6	5	8	7	5	7	6

Other Subunit Details

IN01 Sub Unit	IN16 UW Insp Type	IN18 Water Dept	IN17 Observed Scour Depth	IN20 Scour Undermine	IN21 Counter-measures	IN02 Info from Current Insp	IN22 100 yr Flood Calc Scour Depth	IN23 500 yr Flood Calc Scour Depth	IU27 SCBI Code
FAB	E	0.0	0.0	0	0	0	0.0	0.0	8

IN24 Notes: THE UNDERWATER CONDITION WAS NOT EVALUATED AS PART OF THE JANUARY 3, 2018 INTERIM INSPECTION. ONLY PROBLEM AREAS AND ELEMENTS RELATED TO THE BRIDGE POSTING WERE EVALUATED. THE FOLLOW UNDERWATER CONDITION DESCRIPTION IS TAKEN FROM THE 2017 NBIS INSPECTION REPORT. No scour. Previous undermining of lagging boards is protected with placed rock.

NAB	E	0.0	0.0	0	0	0	0.0	0.0	8

IN24 Notes: THE UNDERWATER CONDITION WAS NOT EVALUATED AS PART OF THE JANUARY 3, 2018 INTERIM INSPECTION. ONLY PROBLEM AREAS AND ELEMENTS RELATED TO THE BRIDGE POSTING WERE EVALUATED. THE FOLLOW UNDERWATER CONDITION DESCRIPTION IS TAKEN FROM THE 2017 NBIS INSPECTION REPORT. No scour. Previous undermining of lagging boards is protected with placed rock.

Underclearance

IL09 Origin Description:
IL10 Horizontal:
IL11 Vertical:
IL12 Notes:

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CHANNEL AND WATERWAY DATA

Form J

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

Channel

1A05 **Channel/ Channel Protection Cond. Rating:** 6

Channel: THE CHANNEL CONDITION WAS NOT EVALUATED AS PART OF THE JANUARY 3, 2018 INTERIM INSPECTION. ONLY PROBLEM AREAS AND ELEMENTS RELATED TO THE BRIDGE POSTING WERE EVALUATED. THE FOLLOWING CHANNEL CONDITION DESCRIPTION IS TAKEN FROM THE 2017 NBIS INSPECTION REPORT.

No scour. The channel flows left to right and enters from a 30 degree skew upstream toward the far abutment, flows parallel to the far abutment and exits straight. The thalweg is at the 2/3 point.

Banks: Moderately sloped, well vegetated with medium to large trees and moderate to severe erosion downstream.

Streambed Movements: Near 1/4 of span silted to depth of 1', about 3" below the waterline.

Debris, Vegetation: Timber debris accumulation at the near left (upstream) bank (5 C.Y.) and far left (upstream) bank (1 C.Y.).

River Control Devices: None.

Embank/Strmbed Contr: Placed rock at upstream wings in place; placed rock at both abutments about 1' into channel and downstream far wing. At wings the placed rock is 1.5' to 2.5' diameter and abutments 0.5' to 1.0' diameter.

Drift Other: None.

Waterway Adequacy

1A06 **Appraisal Code:** 7

Notes: Approaches level with the deck.

IL02 **Overtop Risk:** S - Slight

IL03 **Traffic Delay:** I - Insignificant

5C22 **Functional Class:** 09 - Rural Local

High Water Mark

IL05 **Elevation:** -1.0 | IL06 **Date:** January 01, 1901 | IL07 **New High Water Mark:** No

Notes: Near approach washed out behind abutment during Tropical Storm Nicole 10-30-2010.
High water mark unknown. Reference datum: Underside of left fascia to water surface at mid-span = 6.8'.

