

UPDATE REPORT AFTER 3 YEARS

STOPPING CREVICE CORROSION

High Pressure (5,000 psi) Water Wash Cleaning And Overcoating of a Historic (1879) Bollman Bridge over the C&O Canal, in Williamsport, Maryland with the Termarust HRCSA High Ratio Co-Polymerized Calcium Sulfonate Coating System



**For the U. S. National Park Service
Through the Federal Highway Administrations
Federal Lands Division, Sterling, Virginia
Cleaning & Coating by
Titan Industrial Painting, Baltimore, Maryland
Coating Materials from
Termarust Technologies, Vienna, Virginia**

Project Painting Date: January, 2006

UPDATE REPORT AFTER 3 YEARS

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OVERVIEW

This report provides some background information and information and pictures on the cleaning and painting portion of work that was done on this bridge, in January 2006, for the National Park Service, under a FHWA contract.

The bridge is a historic 1879 Bollman truss bridge, over the Chesapeake and Ohio (C&O) Canal, in Williamsport, Maryland (8 miles South of Hagerstown, Maryland). This is a one-lane bridge that provides access to a small local park, on the Potomac River. The truss is 66-9 long with a roadway width of 11-7.

The project involved:

- Removal and replacement of the timber deck
- Removal of the longitudinal timber floor beams and replacement of them with four heavy steel beams, that span from abutment to abutment; i.e. the beams will carry all vehicular loads the truss remains as a historic (non-load carrying) structure. The visual appearance of the bridge will (essentially) not be changed.
- A painting subcontractor pressure wash cleaned the truss and applied the Termarust coating system after the General Contractor did some structural repairs to the truss floor beams.

The contract required:

1. A high ratio calcium sulfonate coating system from Termarust Technologies .
2. A five-year warranty against coating system failure; including crevice corrosion and pack rust.

Shown below are references and procedures for cleaning and painting, and pictures of the bridge and the cleaning and painting operations.

UPDATE OBSERVATIONS OF THE MAY 12, 2009 SITE VISIT

On this date the bridge was visited to look at the condition of the Termarust coating and whether the crevice corrosion had been stopped.

Photos No. 21 through 28 provide an overview of what was observed, and are summarized below:

1. The Termarust coating appears to be in excellent condition no undercutting or delamination.
2. There were a few areas (not shown) where the Termarust coating had been scratched or marred during installation of the timber deck and rub-rails; however this damage to the surface of the coating has not (and will not) lead to failure of the coating; i.e. undercutting and delamination.
3. In summary, the Termarust coating is in excellent condition and crevice corrosion is stopped.

REFERENCES

Federal Highway Administration

Markus Miller Bridge Project Manager Phone: 703-404-6252

Painting Subcontractor

Titan Industrial Painting, Baltimore, MD Phone: 410-477-1857

Contact Person: Pete Forakis

CLEANING AND APPLICATION PROCEDURES

The following Termarust standard procedures were followed:

1. Pressure wash clean the bridge with a 5,000 psi pressure washer (at a 6 standoff distance) with clean water with an additive of Chlor*Rid to remove non-visible salts; e.g. chlorides. (For more information on Chlor*Rid see www.chlor-rid.com)
2. With dry compressed air blow dry all connections (and cross-over points on built-up lattice members. (almost all superstructure members)
3. Apply Termarust TR2200 Penetrant into all open connections
4. Apply a caulk (or stripe) coat of Termarust TR2100 into/onto edges of connections
5. Spot prime areas of bare steel and tightly adhered rust with 5 mils DFT of Termarust TR2100
6. Overcoat the entire area with another 5 mils DFT of TR2100.

It is important to note that steps 3 through 6 are done immediately after each other; i.e. wet-on-wet; which is why the Termarust system is considered to be a ♦One Coat♦ system.

The final result was:

- } 5 mils DFT on tight paint,
- } 10 mils DFT on bare steel and tight rust, and
- } 20 mils DFT over connections.

PICTORIAL OVERVIEW

The following pictures provide a pictorial overview of the project.



Photo 1 Bridge, and approach span, in 2005, before painting.



Photo 2 Memorial plaque on bridge: 1879 W. Bollman Baltimore.



Photo 3 Underside of the bridge showing transverse floor beams and longitudinal timber beams



Photo 4 Edge of front truss member with crevice corrosion and pack rust that has bent the cover plate and stressed the rivets.



