2-DIST	B.I.N.
03	BHH

UNDERWATER OPERATIONS TEAM
ROUTINE UNDERWATER INSPECTION REPORT

BR. DEPT. NO.: W-11-015

CITY/TOWN	8-STRUCTURE NO.	LEVEL OF INSPECTION	93B-DATE INSPECTED
WAYLAND	W11015-BHH-DOT-RRO	IV	NOV 16, 2015

07-FACILITY CARRIED	ACCESS TO BRIDGE	UNDERWATER OPERATIONS ENGINEER
RR BMRR (ABAND)	EMBANKMENT	RANDI E. BONICA Randi E. Bonica

06-FEATURES INTERSECTED	DEPTH	VISIBILITY	TEAM LEADER (DIVE MASTER)	*Report submitted by:*
WATER SUDBURY RIVER	2.5 m	1 m	RANDI E. BONICA	R. Bonica

BOTTOM CONDITION	CURRENT	TEAM MEMBERS
GRAVEL, SILT	SLIGHT	G. BROZ, B. FITZGERALD, J. A. MANKOWSKY

ITEM 60 *SUBSTRUCTURE* — 4

		DEF
1. Abutments	N	
a. Pedestals	N	-
b. Bridge Seats	N	-
c. Backwalls	N	-
d. Breastwalls	N	-
e. Wingwalls	N	-
f. Slope Paving/Rip-Rap	N	-
g. Pointing	N	-
h. Footings	N	-
i. Piles	N	-
j. Scour	N	-
k. Settlement	N	-
l.	N	-
2. Piers or Bents	N	
a. Pedestals	N	-
b. Caps	N	-
c. Columns	N	-
d. Stems/Webs/Pierwalls	N	-
e. Pointing	N	-
f. Footing	N	-
g. Piles	N	-
h. Scour	N	-
i. Settlement	N	-
j.	N	-
k.	N	-
3. Pile Bents	N	
a. Pile Caps	N	-
b. Piles	4	S-A
c. Diagonal Bracing	5	M-P
d. Horizontal Bracing	N	-
e. Fasteners	4	S-A
UNDERMINING (Y/N)		N

ITEM 61 *CHANNEL & CHANNEL PROTECTION* — 6

		DEF
1. Channel Scour	7	-
2. Embankment Erosion	6	-
3. Debris	4	M-A
4. Vegetation	7	-
5. Utilities	X	-
6. Rip-Rap/Slope Protection	5	M-P
7. Aggradation	6	-
8. Fender System	N	-
a. Piles	N	-
b. Diagonal Bracing	N	-
c. Horizontal Bracing	N	-
d. Wales	N	-
e. Fasteners	N	-
f. Ladders	N	-
9.	N	-

ITEM 59 *SUPERSTRUCTURE*

		DEF
	N	-
	N	-
	N	-

ITEM 62 *CULVERTS* — N

		DEF
1. Roof	N	-
2. Floor	N	-
3. Walls	N	-
4. Headwall	N	-
5. Wingwall	N	-
6. Pipe	N	-
7. Protective Coating	N	-
8. Embankment	N	-
9. Wearing Surface	N	-
10. Railing	N	-
11. Sidewalks	N	-
12. Utilities	N	-
13. Member Alignment	N	-
14. Deformation	N	-
15. Scour	N	-
16. Settlement	N	-
17.	N	-
18.	N	-
UNDERMINING (Y/N)		N

DEFICIENCY REPORTING GUIDE

DEFICIENCY: A defect in a structure that requires corrective action.

CATEGORIES OF DEFICIENCIES:

M= Minor Deficiency- Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor scouring, etc.

S= Severe/Major Deficiency- Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroding rebars, Deteriorated timber piles, Considerable settlement, Considerable scouring or undermining, etc.

C-S= Critical Structural Deficiency- A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

C-H= Critical Hazard Deficiency- A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Any part of piles or fender system which are projecting outward and may become a safety hazard for the navigational traffic, etc.

URGENCY OF REPAIR:

I=Immediate- [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her.]

A=ASAP- [Action/Repair should be initiated by District Maintenance Engineer or the responsible party (if not a State owned bridge) upon receipt of the Inspection Report.]

P=Prioritize- [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available.]

X=UNKNOWN **N=NOT APPLICABLE** **H=HIDDEN/INACCESSIBLE** **R=REMOVED**

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REMARKS

GENERAL REMARKS

This timber pile supported railroad bridge has been closed and abandoned. The MassDOT Dive Team was requested to inspect the underwater elements prior to it being used as a Rail Head project.

Orientation:
There are nine timber pile bents. Six bents were inspected. Bents are numbered from left to right looking downstream. Piles are lettered from downstream to upstream. Bents #1, #8 and #9 and both abutments are in the dry and were not inspected. Abutments are spill-through with timber piles and and backwalls. Bent #9 has six square columns above round timber piles. The round piles are exposed approximately 1' high. Each bent has six timber piles, approximately 1' diameter.

ITEM 60 - SUBSTRUCTURE

Item 60.3 - Pile Bents
Item 60.3.b - Piles

Piles have minor checking and cracks and are bleached above water.
End piles are battered.
There are random open bolt holes above water.

Bent #1:
In the dry, some issues were noted.
Pile A - Rot at top, pile is no good.
Pile B - Rot at top, pile is no good.
Pile F - Rot at top, hollow sounding.

Bent #2:
Pile A - Rot at top, pile is no good
Pile B - Pile has 0.1' wide split, full height, 0.3' penetration.

Bent #4:
Piles C and E were not driven vertical.

