

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING 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
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-012651**Date Inspected:** 17-Mar-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven 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:** Orthotropic Box Girders (OBG)**Summary of Items Observed:**

Quality Assurance inspector (QA) Michael Foerder was at the American Bridge/Flour (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

1. OBG Field Splice 2E/3E A1-5 (Deck Plate) in process welding of root
2. OBG Field Splice 1E/2E B-1 Removal of backing bar and Backgouge of side 2 (inside)

Field Splice 2E/3E Face A-1, A-2, A-3

The QA inspector periodically observed ABF welding personnel Jordan Hazalaar setting up to perform the root pass of the weld joint utilizing the Submerged Arc Welding (SAW) process by applying the induction heating coils, grinding several areas for leveling purposes and set up of the semi automated equipment. Later in the shift the QA inspector periodically observed the in process SAW of the root pass in which Mr. Hazalaar initiated the welding at the South side of the OBG. After the initial 300mm it became apparent the weld metal burned through the backing bar and the welder ceased the welding operation. It was reviewed by QC inspector Jim Cunningham and the welding foreman Dan Iraci in which Mr. Iraci re-positioned the welder to begin the pass approximately 1.5 M away from the affected area progressing in the Northward direction. The QA inspector reviewed the burn through area and it was relayed the contractor would complete the remaining root pass prior to addressing the damaged area and then begin the restoration of the affected area utilizing Shielded Metal Arc Welding (SMAW). See digital photo included in the body of this report for clarification. The QA inspector periodically observed the SAW of the balance of the root pass for welds designated A1, A2 and A3 by Mr. Hazalaar. The QC inspector Jim Cunningham was noted to be present in order to monitor the progress and ensure the welding was within the established

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Welding Procedure Specification (WPS) noted as ABF-WPS-D1.5-4042B-1. The preheat and interpass temperature was verified by the QA inspector to be greater than 65° Celsius (C) and the parameters were verified to be 555 amps, 32.5 volts and a measured travel speed of 380mm/min. The root pass was completed without further issues and was cleaned and presented to QC for performance of Magnetic Particle Testing (MT). The QA inspector observed a portion of the testing performed by QC and noted QC inspectors Tom Pascualone and Jessie Cayabayab assisted Mr. Cunningham. Several areas were marked for minor grinding/blending and the areas we reviewed again and cleared by QC prior to proceeding with a subsequent welding.

During the time of QC performing MT the welder proceeded to remove the affected weld pass for the burn through areas, had QC perform a review and proceeded to restore the area by welding. The welder was performing SMAW with electrode noted as E7018 H4R utilizing the welding parameters from the established WPS noted as ABF-WPS-D1.5-F1200A with 130 amps being verified by QC and QA. This work was not completed by the end of the QA inspector's review and was relayed to QA inspector Dan reyes.

Just prior to the lunch hour the QA inspector observed welding foreman Dan Iraci performing SAW for the subsequent weld pass initiating from approximately 1.5 M from the South side of the OBG. The welder was utilizing the same WPS as previously observed and the welding parameters were measured to be 560 Amps, 32.4 volts and a travel speed of 385mm/min. The preheat was verified to be greater than 65 degrees C by QC and the welder. The work was still in process and appeared to be progressing in general conformance with the contract documents with the exception noted.

Field Splice 2E/3E Face A-4, A-5

The QA inspector periodically observed ABF welding personnel Mitch Sittinger setting up to perform the root pass of the weld joint utilizing the Submerged Arc Welding (SAW) process by applying the induction heating coils, grinding several areas for leveling purposes and set up of the semi automated equipment. Later in the shift the QA inspector periodically observed the in process SAW of the root pass The QC inspector Tom Pascaulaone and Mike Johnson were noted to be present in order to monitor the progress and ensure the welding was within the established Welding Procedure Specification (WPS) noted as ABF-WPS-D1.5-4042B-1. The preheat and interpass temperature was verified by the QA inspector to be greater than 65° Celsius (C) and the parameters were verified to be 560 amps, 32.5 volts and a measured travel speed of 380mm/min. The root pass was completed, cleaned by wire brushing and presented to QC for performance of Magnetic Particle Testing (MT). The QA inspector observed a portion of the testing performed by QC and noted QC inspector Jessie Cayabayab assisting Mr. Pascualone. Several areas were marked for minor grinding/blending and these areas we reviewed again and cleared by QC. Directly prior to the lunch break the QC inspectors discovered a linear indication while perform the MT 50mm from the North side of the OBG weld joint approximately 13mm long located in what appeared to be the SMAW seal weld backing bar pass. See digital photo included in the body of this report for clarification. This information was relayed to QC inspector Mike Johnsoesn who relayed the Welding Quality Control Manager (WQCM) would be contacted for further disposition. The QA inspector relayed this information to the QA lead Bill Levell via phone message. No further work was performed at this location during the QA inspector's review. It was noted however the welding foreman Dan Iraci continued with performing the SAW noted above for weld numbers A2 and A3 during the initial portion of the lunch break with QC inspector Mike Johnson being present. The QA inspector spoke with QA inspector Dan Reyes in which this information was relayed for turnover purposes.

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Field Splice 1E/2E Face B-1

The QA inspector periodically observed ABF welding personnel Sontao Huang performing backgouging operations and the removal of the backing bar utilizing the plasma process. QC inspector Mike Johnson was noted to be present periodically to observe the progress of the work. The work progressed throughout the QA inspector shift, was not completed and appeared to be progressing in general conformance with the contract documents.



Summary of Conversations:

As noted above in summary of items observed.

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 Mohammad Fatemi (916)813-3677, who represents the Office of Structural Materials for your project.

Inspected By: Foerder, Mike

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer