

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 99.28**WELDING INSPECTION REPORT****Resident Engineer:** Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018755**Date Inspected:** 19-Dec-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC)**Location:** Shanghai, China**CWI Name:** Li Yang and Zhu Zhong Hai**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:** OBG Trial Assembly**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. S. Manjunath Math was present during the time noted above for observations relative to the work being performed.

This QA Inspector randomly observed the following work in progress:

Orthotropic Box Girder (OBG) at Trial Assembly Areas

Segment 11CE to Segment 11DE (U-Rib to U-Rib)

This QA Inspector witnessed the final bolt tension verification on bolts connecting the U-Rib to U-Rib at the transverse splice between Panel Points (PP) 103 and PP 104 for Segment 11CE to Segment 11DW. The QA Inspector verified the bolt tension on a random basis and the results appeared to be in general compliance. The Inspection was performed against Notification No. 00577 dated December 19, 2010.

The bolt sizes used were M22 x 65 RC Lot # DHGM220114 and the final torque value established was 450 N-m.

The bolt sizes used were M22 x 80 RC Lot # DHGM220094 and the final torque value established was 470 N-m.

The bolt sizes used were M22 x 85 RC Lot # DHGM220027 and the final torque value established was 393 N-m.

The Manual Torque wrench used was Serial No. XO2-666.

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Please reference the pictures attached for more comprehensive details.

### Cross Beam (CB) # 16

This QA Inspector performed Dimension Control Inspection along with Caltrans QA Inspector for measuring gap between the stiffeners at floor beam (FL3) extension at Segment 11DW and Cross Beam # 16 stiffeners at bottom panel, vertical web plate and deck plate at following locations:

At Panel Point (PP) 104, Segment 11DW gap measurement performed between floor beam stiffeners to west side Vertical Web Plate stiffeners of cross beam # 16 total 13 stiffeners.

At Panel Point (PP) 105, Segment 11DW gap measurement performed between floor beam stiffeners to centre Vertical Web Plate stiffeners of cross beam # 16, total 13 stiffeners.

At Panel Point (PP) 106, Segment 11DW gap measurement performed between floor beam stiffeners to east side Vertical Web Plate stiffeners of cross beam # 16, total 13 stiffeners.

Between Panel Points (PP) 104 to PP 105, Segment 11DW gap measurement performed between deck panel stiffeners to deck panel stiffeners of cross beam # 16, total 11 stiffeners.

Between Panel Points (PP) 105 to PP 106, Segment 11DW gap measurement performed between deck panel stiffeners to deck panel stiffener of cross beam # 16, total 11 stiffeners.

Between Panel Points (PP) 104 to PP 105, Segment 11DW gap measurement performed between bottom panel stiffeners to bottom panel stiffeners of cross beam # 16, total 5 stiffeners.

Between Panel Points (PP) 105 to PP 106, Segment 11DW gap measurement performed between bottom panel stiffeners to bottom panel stiffener of cross beam # 16, total 5 stiffeners.

The measurements were recorded in the Dimension Control Plan (DCP) on a separate form and submitted to the Lead Inspector and Engineer for review and disposition.

### Segment 12AE to Segment 12BE (Root Gap and Offset)

This QA Inspector performed Dimension Control Inspection along with Caltrans QA Inspector Mr. Murugan Manikandan on December 11, 2010 and December 19, 2010 for measuring root gap and offset on at the Transverse Splice for the Segment 12AE to Segment 12BE between Panel Point (PP) 112.5 to PP 113 at the following locations:

Work Point E2 towards Work Point E1 (Edge Panel Bike Path Side).

Work Point E1 towards Work Point E3 (Side Panel Bike Path Side).

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Work Point E3 towards Work Point E4 (Bottom Panel).

Work Point E4 towards Work Point E6 (Side Panel Cross Beam Side).

Work Point E6 towards Work Point E5 (Edge Panel Cross Beam Side).

Work Point E5 towards Work Point E2 (Deck Panel).

The QA Inspector measured the root gap using 1(One) taper gauge and measured the offset using a bridge cam gauge.

The measurements were recorded in the Dimension Control Plan (DCP) on a separate form and submitted to the Lead Inspector and Engineer for review and disposition.

Segment 12AW to Segment 12BW (Transverse Splice weld)

This QA Inspector observed the in-process welding by Shielded Metal Arc Welding (SMAW) process on a Complete Joint Penetration (CJP) groove weld. The Weld joint was designated as OBW12D-002. The welder identification was 040611 and 040656, observed welding in the 4G (Overhead) position using approved Welding Procedure Specification WPS-B-P-2214-B-U2-FCM-1. The piece mark was identified as the Side Panel, Cross Beam side at transverse splice.

Please reference the pictures attached for more comprehensive details.

Segment 12AW to Segment 12BW (Transverse Splice weld)

This QA Inspector observed the in-process welding by Shielded Metal Arc Welding (SMAW) process on a Complete Joint Penetration (CJP) groove weld. The Weld joint was designated as OBW12D-002. The welder identification was 046709 and observed welding in the 4G (Overhead) position using approved Welding Procedure Specification WPS-B-P-2214-B-U2-FCM-1. The piece mark was identified as the Side Panel Corner Assembly, Cross Beam side at transverse splice.

Segment 12AW to Segment 12BW (Transverse Splice weld)

This QA Inspector observed the in-process welding by Shielded Metal Arc Welding (SMAW) process on a Complete Joint Penetration (CJP) groove weld. The Weld joint was designated as OBW12B-001. The welder identification was 053486 and observed welding in the 1G (Flat) position using approved Welding Procedure Specification WPS-B-T-2231T-ESAB. The piece mark was identified as the Bottom Panel, at transverse splice.

Please reference the pictures attached for more comprehensive details.

Segment 12AW to Segment 12BW (Transverse Splice weld)

This QA Inspector observed the in-process welding by Flux Cored Arc Welding (FCAW) process on a Complete

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Joint Penetration (CJP) groove weld. The Weld joint was designated as OBW12D-001. The welder identification was 040609 and observed welding in the 3G (Vertical) position using approved Welding Procedure Specification WPS-B-T-2233T-ESAB. The piece mark was identified as the Side Panel, Counter Weight side at transverse splice.

Segment 12AW to Segment 12BW (Edge Panel I-Rib Stiffener Splice weld)

This QA Inspector observed the in process welding operation by the Shielded Metal Arc Welding (SMAW) process on a Complete Joint Penetration (CJP) groove weld. The weld joint was designated as EP3007-001-065. The welder identification was 040656 and was observed welding in the 1G (Flat) position using approved Welding Procedure Specification WPS-B-P-2211-B-U2-FCM-1. The piece mark was identified as the Edge Panel, I-Rib Stiffener Splice weld at Cross Beam.

Segment 12AE (Side Panel and Bottom Panel connecting weld)

This QA Inspector observed the in-process welding by Shielded Metal Arc Welding (SMAW) process on a Complete Joint Penetration (CJP) groove weld. The Weld joint was designated as Seg3001A-004. The welder identification was 053871 and was observed welding in the 4G (Overhead) position using approved Welding Procedure Specification WPS-B-P-2214-B-U2-FCM-1. The piece mark was identified as Bottom Panel to Side Panel hold back weld at work point E3.

Segment 12BE (Side Panel and Bottom Panel connecting weld)

This QA Inspector observed the in-process welding by Shielded Metal Arc Welding (SMAW) process on a Complete Joint Penetration (CJP) groove weld. The Weld joint was designated as Seg3002A-004. The welder identification was 053871 and was observed welding in the 4G (Overhead) position using approved Welding Procedure Specification WPS-B-P-2214-B-U2-FCM-1. The piece mark was identified as Bottom Panel to Side Panel hold back weld at work point E3.

Please reference the pictures attached for more comprehensive details.

Segment 12BE (Full Height Diaphragm)