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PAINT, STRUCTURE APPRAISAL AND LOAD RATINGS

Form K

5A01 SR ID: 15721703130001 | 5A03 BR Key: 45932 | 7A01 Inspection Date: January 03, 2018

Paint Condition

6B36 Paint Cond Rating: N - Not Applicable

6B37 Ext of Paint Cond: N - Not Applicable

6B35 New Paint: 0 - no new paint

Int Beam / Gird: N/A
Fascias: N/A
Splsh Zone Truss Gird: N/A
Truss: N/A
Bearings: N/A
Other: N/A

4B03 Brdge Cap. Appraisal: 0 - >39.9% below

6B19 Controlling: 3 - ML80

Load Ratings

4B15 Load Rating Review Recommended: Recalc not required
Due To:

IR03 Calculation Date: June 07, 2011

IR02 Rating Approval Date: June 23, 2011

Load Rating Details

IR10	IR11	IR11a	IR05	IR06	IR07	IR16	IR14	IR15	IR13	IR12
LOAD TYPE	IR LOAD	OR LOAD	SLC RATING	NBI IND	RTNG ANAL METH	CONT MEM TYPE	ANALYSIS ENGINEER	AASHTO MANUAL YEAR	AASHTO SPEC YEAR	OPR GOV CRITERIA	INV GOV CRITERIA
2	21	32	28	1	1	5	McCormick Taylor	2004	1996	M	M
Notes Description: allowable stress method											
1	12	18	18	0	5	5	McCormick Taylor	2004	1996	M	M
Notes Description:											
8	13	19	17	0	5	5	McCormick Taylor	2004	1996	M	M
Notes Description:											
0	15	23	20	0	5	5	McCormick Taylor	2004	1996	M	M
Notes Description:											

Date Printed January 05, 2018

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MAINTENANCE NEEDS DATA
Form M

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

Proposed Maintenance Items :-

IM01 Type of Work	IM03 Action	IM04 Est Qty	UOM	IM05 Priority	IM06 Init Recm'd Date	IM08 Target Year	IM11 Ass. WK
Flexible	70 -	1	EA	2	01/03/2018	0	No

IM07 **Status:** 0 - Work not planned
IM09 **Location:** N. Advance
IM15 **Notes:** Reset leaning near advance posting signs at Newark Road.

Flexible	62 -	21	EA	2	01/20/2016	0	No

IM07 **Status:** 2 - Work planned/Contr
IM09 **Location:** 1
IM15 **Notes:** Repair/replace split superstructure timbers.

Previous (12/14/10) quantity '15' changed based on 1/20/16 inspection.

#1 The maintenance item has been changed from a "1 - High Priority" to a "2 - Priority" due to the current bridge posting of 17 Tons Except Combinations 28 Tons taking into account the cracked deck members.
#2 A letter was sent to the township on March 10, 2011.

Flexible	10 -	72	SY	2	01/13/2015	0	No

IM07 **Status:** 0 - Work not planned
IM09 **Location:** 1
IM15 **Notes:** Mill existing bituminous, install waterproof membrane and repave (thickness not to exceed 3").

Flexible	67 -	6	EA	3	02/26/2014	0	No

IM07 **Status:** 2 - Work planned/Contr
IM09 **Location:** N F
IM15 **Notes:** Repair the rotted piles where exposed.

Flexible	3 -	6	CY	4	01/13/2015	0	No

IM07 **Status:** 0 - Work not planned
IM09 **Location:** UP
IM15 **Notes:** Remove timber debris from upstream channel.

Flexible	40 - ~~Pr Maint~~	1	SY	4	01/13/2015	0	No

IM07 **Status:** 0 - Work not planned
IM09 **Location:** N F
IM15 **Notes:** Seal cracks.

Date Printed January 05, 2018

5A01 SR ID: 15721703130001 | 5A03 BR Key: 45932 | 7A01 Inspection Date: January 03, 2018

Completed Maintenance Items :-

IM01 Type of Work	IM03 Action	IM04 Est Qty	UOM	Priority	IM05 Completed Date	IM06 Target Year	IM08 Ass. WK	IM11
Flexible	70 -	1.00	EA	0	02/29/2016	0	No	

IM07 Status: 5 - Completed/Dept

IM15 Notes: Replace incorrect near advance load posting signs at Newark Road. Weight values should be 17 Tons Except Combinations 28 Tons.