Bent #5:
Pile B - There is a square timber spliced onto the round pile. It is approximately 5' high below the cap. The bottom of the timber has rot and is no good.
Pile F - Pile is completely rotted at the top and is not connected to the cap, pile is no good.

Bent #8:
In the dry, some issues noted.
Pile E - There is a square timber spliced onto the round pile, similar to Bent #5, Pile B. The top of the pile has rot and is no good.

Item 60.3.c - Diagonal Bracing

Bent #3:
Lower diagonal at Pile A is detached.

Bent #4:
Spacer blocks at Bent #4 diagonals are rotted, broken or missing.

Bent #5:
Lower diagonal at Piles A and B is split and disconnected.

Bent #6:
Lower diagonal at Piles A and B is disconnected.

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REMARKS

Item 60.3.e - Fasteners
Diagonal fasteners are rusty with up to 100% section loss. Some have failed.

ITEM 61 - CHANNEL AND CHANNEL PROTECTION

Item 61.2 - Embankment Erosion
The left (west) embankment has erosion and the abutment piles are exposed, approximately 1' high.

Item 61.3 - Debris
All bents have branches and other debris at the upstream end. The heaviest accumulation is between Bents #5 and #6, from the mudline to the waterline. There are multiple cut-off piles in every span under the bridge catching debris. These 5'+/- high piles extend approximately 1' above the waterline. Some debris was removed by divers.

Item 61.6 - Rip-Rap/Slope Protection
There are scattered boulders at the upstream left and downstream right embankments. Riprap at the upstrream left embankment has some displacement.

Item 61.7 - Aggradation
There is a vegetated island upstream of the bridge.

Sketch Log
Sketch 1 : PLAN VIEW (NTS)

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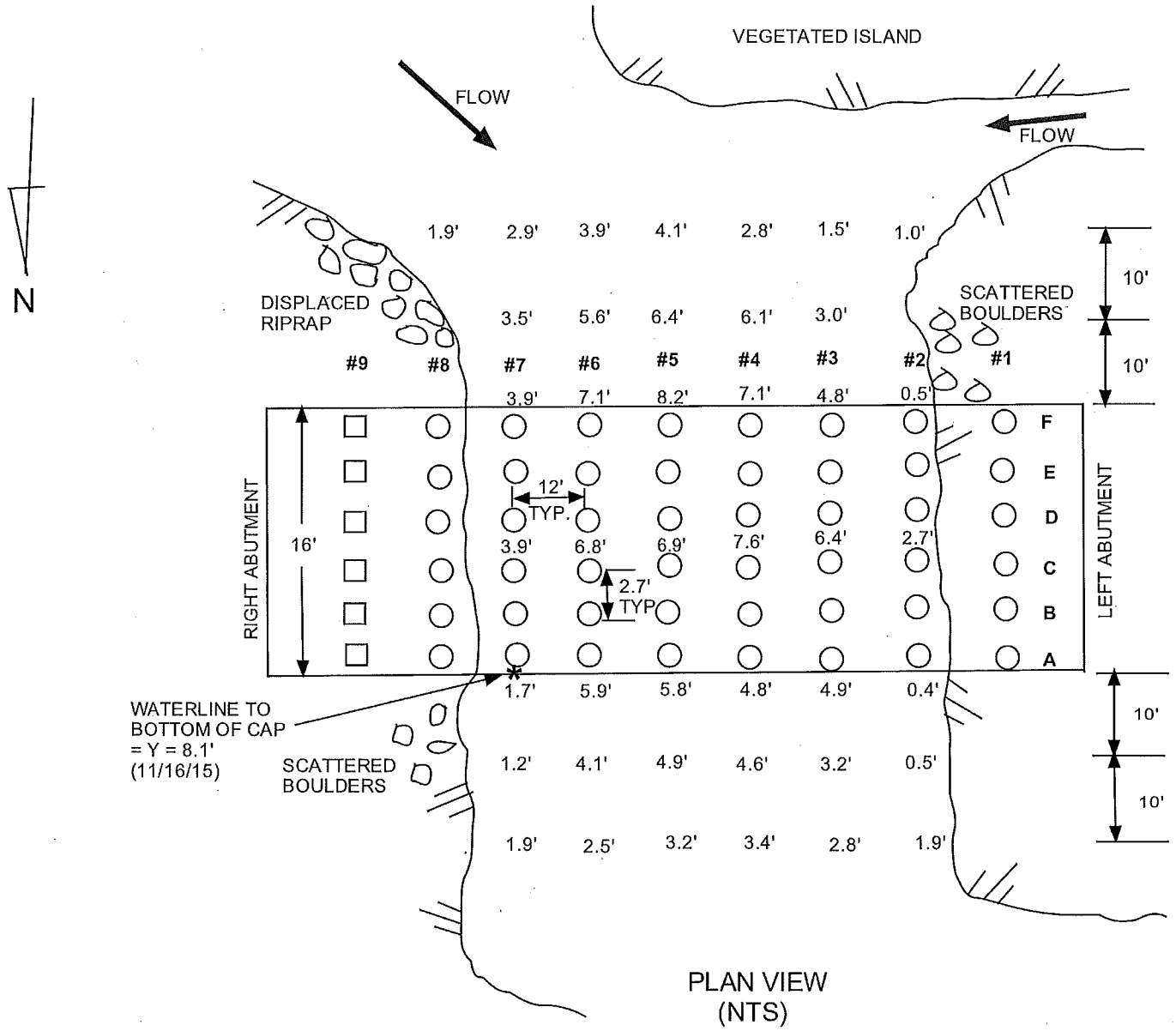
SKETCHES



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