

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES  
 MATERIALS ENGINEERING AND TESTING SERVICES  
 Office of Structural Materials  
 Quality Assurance and Source Inspection



**Bay Area Branch**  
 690 Walnut Ave., St.150  
 Vallejo, Ca. 94592-1133  
 (707) 649-5453  
 Fax: (707) 649-5493

Contract # : 04-0120S4  
 Cty SF/SF Rte 80 PM 1.6/2.7  
 File # 1.12

**QUALITY ASSURANCE – NONCONFORMANCE REPORT**

**Location:** DS Brown, North Baltimore OH

**Date:** 08/20/12

**Prime Contractor:** MCM Construction Inc.

**Incident #007**

**Submitting Contractor:** DS Brown

**Type of problem:**

- Welding**  **Concrete**  **Other**   
**Welding:**  **Curing:**  **Procedural:**  **Bridge No.** 34-0006 L/R  
**Joint fit-up:**  **Coating:**  **Other:**  **Component:** Seismic Expansion Joint  
**Procedural:**  **Procedural:**  **Description of Component:** Hinge E WB

**Description of Incident:** The inorganic prime coating applied to the Seismic Expansion Joint Hinge E-East Bound has areas exhibiting high DFT (Dry Film Thickness) readings that exceed the required 200um (8mil) thickness and areas exhibiting “mud cracking” is present at multiple areas throughout the component.



---

---

## QUALITY ASSURANCE - NONCONFORMANCE REPORT

(Continued, Page 2 of 2)

---

---

**Applicable reference:** Special Provisions 10-1.83;

*“The total dry film thickness of all applications of inorganic zinc, including the surfaces of outside existing members within the grip under bolt heads, nuts and washers, shall not be less than 100um nor no more than 200 um...”*

Special Provisions 10-1.69;

*“Areas where mud-cracking occurs in the inorganic zinc coating shall be blast cleaned and repainted with inorganic zinc coating to the specified thickness.”*

**Who discovered the problem:** QA Inspector; Kent Smith / Aaron Prchlik SMR

**Name of ABFJV QC Notified:** Adam Wellington QC/ Brad Streeter QCM

**Time and method of notification:** Verbal 1200 hrs. this date

**Name of SMR notified:** Aaron Prchlik

**Time and method of notification:** in person this date

**Name of Construction Engineer notified:**

**Time and method of notification:**

**Was the QC Inspector aware of problem before being notified:** No

**Contractor’s proposal to correct the problem:** The Contractor relayed they intended to submit an RFI to request lowering the DFT coating millage to manufacturer’s recommendations.

**Comments:** This report is for the purpose of determining general conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910 who represents the Office of Structural Materials for your project.

---

---

Inspected By: Kent Smith

Quality Assurance Inspector

Reviewed By: Kenneth Riley

Lead QA Reviewer

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES  
 MATERIALS ENGINEERING AND TESTING SERVICES  
 Office of Structural Materials  
 Quality Assurance and Source Inspection  
**Bay Area Branch**  
 690 Walnut Ave., St. 150  
 Vallejo, CA 94592-1133  
 (707) 649-5453  
 FAX: (707) 649-5493



EA # : 04-0120S4  
 Cty SF Rte 80 PM 1.6/2.7  
 File # 1.15

**SOURCE INSPECTION REPORT****Resident Engineer:**Howe, William**Date Inspected:** 8/21/12**Address:**325 Burma Rd**City:**Oakland CA 94607**Project Name:** Construct Bridges/Roadway/Install Electrical System**OSM Arrival Time:**0700**Prime Contractor:** MCM Construction Inc.**OSM Departure Time:** 1530**Contractor:** DS Brown**Location:** North Baltimore, OH

<b>Quality Control Contact:</b>	Adam Wellington	<b>Quality Control Present:</b>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
<b>Material Transfer:</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Sampled Items:</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<b>Stock Transfer:</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>OK to Cut:</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
<b>Rebar Test Witness:</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<b>Delayed/Cancelled:</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A

**Other:** Coatings Observation**Bridge No.**34-0006**Component:** Seismic Hinge Assembly E WB**Bid Item:** N/A**Lot #:** B350

**Summary of Items Observed:** This QAI arrived at DS Brown (DSB) and met with QAI, Mr. Chris Kincheloe, Certified National Association of Corrosion Engineers (NACE) Level III, Brad Streeter with DS Brown, Quality Control Manager (QCM), And Adam Wellington, DS Brown Quality Control (QC) to discuss some coating issues on the 04-0120S4 hinge assemblies (F-West Bound and E-West Bound) that have been fabricated here at DS Brown.

The QA NACE Inspector arrived at DSB location in regards to coating issues (mud-cracking and high DFT readings), on this project. Upon arrival this QAI, The QA NACE Inspector, QCM, and QC discussed the issues that were found on this project. The QA NACE Inspector explained to this QAI, QCM, and QC that there could be a possibility that the method of the application of the coating(s) could need addressed. This being that coatings applicator(s) might need to be allowed more room to apply the coatings and be closer to each separate beam during the application process.

The group went to the paint shop to observe the coatings application area and then to the location of the hinge E-West Bound assembly in the shop. This assembly also has some areas with mud-cracking and after a visual inspection of the coating on this assembly, The QA NACE Inspector observed that there were areas that had another type of defect known as "orange peel", these areas were checked with a positex gauge by the QC and found the thickness of the coatings to be above the requirements of the contract documents. The QA NACE Inspector commented that these areas could lead to mud-cracking following the curing time and the transportation to the jobsite. The stresses from vibration and movement of the material while in transit, being the coating is applied to heavily, can result in a lower tensile strength of the coating.

---

---

## SOURCE INSPECTION REPORT

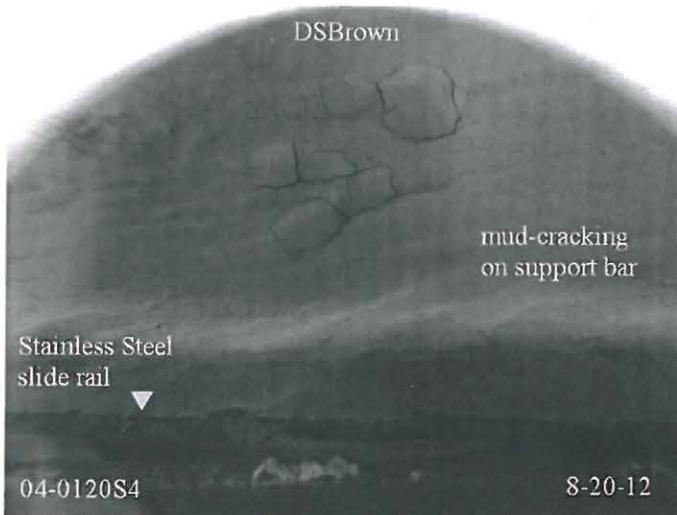
(Continued, Page 2 of 2)

---

---

The group of us moved to the support bars, where again by visual observation, mud-cracking was found to be present. The QA NACE Inspector relayed that the use of a brush to apply the inorganic zinc coating following the welding process could be causing this type of defect due to the heavy application. It was then discussed about options for repair to the assembly, it was suggested to DSB QC and QCM to review the CCO that this work is being performed under and if any questions they would need to contact the SMR along with reviewing the manufacturer's recommendations for repairs of these types.

The QA NACE Inspector also informed DSB QC and QCM that the proper way to test these assemblies would be to test in accordance to PA-2 specifications and contract documents, in lieu of testing random areas.



**Summary of Conversations:** Following the conclusion of this meeting during the day, DSB QC and QCM did state to this QAI that the necessary requests would be made prior to any repairs on this hinge assembly.

**Comments:** This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Aaron Prchlik (510) 610-9822, who represents the Office of Structural Materials for your project.

---

Inspected By: James Kent Smith *James Kent Smith* Quality Assurance Inspector

---

Reviewed By: Ken Riley *Ken Riley* QA Reviewer

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES  
 MATERIALS ENGINEERING AND TESTING SERVICES  
 Office of Structural Materials  
 Quality Assurance and Source Inspection

**Bay Area Branch**

690 Walnut Ave., St. 150  
 Vallejo, CA 94592-1133  
 (707) 649-5453  
 FAX: (707) 649-5493



Contract # : 04-0120S4  
 Cty SF Rte 80 PM 1.6/2.7  
 File # 1.28

**WELDING INSPECTION REPORT****Resident Engineer:** Howe, William**Date Inspected:** 08-28-2012**Address:** 325 Burma Road**City:** Oakland, CA 94607**Project Name:** Construct Bridges/Roadway/Install Electrical Sys.**OSM Arrival Time:** 0600**Prime Contractor:** MCM CONSTRUCTION INC**OSM Departure Time:** 1430**Contractor:** DS Brown**Location:** North Baltimore OH**CWI Name:** Adam Wellington**CWI Present:** Yes  No**Inspected CWI reports:**  Yes  No  N/A**Rod Ovens in Use:** Yes  No  N/A**Electrode to Specification:**  Yes  No  N/A**Weld Procedures Followed:** Yes  No  N/A**Qualified Welders:**  Yes  No  N/A**Verified Joint Fit-up:** Yes  No  N/A**Approved Drawings:**  Yes  No  N/A**Approved WPS:** Yes  No  N/A**Delayed/Cancelled:** Yes  No  N/A**Bridge No.:** 34-0006**Component:** Swivel Joist Expansion Joint Hinge E-EB,  
And Hinge E-WB**Summary of Items Observed:**

This Quality Assurance Inspector (QAI) arrived at DS Brown (DSB), North Baltimore OH, to monitor the fabrication of the DS400B Swivel Joist Expansion Joint located at the Seismic joint Hinge E-EB (assembly 12A), and Hinge E-WB. This QAI met with Adam Wellington, (QC) DSB, to verify schedule and work that is in progress.

Qualified welder Don Hosley, stamp identification "F" was observed by this QAI to be cutting the edges and tacking the support boxes in position on the Hinge E-EB (assembly 12A) 12x2 edge beam. This QAI observed that the approved welding procedure specification (WPS) B-FF-01 was located on the power source and witnessed QC check and verify the parameter settings for this procedure on the power source. The settings were set to the following; Amperes 275, Voltage 27.5. QC was witnessed by this QAI verifying the fit and location of the support boxes by dimensionally verifying the tack fit up to the approved drawings. This QAI monitored the tacking of the support boxes on the 12x2 edge beam at various intervals during the day.

DSB operators were observed by this QAI installing the rubber bladder (seal) into the grooved areas on the Hinge E-WB (assembly 11A). The coating repairs to the mud-cracking issues on the insides of the center beams and the support bars have been completed using the approved method from the SMR (Aaron Prchlik). These areas have been repaired and the coated with organic zinc which was checked by the QC inspector. This QAI met with QC to discuss the remaining coating repairs on this assembly. The QC inspector informed this QAI that DS Brown would be performing the repair work to the special provisions, which allows blast cleaning of the areas where mud-cracking was identified by the QC inspector. The mud-cracking was identified at one center beam.

---

# WELDING INSPECTION REPORT

Page 2 of 2

---

This QAI began reviews of the Material Testing Results (MTR's) for the Hinge E-WB assembly 11A, and upon review this QAI noticed in the MTR's included some lower grade material (A36) was used in the fabrication of this assembly that did not meet the special provisions requirements of 50 grade material. (Special provisions document page 222 identifies A572 gr 345). This QAI relayed these findings to DS Brown QC and Quality Administrator Patricia Kinne. She asked this QAI to which parts were affected with this lower grade of material to which the reply was the edge beam plate anchors and the support bar stops. Patricia relayed she would check into this matter and see if there were any Requests for Information (RFI's) in regards to this material issue. This QAI also relayed to Patricia that a proof testing release from SMR on this hinge assembly would be needed before it could be shipped. At the time of this report the items observed in fabrication appeared in general conformance with the contract documents and approved drawings.



**Summary of Conversations:** Basic conversation, fundamental to completion of the tasks at hand, occurred between this QAI and DSB QC Personnel.

**Comments:** This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Aaron Prchlik (510)-610-9822, who represents the Office of Structural Materials for your project.