#1 N/A
#2 Priority notification letter sent to Joan McVaugh of Franklin Township on 2/29/2016.
#3 Prior to the 1/25/17 routine inspection, the incorrect near advance weight limit signs at Newark Road were replaced with the correct weight limits.

IM09 Location: N. Advance

IM01 Type of Work	IM03 Action	IM04 Est Qty	UOM	Priority	IM05 Completed Date	IM06 Target Year	IM08 Ass. WK	IM11
Flexible	47 -	1.00	EA	3	01/13/2015	0	No	

IM07 Status: 5 - Completed/Dept

IM15 Notes: Repair the erosion at the bridge at the far left corner.

#1 N/A
#2 Prior to the 1/25/17 routine inspection, rock was placed in the eroded area.

IM09 Location: FLt

IM01 Type of Work	IM03 Action	IM04 Est Qty	UOM	Priority	IM05 Completed Date	IM06 Target Year	IM08 Ass. WK	IM11
Flexible	70 -	3.00	EA	5	02/26/2014	0	No	

IM07 Status: 5 - Completed/Dept

IM15 Notes: The Supplemental Near Advance posting is not within 25' of the Newark Road intersection and the distance plaque should read "1 1/4 MILE AHEAD" instead of "1 2/10 MILE AHEAD. Replace the non-standard white distance plaques at the Supplemental Near Advance, Near Advance, and Far Advance with standard yellow background distance plaques.

#1 N/A
#2 Prior to the 1/13/15 inspection, the supplemental near advance was moved to within 25' of the intersection. Also the distance plaques were replaced with standard yellow background signs.

IM09 Location:

IM01 Type of Work	IM03 Action	IM04 Est Qty	UOM	Priority	IM05 Completed Date	IM06 Target Year	IM08 Ass. WK	IM11
Flexible	70 -	1.00	EA	0	02/24/2012	0	No	

IM07 Status: 6 - Completed/Contr

IM15 Notes: FADV - replace the non-standard "485 FT AHEAD" distance plaque to read "500 FEET AHEAD" at the South Guernsey Road intersection.

#1 The Township replaced the sign on February 20, 2013.
#2 Priority notification letters were sent to Ms. Joan McVaugh, Franklin Township's Township Manager, on February 28, 2012 and February 4, 2013.

IM09 Location:

Flexible 24 - ~~Scour~~ 1.00 EA 0 02/24/2012 0 No

IM07 **Status:** 6 - Completed/Contr

IM15 **Notes:** NADV - Cut/Remove the vegetation blocking the load posting located at the Conard Mill Road intersection.

#1 Observed completed during the 2013 NBIS Inspection.
#2 A priority notification letter was sent to Ms. Joan McVaugh, Franklin Township's Township Manager, on February 28, 2012.

IM09 **Location:**

Flexible 70 - 2.00 EA 0 06/23/2011 0 No

IM07 **Status:** 5 - Completed/Dept

IM15 **Notes:** NADV - Cut/Remove the vegetation blocking the load posting located at the Conard Mill Road intersection.

FADV - replace the non-standard "485 FT AHEAD" distance plaque to read "500 FEET AHEAD" at the South Guernsey Road intersection.

#1

#2 A priority notification letter was sent to Ms. Joan McVaugh, Franklin Township's Township Manager, on February 28, 2012.

IM09 **Location:**

Flexible 22 - ~~Raise~~ 1.00 CY 2 02/14/2011 0 No

IM07 **Status:** 6 - Completed/Contr

IM15 **Notes:** Repair undermining below timber lagging boards at both abutments.

#1 Observed completed during 2013 NBIS Inspection.

IM09 **Location:**

Flexible 60 - ~~Other~~ 3.00 EA 3 02/14/2011 0 No

IM07 **Status:** 5 - Completed/Dept

IM15 **Notes:** Repair/replace the timber caps at the far wingwalls.

