

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 #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-015476**Date Inspected:** 05-Jul-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**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:** Tower and OBG Components**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance Inspector (QA Inspector) George Goulet was present during the times noted above for observations relative to the work being performed.

Bay 10

This QA Inspector randomly observed the following work in progress in Bay 10:

SMAW tack welding of weld joint SSD1-TL5-1E/F-11A located on PCMK south tower, lift 5, internal stiffener. Welder was identified as 040581. QC was identified as ZPMC CWI Zhang Huang (QC1). Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Yuan Hui Gang, who was not a CWI. Welding variables recorded by QC1's assistant appeared to comply with WPS-B-P-3213-TC-U4. Also present at this location and appearing to monitor the welding operation was ABF Representative Cui Zhenghua.

Bay 11

This QA Inspector randomly observed no welding related work being performed in Bay 11.

OBG Trial Assembly Area

This QA Inspector randomly observed the following work in progress in the OBG Trial Assembly Area:

FCAW layered repair welding of LD18C located on PCMK 9CE, between panel points 76 and 77, longitudinal diaphragm which had been previously removed and was laying across bottom plate stiffeners and other parts.

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Welder was identified as 220069. QC was identified as Li Yang (QC2). Welding variables recorded by QC2 appeared to comply with WPS-345-FCAW-2G-(2F)-repair-1 as listed on ZPMC Weld Repair Report B-WR13818. The report displayed the items as 9BE+9CE L.D. and the drawing number was LD11B, LD12B, LD17C, LD18C.

SMAW repair welding as a result of ZPMC visual testing of various I-rib stiffeners to side plate located on PCMK 9CE, north (crossbeam) side, between panel points 76 and 77. Welder was identified as 054467. QC was identified as QC2. Welding variables recorded by QC2 appeared to comply with WPS-345-SMAW-2G(2F)-FCM-repair-1. Also present at this location and appearing to monitor the welding operation was ABF Representative Cui Zhenghua.

Heavy Dock

This QA Inspector randomly observed the following work being performed on the Heavy Dock:

This QA Inspector observed, and ABF Representative Li Xiu Hua confirmed, no welding related work was being performed on the heavy dock. All 4 tower lifts 2 were erect with all 4 tower lifts 3 attached above, respectively. The lifts 2/3 worker access tower elevator was unmanned and dark. Crossbeam 7 and crossbeam 8 had been moved to stanchions on the foot of the dock, closer to the ship moored there. The open ends of crossbeams 7 and 8 were covered with plastic tarps. See photo below.

Bay 9 – PMT

This QA Inspector monitored OBG Production Monitoring Test (PMT) #3138 for deck panels DP3138B(PL3334B)-001 and DP3107(PL3203A/B/C)-001 at Gantry #2. Prior to the start of the PMT, this QA Inspector observed the root openings to be within the 0.0 to 0.5mm tolerance. The magnetic particle test (MT) of the tack welds was noted on the test panel as having been performed by ZPMC MT Inspector Gu Yunwu on 7/5/10.

The visual inspection of tack welds and root gaps was performed by ABF Representative Huang Wen Guang (PABF), ZPMC CWI Guo Yan Fei (PQC), and this QA Inspector. The tack welds and root gaps appeared to be within prescribed tolerances. This QA Inspector observed that the deck plate of the test panel was 20mm thick and the deck plate of the production panels were 20mm thick. This QA Inspector observed that the test panel was generally representative of the production panels. The ambient temperature was approximately 28°C. Welders were identified respectively, from position 1 through 4, as follows: 059416, 201788, 059418, 059421. ZPMC personnel used an oxy-fuel torch to preheat the specimens to above 60°C and the interpass temperature was still above 60°C without additional heating, in conformance with WPS-B-T-2342-U1-(U-rib)-5. The start time for welding of the 2–12mm x 20mm specimens was approximately 0036 hours on 7/6/10 and the finish time was approximately 0059 hours. This QA Inspector randomly verified and documented the welding amperage, voltage, and travel speed during the gas metal arc welding (GMAW) and submerged arc welding (SAW) processes, welds 1 thru 4 at the completion of both the GMAW root pass and SAW cover pass. The welding variables recorded by PQC appeared to comply with WPS-B-T-2342-U1-(U-rib)-5. The welds were visually inspected by PABF, PQC and this QA Inspector. PQC and PABF informed this QA Inspector that all four welds were acceptable and after random inspection this QA Inspector concurred. This QA inspector randomly witnessed ZPMC ultrasonic testing (UT) inspector, identified as Xue Hai Rong, perform UT on each of the 500 mm test welds for depth of penetration and conformance. This QA Inspector selected ten designated locations for macroetch sampling per contract requirements. Each macroetch sample location was stamped by ZPMC personnel with the number 3138, a number 1 placed upside down, chosen randomly by this QA Inspector as a verification mark, and an individual progressive macroetch identifying number for each macroetch sample. After removal from each of the weld test specimens,

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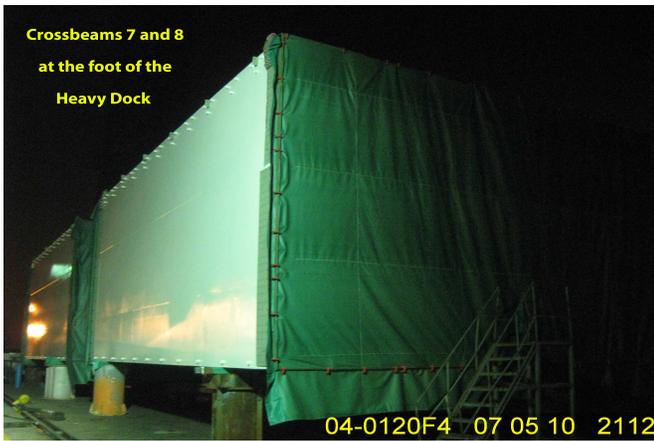
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polishing, and acid etching of the selected end, the macroetch samples were evaluated using a 7X optical magnifier and accepted by PQC, PABF, and this QA Inspector.

All ten sample macroetch samples appeared to meet requirements and were noted to appear acceptable. See Caltrans U-ribs PMT Inspection Sheet, ZPMC production monitoring test plate inspection report, and Caltrans Macro Etch Log - all dated 7/6/2010 for additional information.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

Summary of Conversations: As noted above.



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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 Eric Tsang, 150-0042-2372, who represents the Office of Structural Materials for your project.

Inspected By:	Goulet, George	Quality Assurance Inspector
Reviewed By:	Dawson, Paul	QA Reviewer