---

Inspected By: James Kent Smith

Quality Assurance Inspector

---

Reviewed By: Ken Riley

QA Reviewer

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES  
 MATERIALS ENGINEERING AND TESTING SERVICES  
 Office of Structural Materials  
 Quality Assurance and Source Inspection

**Bay Area Branch**

690 Walnut Ave., St. 150  
 Vallejo, CA 94592-1133  
 (707) 649-5453  
 FAX: (707) 649-5493

Contract # : 04-0120S4  
 Cty S/F Rte 80 PM 1.6/2.7  
 File # 1 .25A

---

**MATERIAL SUITABILITY REPORT**


---

**Resident Engineer:** William Howe**Report Date:** 8-31-2012**Address:** 325 Burma Road**City:** Oakland, CA 94607

---

 The following material has been determined to be suitable for its intended purpose:
 

---

**Project Name:** Construct Bridges/Roadway/Install Electrical System**Date of NCR:** N/A**Prime Contractor:** MCM Construction Inc.**Contractor:** DS Brown**Location:** North Baltimore, OH

Lot#	Bid Item #	Quantity	Material Description
B350-09-12	CCO76SI/7 6S2	1	Hinge E WB Swivel expansion joint

SMR #.	Description of Non-Conformance
077-02	Use of improper grade of material in support bars and other components

**Summary of Items Observed and Conversations:**

This QAI met with Patricia Kinne of DS Brown to discuss the shipping of the Seismic Joint Hinge E West Bound assembly 11A. After reviewing the shipping documentation, this QAI received the proof load test release performed on 8-20-12 from Aaron Prchlik (SMR) via e-mail. Also received from SMR was his TL-6013 on the use of improper grade of material for hinge assemblies. This report was included with the shipping documents package. This QAI received the release packet for Hinge E WB swivel expansion joint from DS Brown. The release packet contained the Certificate of Compliance (COC), Material Test Reports (MTR), Coating Certifications and QC reports. This QAI reviewed these documents to assure adherence to contract documents. This QAI was instructed to issue a blue tag on the release of this Hinge assembly by SMR due to material substitution of A572 gr 42 in lieu of A572 gr 50 for the support bars and the use of A572 gr 36 in lieu of A572 gr 50 for the joint loop anchors and support bar stops. This QAI assigned lot number B350-09-12.

---

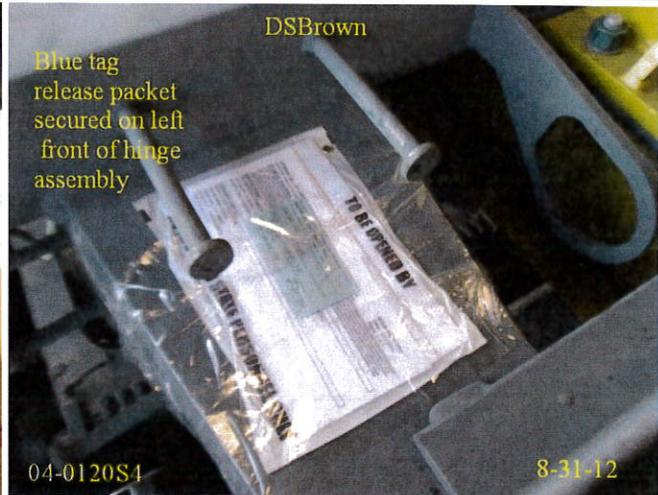
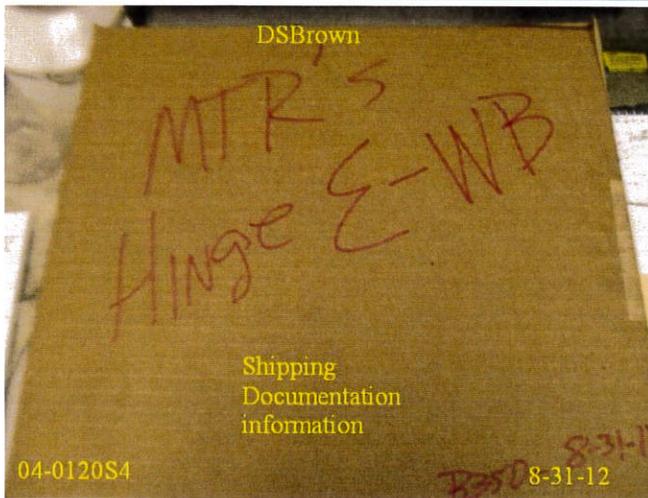
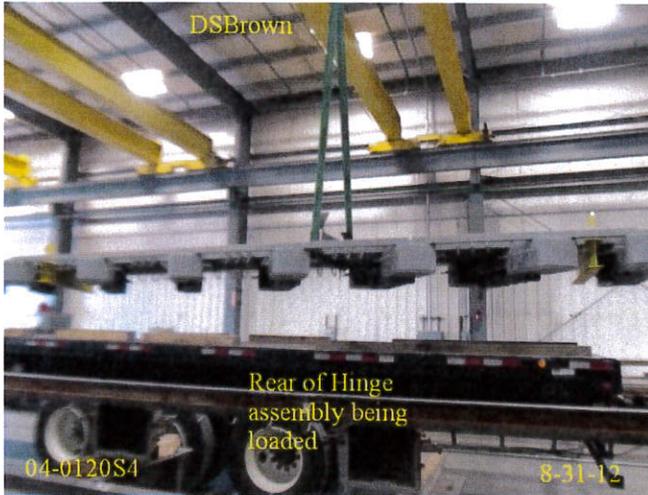
---

