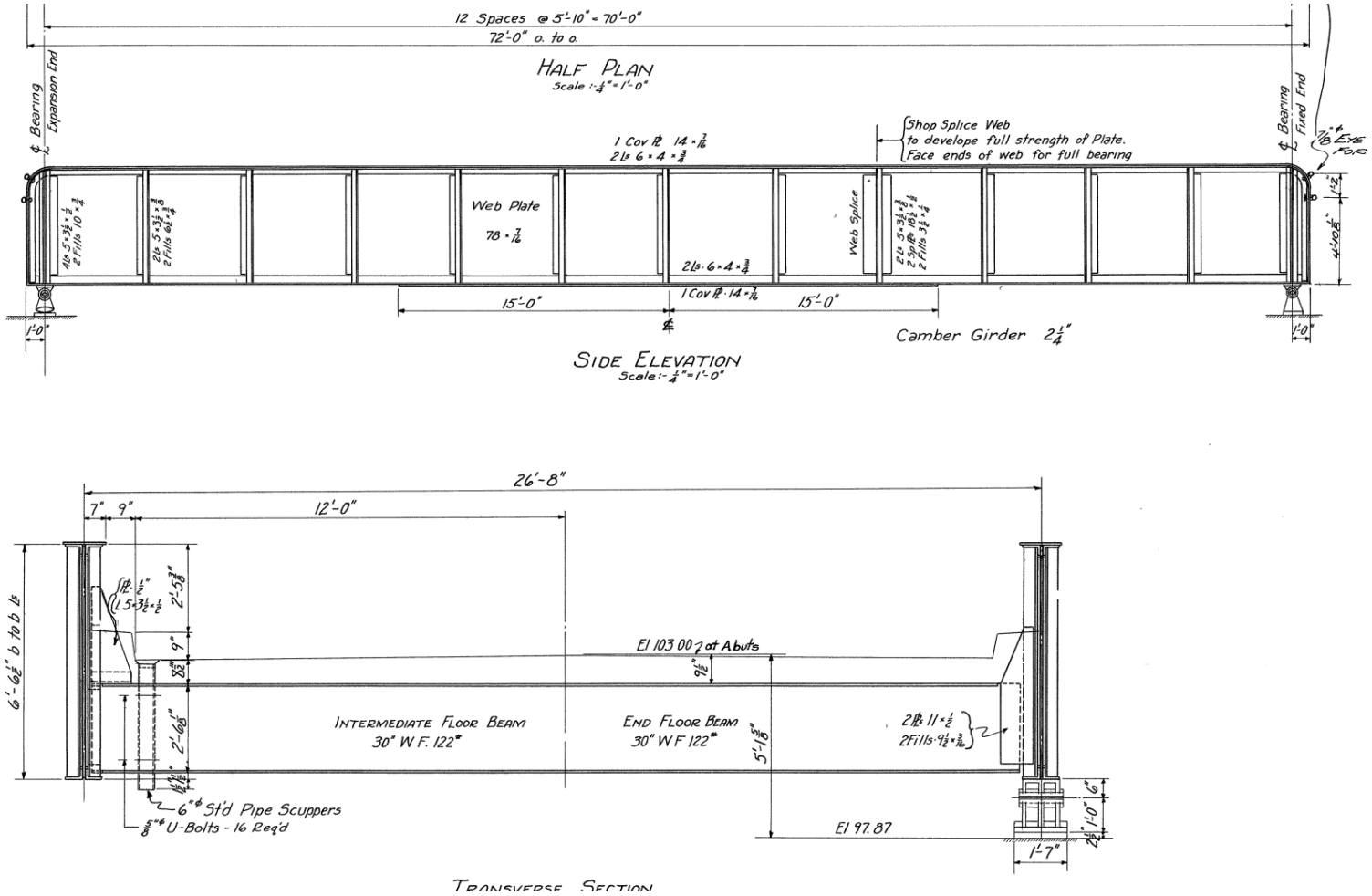
Replacement of Non-Redundant TPG Cover Plates