Photo 5 Close-up of pack rust that has bent the cover plate.



Photo 6 Closer view of the pack rusted connections.



Photo 7 Upper tie-rod and truss connection.



Photo 8 Bridge is covered with a tarp, for cleaning and painting

Note: A barge in the Canal provides a working platform and containment.



Photo 9 Removing scale rust before pressure washing

Note. Scale removal was started with hammers and later with small air tools.



Photo 10 5,000 psi pressure washing of the truss, with Chlor*Rid in the final rinse water.



Photo 11 A large heater was used to maintain a minimum 50°F steel temperature for painting.



Photo 12 Applying the TR2200 Penetrant into connections.



Photo 13 TR2200 Penetrant has been applied to front bearing connection.

(Excess Penetrant was then removed by brush)



Photo 14 TR2200 Penetrant has been applied to the connection,
before application of the TR2100 Topcoat.



Photo 15 The connection has been coated with the TR2100 Topcoat.



Photo 16 ◆ TR2200 and TR2100 has been applied to the connection ◆ after it was strengthened,

(See Photo 10)



Photo 17 The truss has been painted and the new longitudinal beams have been installed.

A new timber deck will now be installed



Photo 18 ♦ Painting completed.



Photo 19 Close-up of connection with most of the pack rust removed before painting.



Photo 20 Close-up of connection with most of the pack rust removed before painting.



Photo 21 May 12, 2009 View of completed bridge work



Photo 22 May 12, 2009 No coating or corrosion problems.



Photo 23 May 12, 2009 Crevice corrosion has been stopped.



Photo 24 May 12, 2009 Corrosion has been stopped.



Photo 25 May 12, 2009 Corrosion has been stopped.

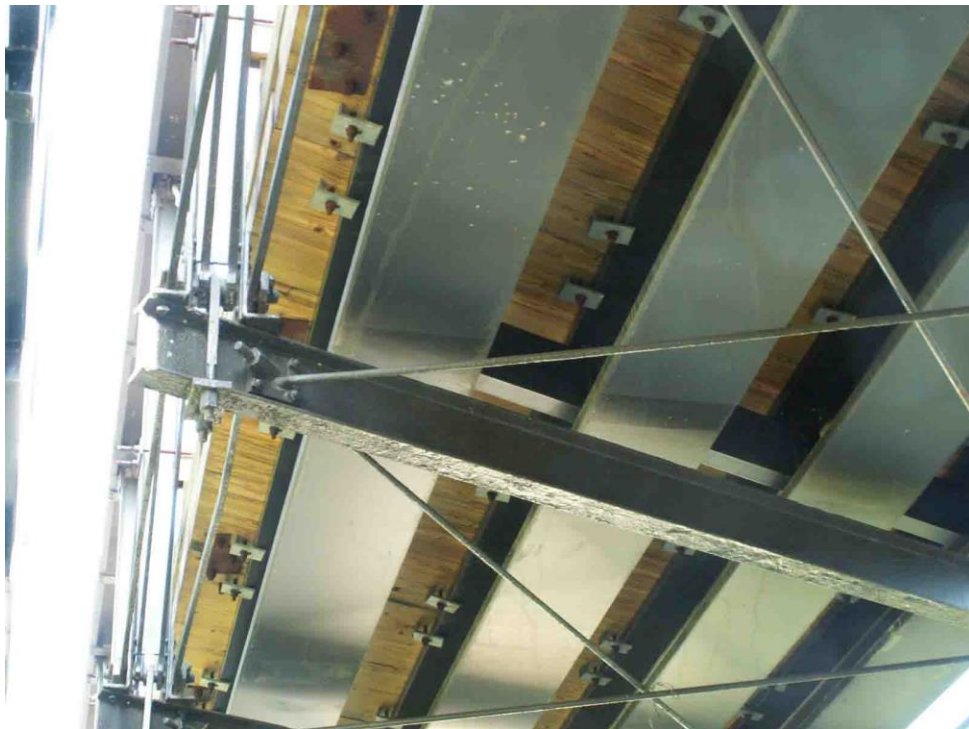


Photo 26 May 12, 2009 No coating or corrosion problems.



Photo 27 May 12, 2009 No coating or corrosion problems.



Photo 28 May 12, 2009 No coating or corrosion problems.