## MATERIAL SUITABILITY REPORT

---

---

(Continued, Page 2 of 2)



**Identification:** Shipping packet attached to left front of hinge assembly, Box of related paperwork to driver per Aaron

**Comments:** Should you require further recommendations concerning repairs or remedial efforts please contact Aaron Prchlik (510)-610-9822, who represents the Office of Structural Materials for your project.

---

Inspected By: James Kent Smith

Quality Assurance Inspector

---

Reviewed By: Ken Riley

QA Reviewer

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES  
 MATERIALS ENGINEERING AND TESTING SERVICES  
 Office of Structural Materials  
 Quality Assurance and Source Inspection

**Bay Area Branch**

690 Walnut Ave., St. 150  
 Vallejo, CA 94592-1133  
 (707) 649-5453  
 FAX: (707) 649-5493



Contract # : 04-0120S4  
 Cty ALA Rte 80 PM 1.6/2.7  
 File # 1.25A

**QUALITY ASSURANCE - NONCONFORMANCE RESOLUTION****Location:** DS Brown, North Baltimore OH**Date:** 01/07/2014**Prime Contractor:** MCM Construction Inc.**NCR#** 7**Submitting Contractor:** DS Brown**Type of problem:**

<b>Welding</b>	<input type="checkbox"/>	<b>Concrete</b>	<input type="checkbox"/>	<b>Other</b>	<input checked="" type="checkbox"/>
<b>Welding:</b>	<input type="checkbox"/>	<b>Curing:</b>	<input type="checkbox"/>	<b>Procedural:</b>	<input type="checkbox"/>
<b>Joint fit-up:</b>	<input type="checkbox"/>	<b>Coating:</b>	<input type="checkbox"/>	<b>Other:</b>	<input checked="" type="checkbox"/> <<Other Problem Type>>
<b>Procedural:</b>	<input type="checkbox"/>	<b>Procedural:</b>	<input type="checkbox"/>		

**Bridge No .** 34-0006L/R**Component** Seismic Expansion Joint - Hinge E WB**Date nonconformance report was written:** 08/20/12

**Description of Non-Conformance:** The inorganic prime coating applied to the Seismic Expansion Joint Hinge E-East Bound has areas exhibiting high DFT (Dry Film Thickness) readings that exceed the required 200um (8mil) thickness and areas exhibiting "mud cracking" is present at multiple areas through the component.

**Contractor's proposal to correct the problem:** Contractor to propose a resolution.

**Corrective action taken:** After investigating the non-conforming issue, it was determined that the issue was occurring at the Hinge E-West Bound direction.

Per the Welding Inspection Report dated August 28th, 2012, "the coating repairs to the mud-cracking issues on the insides of the center beams and the support bars have been completed using the approved method from the SMR (Aaron Prchlik). These areas have been repaired and coated with organic zinc which was checked by the QC inspector. Per the Blue Tag dated August 31st of 2012, the QAI received the release packet for the Hinge E WB swivel expansion joint and "reviewed these documents to assure adherence to contract documents."

**Did corrective action require Engineer's approval?**  Yes  No

**If so, name of the Engineer providing approval:** Aaron Prchlik**Date:** 08/28/2012

**Is Engineer's approval attached:**  Yes  No Verbal approval on 08/28/2012

**Comments:** This report is for the purpose of determining general conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Gary Thomas, (916) 764-6027, who represents the Office of Structural Materials for your project.

Inspected By: Courtney Goldstein

Quality Assurance Inspector

Reviewed By: Ken Riley

QA Reviewer