NHDOT Bridge Maintenance
Andrew Hall, PE

Existing Plan and Details

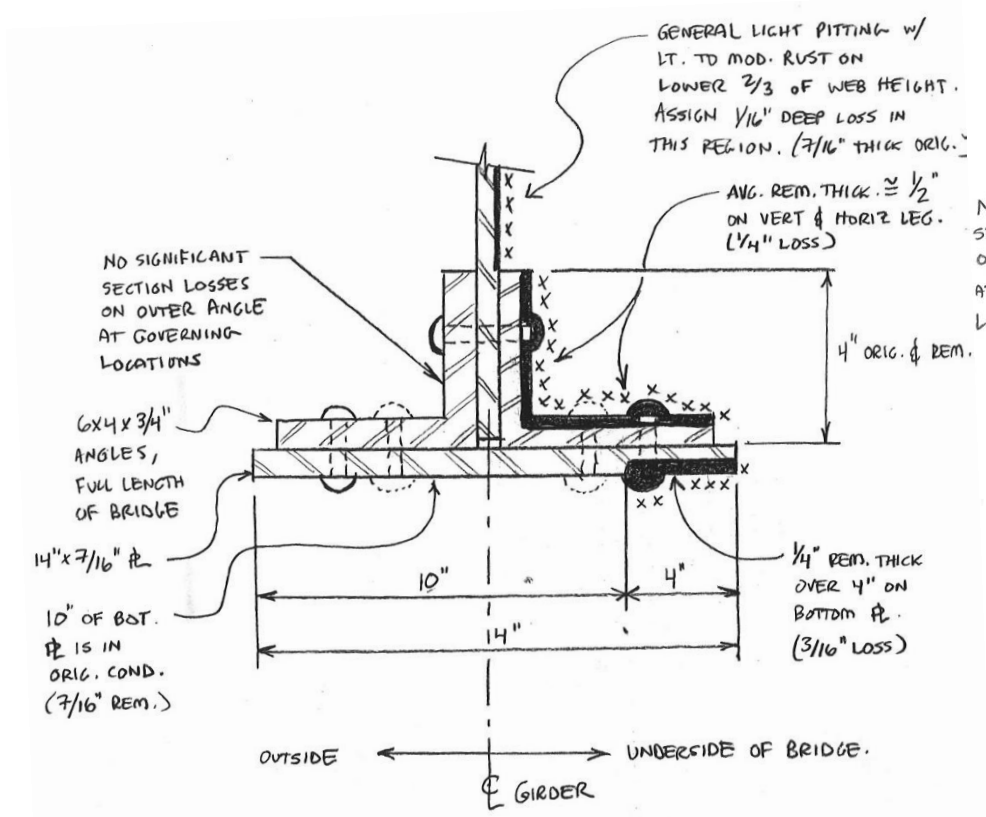


Distance from bearing to bearing = 70’

Width from curb to curb = 24’

Results of the bridge inspection

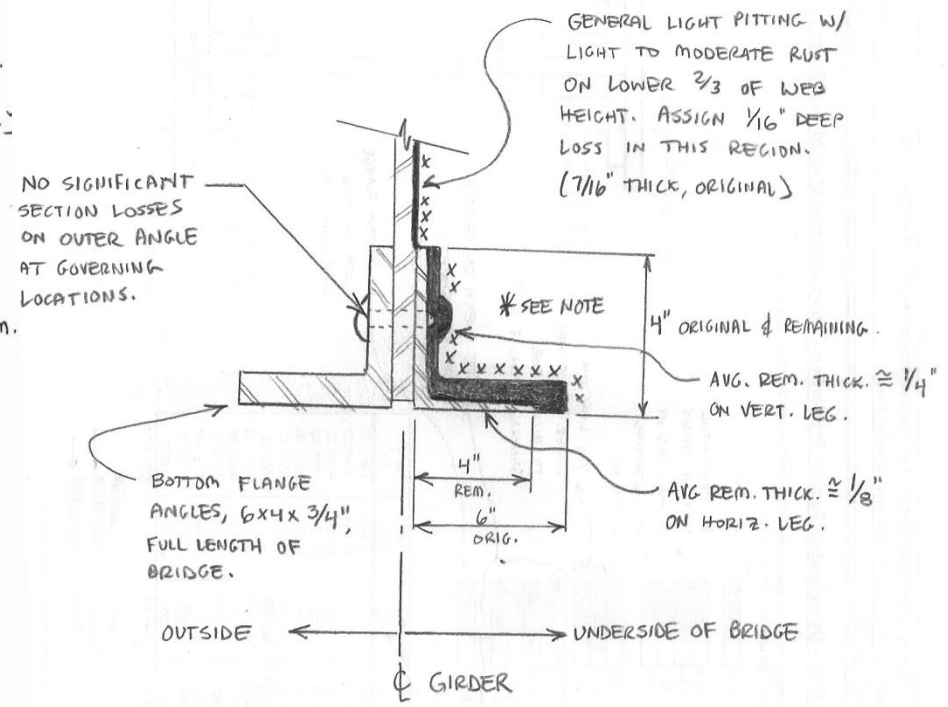
Lower Flange Deterioration



SECTION OF LOWER FLANGE

N.T.S.

