**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 #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Pursell, Gary
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-001138
**Date Inspected:** 22-Nov-2007

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

**OSM Arrival Time:** 630
**OSM Departure Time:** 1530
**Location:** Shanghai, China

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|---|---|---|---|---|---|
| **CWI Name:** | Sun Wei | | **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:** Tower Mock-up and OBG

**Summary of Items Observed:**

CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

| Item | Description | WBS | Dwg No. | Status |
|---|---|---|---|---|
| 1 | Ultrasonic testing Tower Mock-up 114 M.<br>The QA inspector witnessed ZPMC UT verifications performed by a UT level II on the skin D Lower and Upper panel. The QA inspector found that ZPMC verifications appeared to be in accordance with contract documents. ZPMC reported two rejectable indication on the skin D lower panel weld # 11 with approximately 310 mm of length and weld joint # 8 with 15 mm of length. | | | |

2 Floor Beams ZPMC UT verifications

The QA inspector witnessed the Ultrasonic testing (UT) performed by QC inspector Li Li Ming at the floor beams. The weld joints and results are as follows:

FB003-E023-001, ZPMC accepted the weld repair

FB003-W021-001, ZPMC accepted total length of the weld.

FB003-W023-001, ZPMC rejected 20 mm length of the weld.

FB003-W024-006, ZPMC accepted the weld repair

FB003-W022-006, ZPMC accepted the weld repair

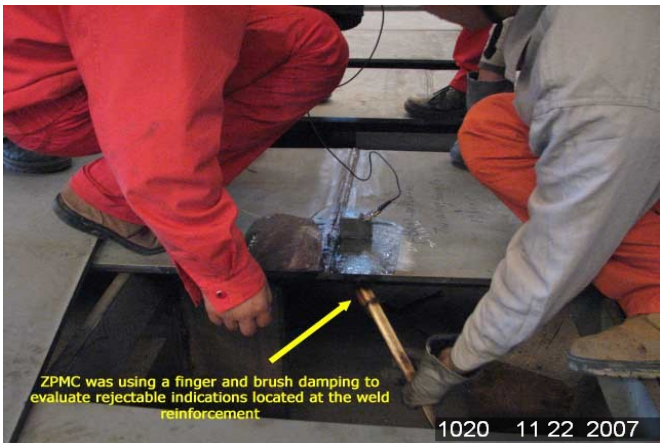
FB003-W024-001, ZPMC accepted the weld repair

FB003-W025-001, ZPMC rejected the weld.

The QA inspector observed that Mr. Li Li Ming did not performed UT examinations per the contract documents. The QA inspector found that ZPMC was not scanning for transverse indications and ZPMC was performing UT operations using the damping technique (by finger and with the brush as shown on the photograph below) to evaluate indications by the weld reinforcement. The QA inspector had a conversation with ABF representative Art Peterson. Mr. Art Peterson asked if the QA inspector accepted the W shapes splices that the QA inspector verified yesterday. The QA inspector informed Mr. Art Peterson that the QA inspector found rejectable indications which appeared not to be relevant indications at the toe of the weld reinforcement. The QA inspector added that he had a conversation with ABF representative Kevin Carpenter and that Mr. Kevin Carpenter agreed that weld reinforcement needed to be ground. Mr. Art Peterson said he had requested ZPMC to grind the weld reinforcement on the W shapes and that he would speak with ZPMC about ZPMC performing UT examinations per the contract documents. The QA inspector informed Mr. Art Peterson that after witnessing and video recording ZPMC's UT verifications, the QA inspector found that ZPMC was not scanning for transverse indications and ZPMC was performing UT operations using the damping technique (by finger and with the brush) to evaluated indications by the weld reinforcement. The QA inspector added ZPMC just had started to UT thinner sections of the OBG where ZPMC is not evaluating reflection coming from the shape, extend and finish of weld reinforcement which could mask rejectable indications. The welds when ZPMC was evaluating the indications by the surfaces of the weld reinforcement, using the finger damping technique. Mr. Art Peterson agreed that the finger damping technique is prohibited for acceptance by the special provision and that instead ZPMC needed to grind the questionable areas and perform ultrasonic testing again.

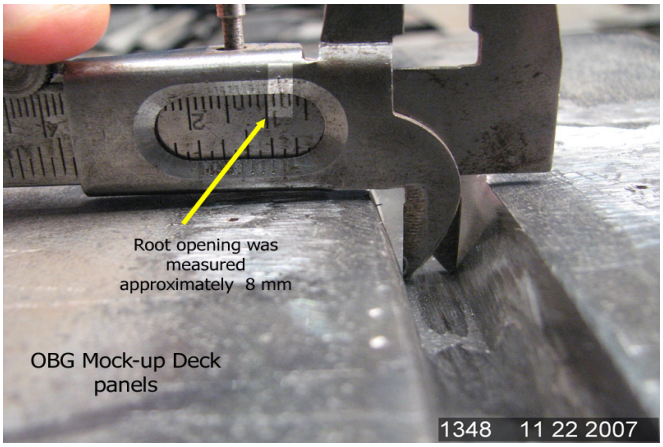
Mr. Art Peterson infomed the QA inspector that he would addressed these issues with ZPMC.

At the end of shift the QA inspector had a conversation with Mr. Art Peterson. Mr. Art Peterson said that ABF was not accepting the UT performed by ZPMC on the OBG and that ABF requested ZPMC to rescan all the floor beams splices and T stiffeners accepted by ZPMC.




3 OBG Mock-up deck Plate

The QA inspector measured a root opening at the junction of the weld splice jointing two panels of approximately 7 to 10 mm. The photograph below shows the dimensional inspection performed with vernier calipers. The QA inspector performed preliminary random fit-up verifications and visual inspection to the weld tacks. The QA inspector found that weld tacks an fit-up appear to be in accordance with the contract documents.




**Summary of Conversations:**

As noted above.

**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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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|---|---|---|
| **Inspected By:** | Acuna,Alfredo | Quality Assurance Inspector |
| **Reviewed By:** | Cuellar,Robert | QA Reviewer |