#1 N/A
#2 Prior to the 1/25/17 routine inspection, the timber caps on the wingwalls were replaced.

IM09 **Location:** FAB

Flexible 27 - 4.00 EA 2 12/14/2010 0 No

IM07 **Status:** 6 - Completed/Contr

IM15 **Notes:** Install standard transitions, approach guiderail and end treatments at each corner.

#1 Observed completed during 2013 NBIS inspection.

IM09 **Location:**

Flexible 10 - 70.00 SY 3 12/14/2010 0 No

IM07 **Status:** 6 - Completed/Contr

IM15 **Notes:** replace wearing surface

IM09 **Location:**

5A01 **SR ID:** 15721703130001 **5A03** **BR Key:** 45932 **7A01** **Inspection Date:** January 03, 2018

Flexible	13 - ~~Remove~~	10.00	CY	3	12/14/2010	0	No

IM07 **Status:** 6 - Completed/Contr

IM15 **Notes:** Install rock protection along both abutments.

#1 Observed completed during 2013 NBIS Inspection.

IM09 **Location:**

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INSPECTION ADMINISTRATION
Form P

5A01 **SR ID:** 15721703130001 | 5A03 **BR Key:** 45932 | 7A01 **Inspection Date:** January 03, 2018

Current Inspection

7A03 **Primary Type:** I - Interim (special)

7A06 **Types of Inspections Performed:**

NBI	Underwater	Element	Fracture Critical	Other Special
No	No	No	No	Yes

Inspection Man Hours

6B26	NBI Crew:	14.00	6B30	Underwater:	0.00
6B28	Fracture Critical:	0.00	6B29	Other 1:	0.00
6B27	Crane:	0.00	6B31	Other 2:	0.00

Inspection Costs (Entered to nearest dollar)

6B32	Engineering:	1,925	6B33	Rigging:	0
			6B34	Office:	0

Special Equip Used:

6B12 **Temperature:** 15.0 | 6B09 **Weather:** 1 - Clear

6B03 **Inventory Review Recommended:** No

Change Notes:

Inspection Team

7A05 **Inspected By:** 8 - Consulting Firm
7A02 **Team Leader:** Pickering, Corts & S Gross
6B23 **Team Member:** B. Fink
6B24 **Hired By:** 1
6B25 **Insp Contract Num:** E03654
2A02 **Inspection Notes:** No utilities. No asbestos.

Based on the superstructure and deck condition ratings ('4 - Poor'), the bridge is considered structurally deficient.

Bridge requires a 12 month interim inspection due to being load posting.

The S.C.B.I. was calculated in iForms on 2/6/17 and returned a code of '8'. Based on the S.C.B.I. code of '8', the bridge is not considered scour critical.

Only problem areas and elements related to the bridge posting were evaluated during the 2018 interim inspection.

Work done since the 1/25/17 routine inspection:
- None.

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INSPECTION ADMINISTRATION
Form P

5A01 SR ID: 15721703130001 5A03 BR Key: 45932 7A01 Inspection Date: January 03, 2018

Next Inspection

7A14 Next Inspection By: 8 - Consulting Firm

6B20 Next Insp Type: R - Regular (routine)

Schedule

Insp Types	7A07 Required	7A09 Frequency	7A10 Next Date
NBI	----	24	January 25, 2019
Fractical Critical	No	-1	January 01, 1901
Underwater	No	-1	January 01, 1901
Other Special	Yes	12	January 25, 2019
Element	No	-1	January 01, 1901
Crane	----		6B18 January 01, 1901

6B01 Special InspType: 4 - Problem areas only

Estimated Inspection Man Hours

7A12	NBI Crew:	0.00	7A17	Underwater:	0.00
7A15	Fracture Critical:	0.00	7A16	Other 1:	0.00
7A13	Crane:	0.00	7A18	Other 2:	0.00

