

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016996**Date Inspected:** 25-Sep-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:** Jobsite**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:** SAS OBG**Summary of Items Observed:**

On this date CALTRANS OSM Quality Assurance Inspector (QAI) Bert Madison was present at Yerba Buena Island in California between the times noted above for observations relative to the work being performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below.

- 1). OBG Field Splice 6W/7W weld ID: A1 & A2, Face A (SAW)
- 2). OBG Field Splice 6W/7W weld ID: A3, A4 & A5, Face A (SAW)
- 3). OBG Field Welding of Lower Horizontal CW Lug Restoration at PP19 (SMAW)
- 4). OBG Field Welding of East Line Lifting Rod Penetration Insert Welds. (QC MT)
- 5). OBG Field Welding of East Line Lifting Rod Penetration Insert Welds. (R-1 Repair SMAW)
- 6). OBG Field Welding of East Line Lifting Rod Penetration Insert Welds. (QC UT)
- 7). OBG Field Splice 2E/3E weld ID: E2, Face A (QAI UT)

- 1). OBG Field Splice 6W/7W weld ID: A1 & A2, Face A (SAW)

The QAI periodically observed the in process welding of the OBG Field Splice 5W/6W weld ID: A1 & A2 on the A face per the Submerged Arc Welding (SAW) process in the 1G (flat) position by approved AB/F SAW operator Mike Maday (ID 3391). QC Inspector Tony Sherwood was present to monitor the progress and verify that the welding parameters were within the limits established by the approved welding Procedure Specification (WPS) identified as ABF-WPS-D1.5-4042B-1. The QAI observed that the welding parameters obtained by Mr. Sherwood appeared to comply with the approved WPS and were as follows: welding Amps = 560, welding Volts = 33, welding travel speed = 400 and the QAI calculated the heat input as 2.77 kJ/mm. Welding of the cover passes was completed during the QA Inspectors shift and work at this location appeared to be in general compliance with contract documents.

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### 2). OBG Field Splice 6W/7W weld ID: A3, A4 & A5, Face A (SAW)

The QAI periodically observed the in process welding of the OBG Field Splice 5W/6W weld ID: A3, A4 & A5 on the A face per the Submerged Arc Welding (SAW) process in the 1G (flat) position by approved AB/F SAW operator James Zhen (ID 6001). QC Inspector Tony Sherwood was present to monitor the progress and verify that the welding parameters were within the limits established by the approved welding Procedure Specification (WPS) identified as ABF-WPS-D1.5-4042B-1. The QAI observed that the welding parameters obtained by Mr. Sherwood appeared to comply with the approved WPS and were as follows: welding Amps = 559, welding Volts = 32.5, welding travel speed = 385 and the QAI calculated the heat input as 2.83 kJ/mm. Welding of the cover passes was completed during the QA Inspectors shift and work at this location appeared to be in general compliance with contract documents.

### 3). OBG Field Welding of Lower Horizontal CW Lug Restoration at PP19

The QAI periodically observed AB/F approved welder Eric Sparks (ID 3040) performing fit-up and Complete Joint Penetration (CJP) welding per the Shielded Metal Arc Welding (SMAW) process in the 4G (overhead) and 2G (horizontal) position to restore a portion of the counter weight assembly lower lug at the edge plate at PP19 at W1. QC Inspector Mike Johnson was periodically present to monitor the progress and verify that the welding parameters were within the limits established by the approved welding Procedure Specification (WPS) identified as ABF-WPS-D1.5-1080. Welding was in process at PP19 and the QAI observed that the work appeared to be in general compliance with contract documents.

### 4). OBG Field Welding of East Line Lifting Rod Penetration Insert Welds. (QC MT)

The QAI periodically observed QC Inspector Steve McConnell performing Magnetic Particle Testing (MT) of excavated R-1 UT repair areas in the East Line Lifting Rod Penetration Insert Welds. The locations of the excavated areas were at PP8.5, E3 welds 1 & 4 and E4 welds 1& 2. The QAI periodically observed AB/F approved welder Jen Pei Wang (ID 7299) and an apprentice grinding to remove indications discovered by QC McConnell. The QAI observed that the performance and evaluation of the MT appeared to comply with the MT procedure identified as SE-MT-CT-D1.5-101 Rev. 4. The QAI observed the work at this location appeared to be in general compliance with contract documents.