THIS CONDITION OBSERVED AT LOCATIONS NEAR MIDSPAN, AT FB LOCATIONS,



SECTION OF LOWER FLANGE

N.T.S.

* THIS CONDITION OBSERVED AT SEVERAL LOCATIONS (SOUTH GIRDER @ FB#4, FB #10, & #11 N. GIRDER @ FB #4)

THIS LOCATION GOVERNS, 17.5' OUT FROM ABUT.

Typical condition of existing cover plate

Lower flange section loss in critical area

Proposed Repair

- Reinforce lower flange by removing 7/16” x 14” x 30’ cover plate and replacing ¾”x 14” x 50’ cover plate

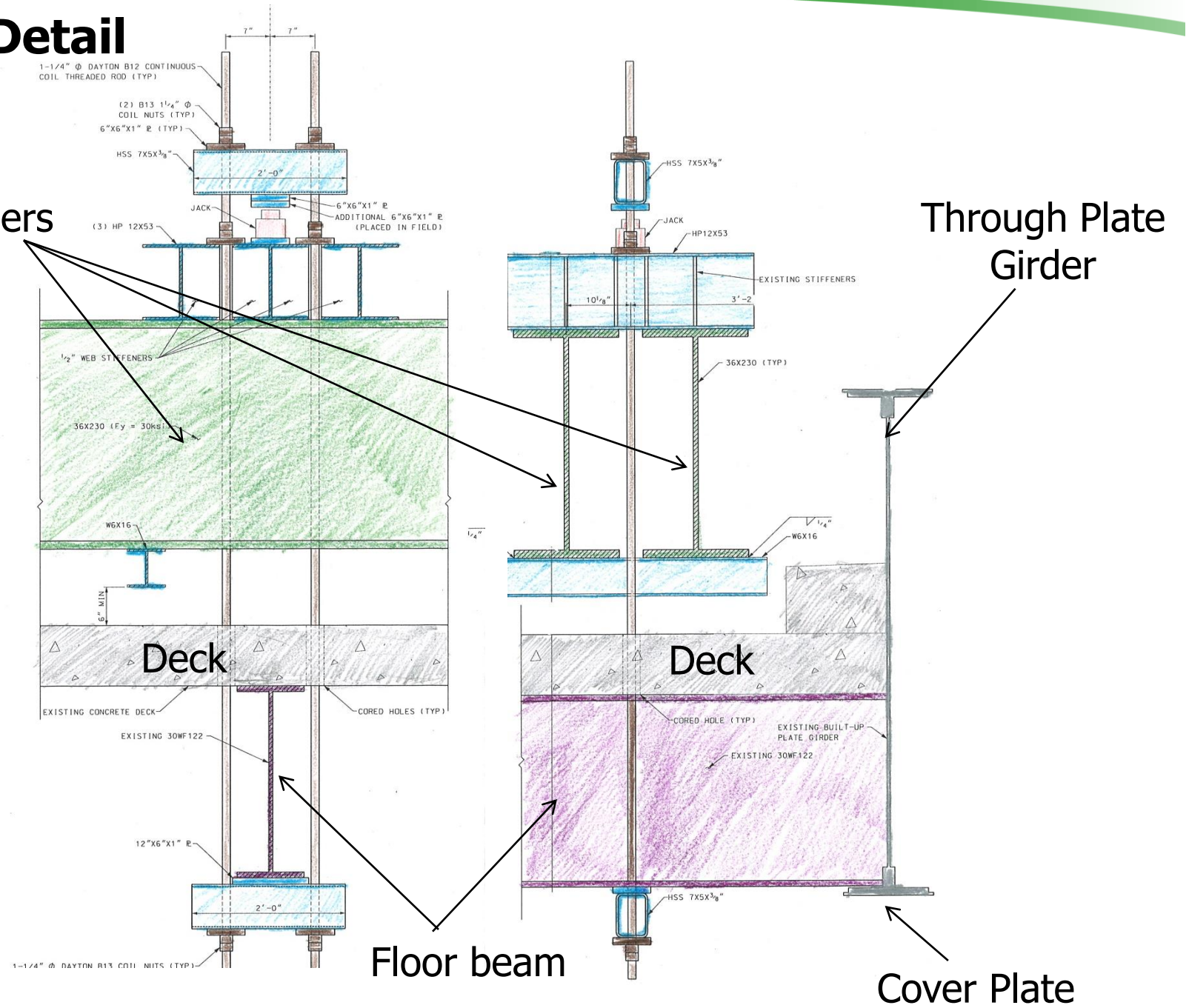
Challenge

- How can we support the bridge?

NHDOT keeps on hand a selection of salvaged bridge girders for emergency use

Ideas

Support Detail



Deleading from raft

New cover plate was fabricated and heat straightened. Heat straightening reduced the “warp” from 1 5/16” to 5/8”.

Bearing for support girders

Placing support girders

Support girders in place

The tops of the support girders did not line up.

Jacking apparatus in place

Jacking system at floorbeam

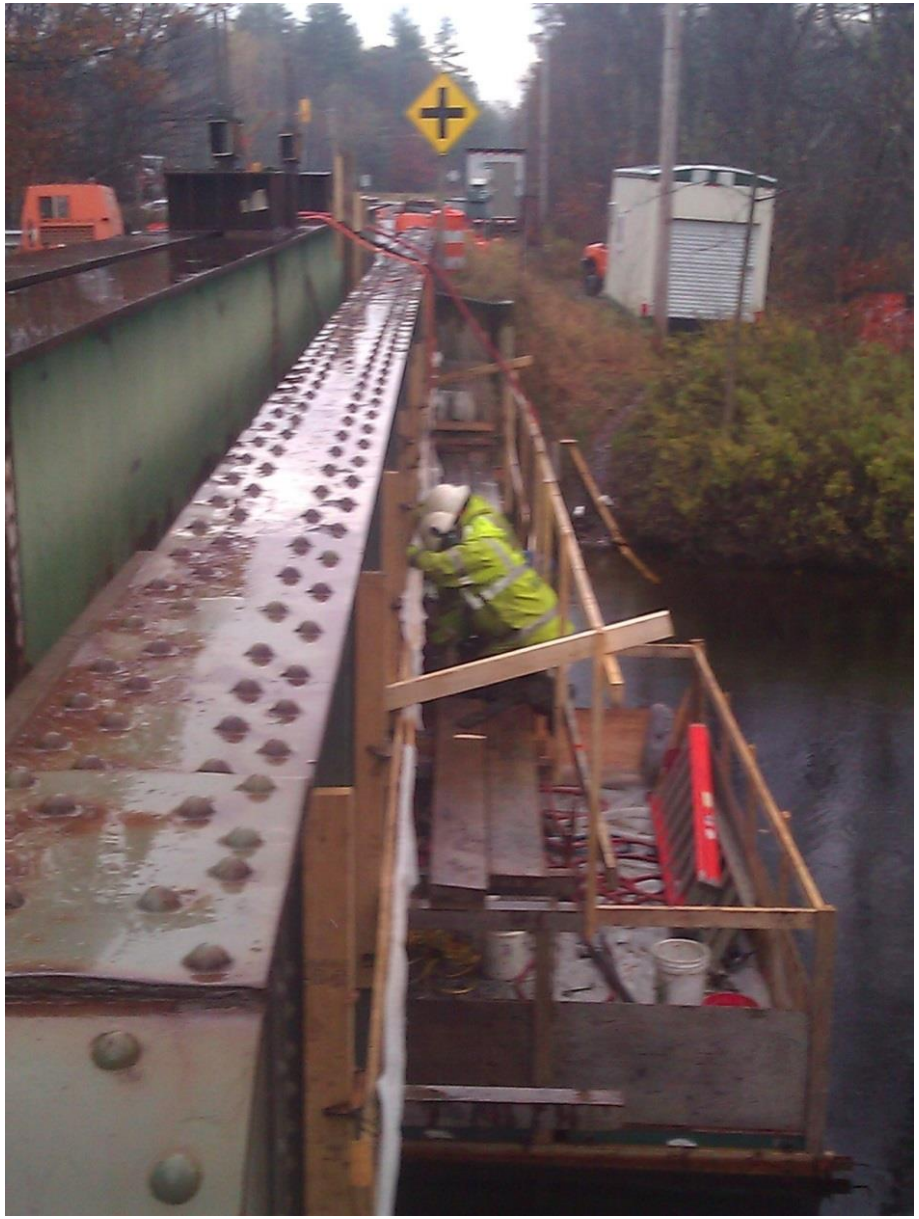
Jacking in progress

Then it started raining…

…and raining…

… and raining until the bridge almost became an island.

Using the existing cover plate as a pattern



Drilling holes

Tensioning bolts

Completed Repair!