FIELD NOTES

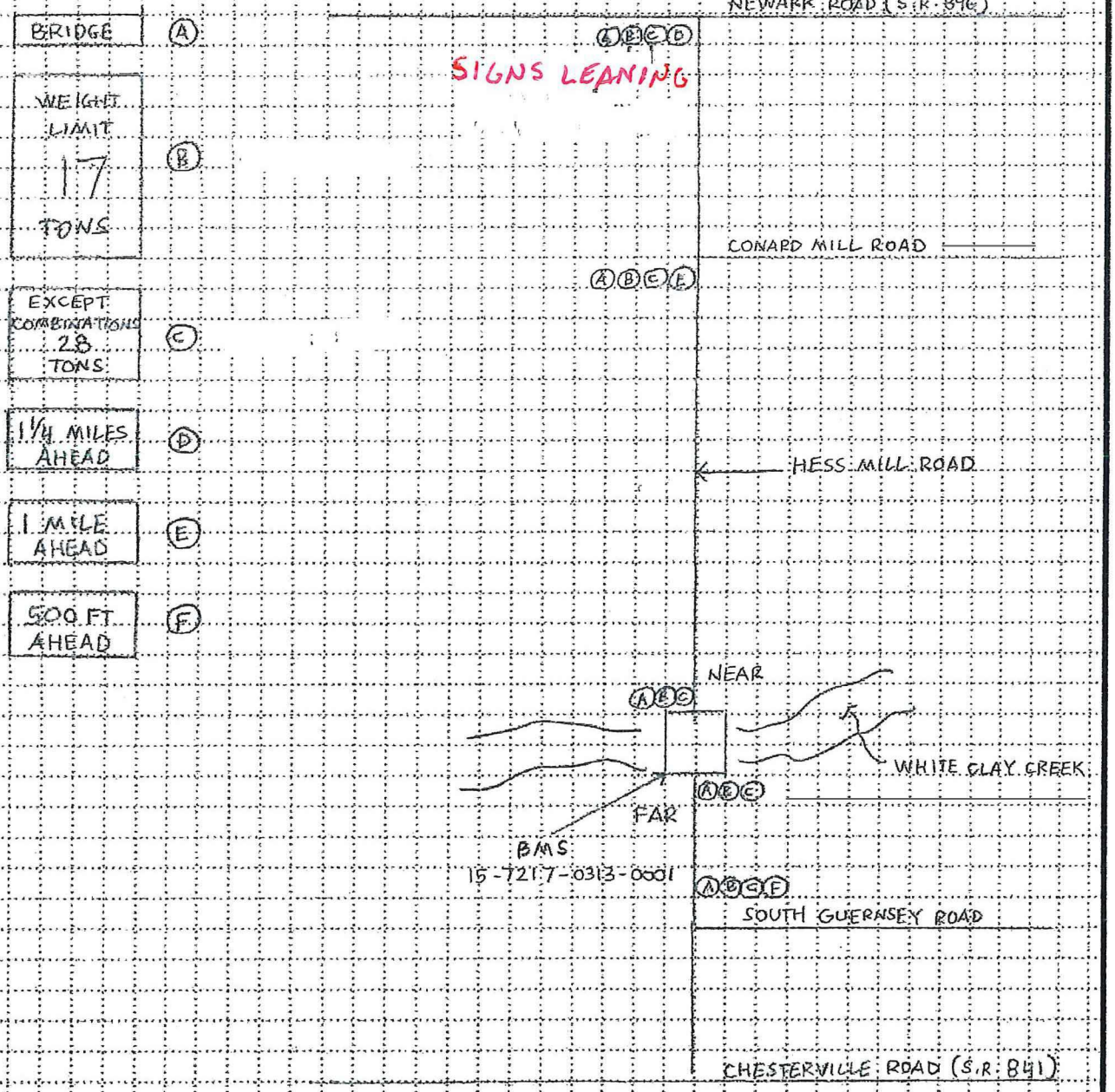
BMS No. 15-7217-0313-0001

District 6-0
Chester County

By MJH Date 1/13/15
Sheet 1 of 1

VERIFIED KEG 1/20/16
UPDATED 1/25/17 JK
MODIFIED KEG 1/3/18

LOAD POSTING SIGNAGE DETAIL



PICKERING, CORTS & SUMMERSON, INC.