### 5). OBG Field Welding of East Line Lifting Rod Penetration Insert Welds. (R-1 Repair SMAW)

The QAI periodically observed AB/F approved welder Jen Pei Wang (ID 7299) performing repair welding of the excavated areas (R-1) at PP8.5, E3 weld 4 & at PP9.5, E3 weld 2 per the Shielded Metal Arc Welding (SMAW) process. QC Inspector Steve McConnell was present to monitor the progress and verify that the welding parameters were within the limits established by the approved welding Procedure Specification (WPS) identified as ABF-WPS-D1.5-1000-Repair. The repair welding was not completed at this location during the QA Inspectors shift and the work appeared to be in general compliance with contract documents.

### 6). OBG Field Welding of East Line Lifting Rod Penetration Insert Welds. (QC UT)

The QAI periodically observed QC Inspector Steve McConnell performing UT of Lifting Rod Penetration Insert Welds and Lifting Rod Penetration Insert Welds R-1 UT repair areas. Mr. McConnell utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 during the examination of the splice weld. The QC technician performed the required longitudinal wave testing utilizing a 1" diameter transducer for base metal soundness and performed the required shear wave testing during the testing for weld soundness utilizing a .63 x .75 rectangular transducer.

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The QC UT examination was completed from face A during this shift and the locations and QC UT results are as follows:

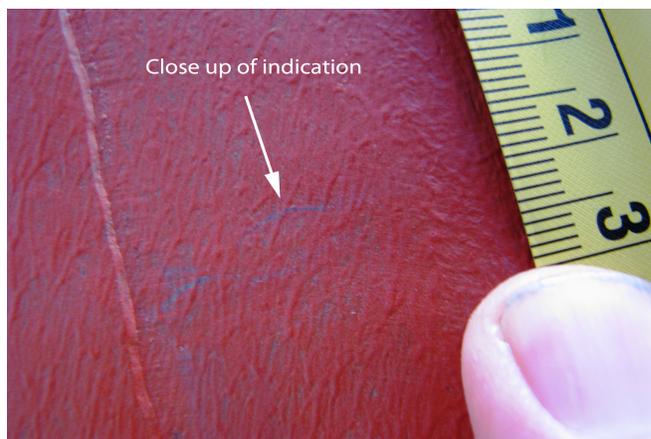
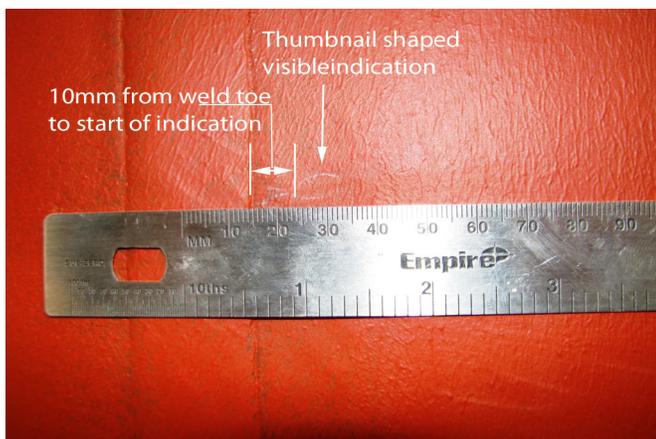
PP9.5, E4 welds 1, 2 & 3 – all contain rejects.

PP11, E3 R-1 repairs in weld 1 (UT-OK) and weld 2 (rejects).

The QAI observed the work at this location appeared to be in general compliance with contract documents.

## 7). OBG Field Splice 2E/3E weld ID: E2, Face A (QAI UT)

The QAI performed Ultrasonic Testing (UT) and Visual Testing (VT) of a selected area of OBG Field Splice 2E/3E weld ID: E2. The UT and VT examinations were performed to confirm the presence of an exterior surface indication at a location previously tested from the interior surface by METS personnel on 05-06-2010. At the time of the previous testing the METS QA Inspector Mr. Michael Foerder observed what appeared to be an indication possibly associated with the exterior surface of the splice weld, however the scaffolding providing access to the exterior was not present. The QAI during UT of the area on this date observed the same indication from the interior of the OBG. The QAI proceeded to the exterior surface of the same location, physically located and visually observed a surface indication. The surface indication does not appear to be associated with the OBG splice Weld 2E/3E E2. See photos below. The QAI observed that the area in question appears to be in general compliance with contract documents. See Ultrasonic Testing Report Form TL-6027 generated by the QAI on this date for location and results of UT.



### Summary of Conversations:

Conversations on this date with Quality Control Inspectors were general in nature and pertained to locations of welding and QC activities.

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

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**Inspected By:** Madison, Bert

Quality Assurance Inspector

**Reviewed By:** Levell, Bill

QA Reviewer

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