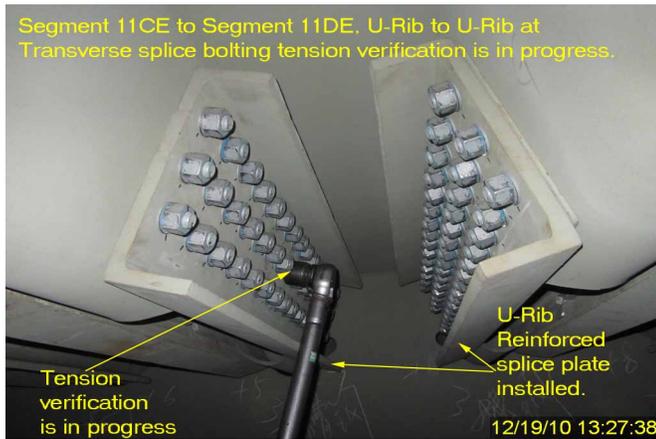
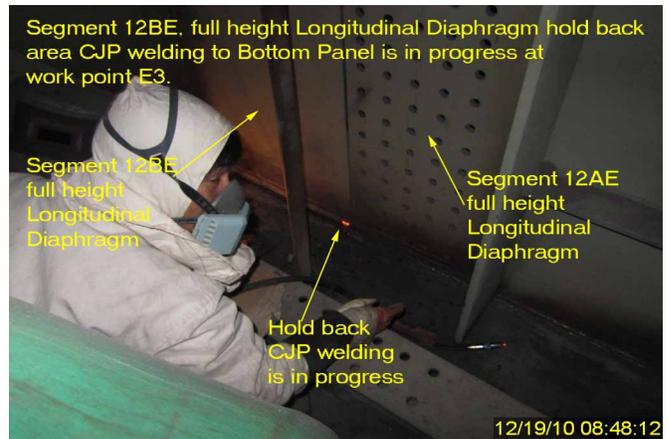
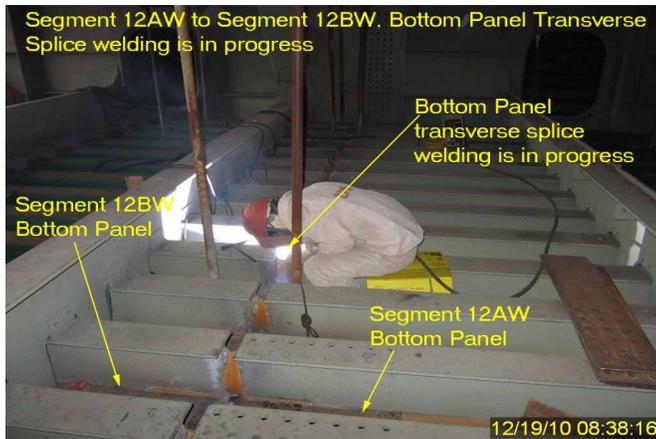
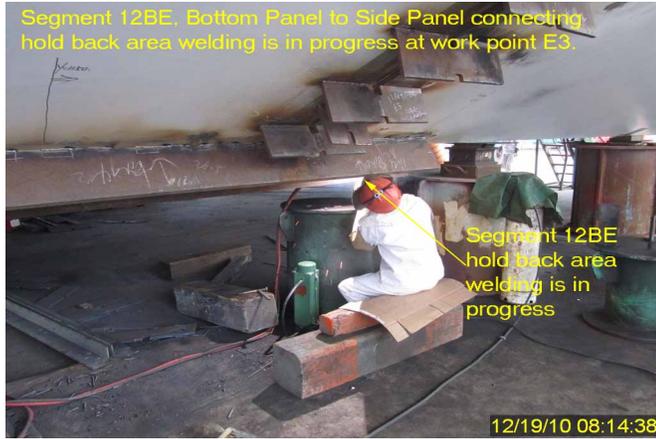
This QA Inspector observed the in-process welding by Flux Cored Arc Welding (FCAW) process on a Complete Joint Penetration (CJP) groove weld. The Weld joint was designated as Seg3002N-017. The welder identification was 052763 and was observed welding in the 2G (Horizontal) position using approved Welding Procedure Specification WPS-B-T-2232-ESAB. The piece mark was identified as full height Longitudinal Diaphragm web to Bottom Panel hold back weld at work point E3.

Please reference the pictures attached for more comprehensive details.

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

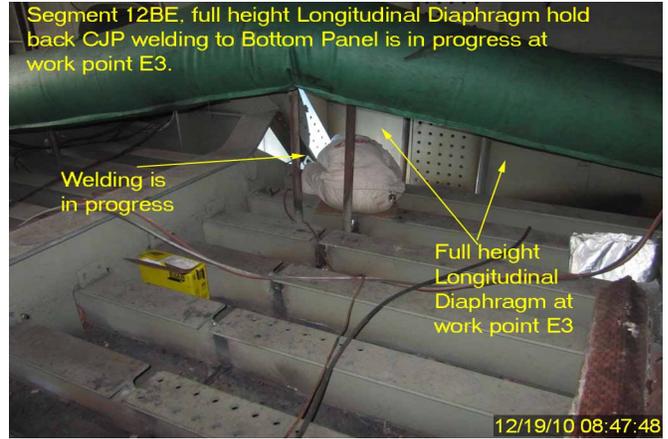
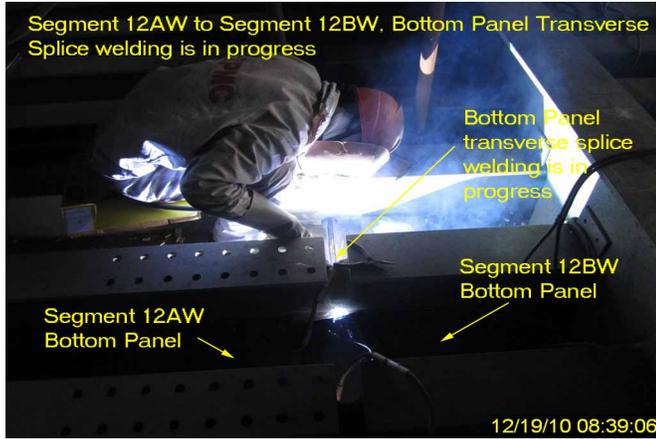
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## Summary of Conversations:

No relevant conversations were reported on this date.

## 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 150000422372, who represents the Office of Structural Materials for your project.

**Inspected By:** Math,Manjunath

Quality Assurance Inspector

**Reviewed By:** Dsouza,Christopher

QA Reviewer