Category: D-1
Chester County

BRKEY# 45932
Inspection Date: 1/3/18

BMS ID: 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

1. Near approach, looking ahead.

2. Far approach, looking back.

BMS ID: 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

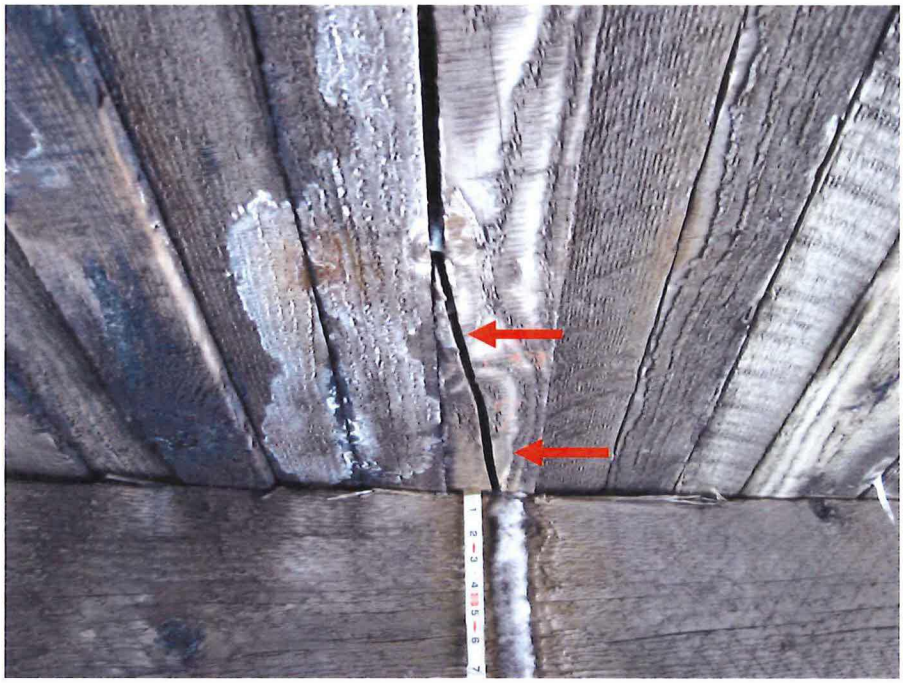
3. Left (upstream) elevation.

4. Right (downstream) elevation.

BMS ID: 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

5. General view of the deck wearing surface, looking ahead.

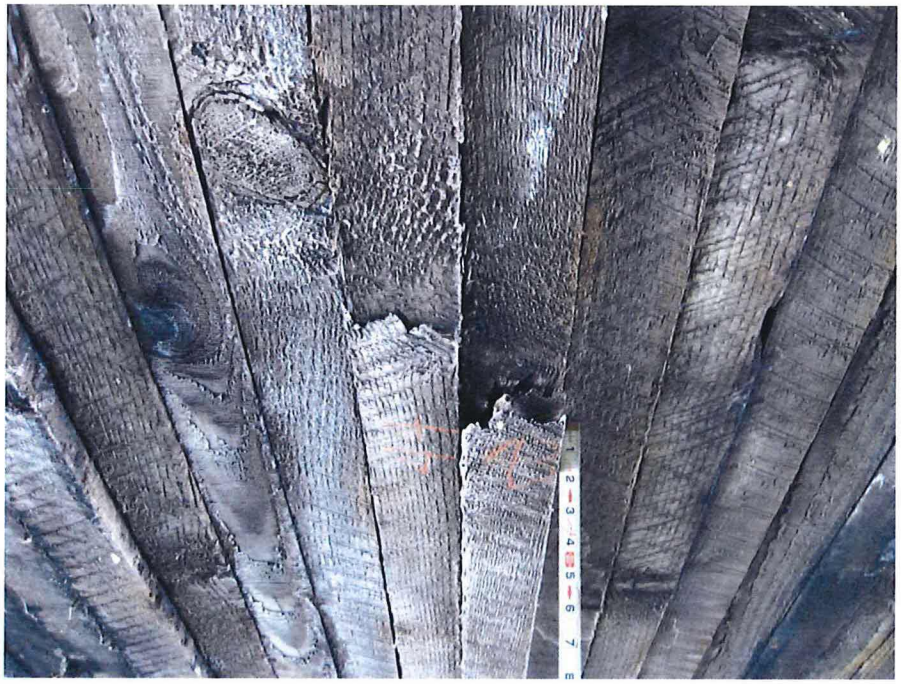
6. General view of the superstructure, looking ahead.



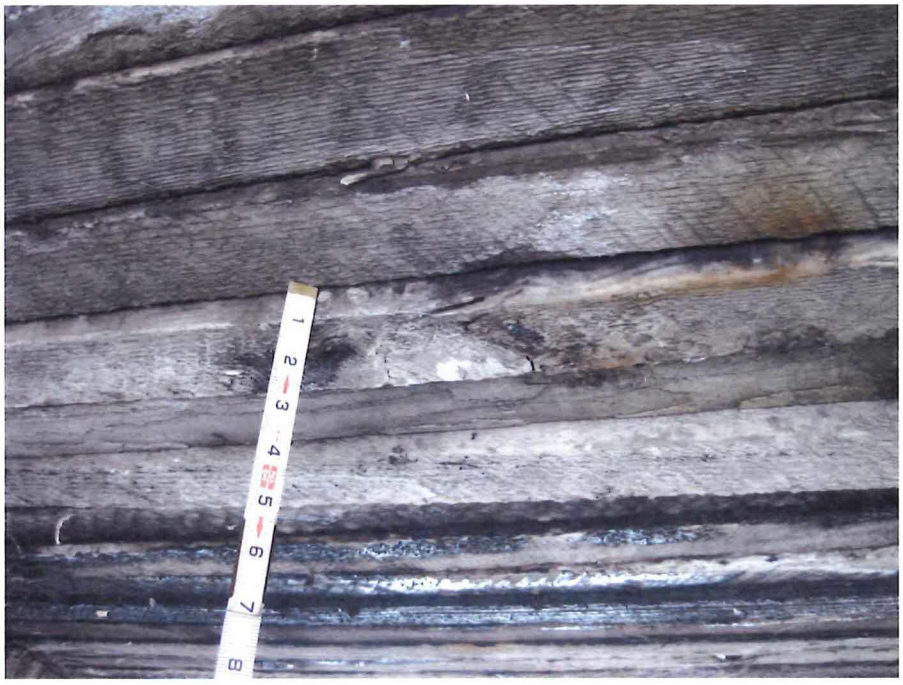
7. Timber plank 35 in bay 2, looking back. Note the diagonal split with vertical displacement.

8. Timber plank 36 in bay 1, looking back. Note the horizontal split with vertical displacement.

9. Timber plank 38 in bay 1, looking left. Note the diagonal split with vertical displacement.

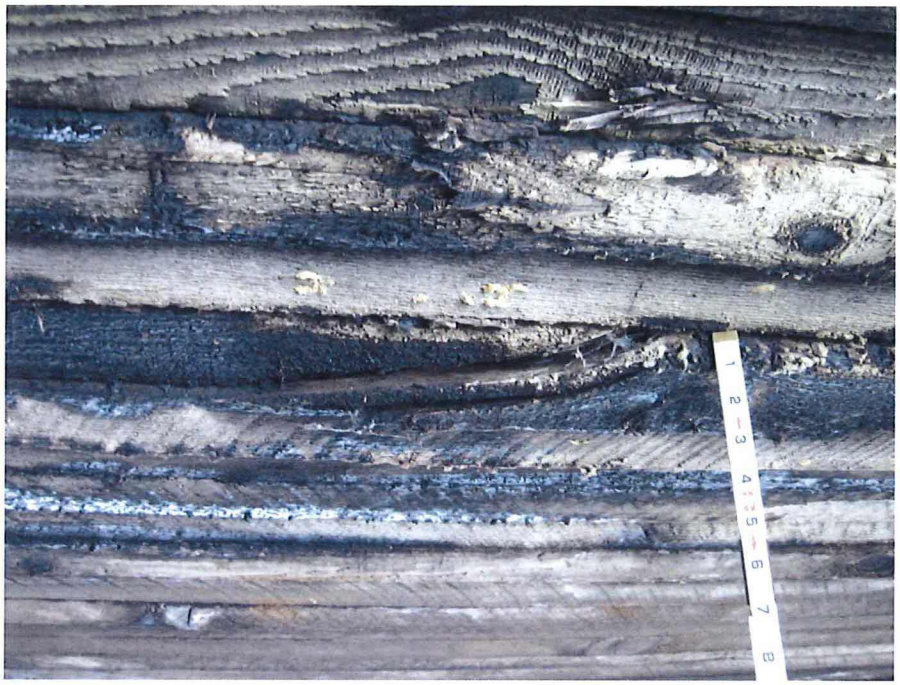


10. Timber planks 43 and 44 in bay 2, looking back. Note the splits with vertical displacement.

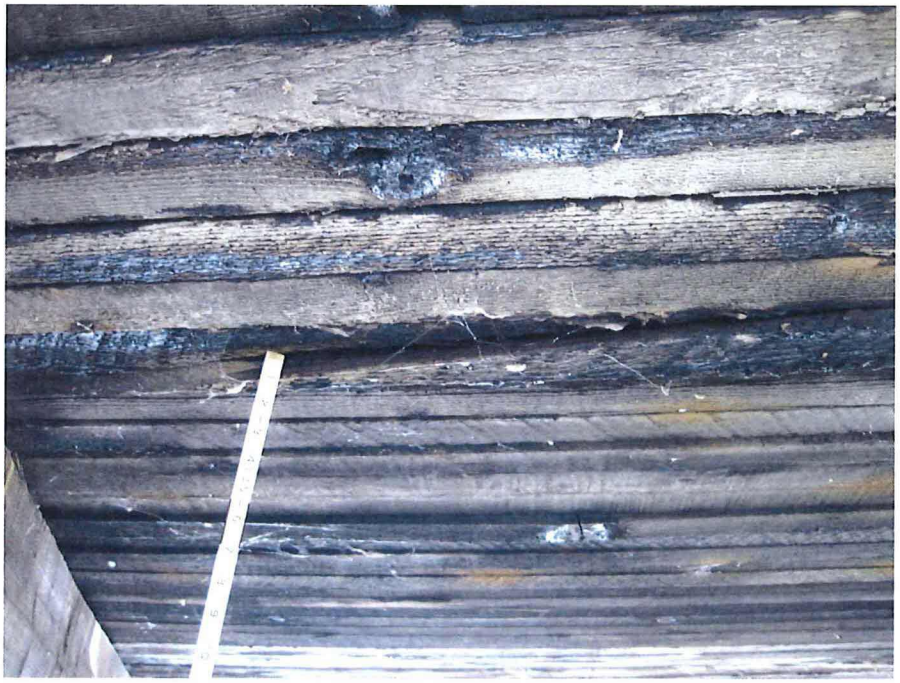


11. Timber plank 45 in bay 1, looking right. Note the horizontal split with vertical displacement.

12. Timber plank 47 in bay 1, looking left. Note the diagonal split with vertical displacement.



13. Timber plank 51 in bay 1, looking ahead. Note the diagonal split with vertical displacement.



14. Timber plank 57 in bay 1, looking right. Note the diagonal split with vertical displacement.

BMS ID: 15 7217 0313 0001
Hess Mill Road over West Branch of White Clay Creek

15. Near advance load posting sign at Newark Road (S.R. 0896). Note the sign is leaning.