

**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 #: 99.28**WELDING INSPECTION REPORT**

**Resident Engineer:** Siegenthaler, Peter  
**Address:** 333 Burma Road  
**City:** Oakland, CA 94607

**Report No:** WIR-016800  
**Date Inspected:** 14-Sep-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

<b>CWI Name:</b>	N/A	<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>
<b>Inspected CWI report:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b> <b>No</b> <b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
		<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b> <b>N/A</b>
<b>Bridge No:</b>	34-0006	<b>Component:</b>	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 9BW (Partial Height Diaphragm)

This QA Inspector witnessed the final bolt tension verification on bolts connecting the Partial Height Diaphragm flange to the Side Panel at FL3 location at Panel Points (PP) 74, PP 75 and PP 76 for Segment 9BW. 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. 00491 dated September 14, 2010.

The bolt sizes used were M24 x 65 RC Lot # DHGM240002 and the final torque value established was 573 N-m and 1300 N-m.

The Manual Torque wrench used was Serial No. XO2-190.

Segment 9DW (Partial Height Diaphragm)

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This QA Inspector witnessed the final bolt tension verification on bolts connecting the Partial Height Diaphragm flange to the Side Panel at FL3 location at Panel Points (PP) 80, PP 81 and PP 82 for Segment 9DW. 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. 00491 dated September 14, 2010.

The bolt sizes used were M24 x 65 RC Lot # DHGM240002 and the final torque value established was 573 N-m and 1300 N-m.

The Manual Torque wrench used was Serial No. XO2-190.

Segment 9CW to Segment 9DW (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) 79 and PP 80 for Segment 9CW to Segment 9DW. 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. 00491 dated September 14, 2010.

The bolt sizes used were M22 x 70 RC Lot # DHGM220027 and the final torque value established was 450 N-m.  
The bolt sizes used were M22 x 70 RC Lot # DHGM220028 and the final torque value established was 440 N-m.  
The bolt sizes used were M22 x 70 RC Lot # DHGM220022 and the final torque value established was 487 N-m.  
The bolt sizes used were M22 x 80 RC Lot # DHGM220091 and the final torque value established was 460 N-m.  
The bolt sizes used were M22 x 85 RC Lot # DHGM220111 and the final torque value established was 340 N-m.

The Manual Torque wrench used was Serial No. XO2-676. Please reference the pictures attached for more comprehensive details.

Segment 9DW to Segment 9EW (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) 82 and PP 83 for Segment 9DW to Segment 9EW. 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. 00491 dated September 14, 2010.

The bolt sizes used were M22 x 70 RC Lot # DHGM220022 and the final torque value established was 487 N-m.  
The bolt sizes used were M22 x 80 RC Lot # DHGM220091 and the final torque value established was 460 N-m.  
The bolt sizes used were M22 x 85 RC Lot # DHGM220111 and the final torque value established was 340 N-m.

The Manual Torque wrench used was Serial No. XO2-676. Please reference the pictures attached for more comprehensive details.

Segment 9DW to 9EW (Transverse Splice T-Ribs)

This QA Inspector witnessed final bolt tension verification on bolts connecting T-Rib to T-Rib for Transverse Splice at Side Panel Cross Beam Side (from work point W6 towards W4), Bottom Panel (from work point W4

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towards W3) and Counter Weight side (from work point W3 to W1) between Panel Point (PP) 82 to PP 83 for Segment 9DW to Segment 9EW. Inspected the bolt tensioning on a random basis and found the tension to be in general compliance. Inspection was performed against the Notification 00491 Dated September 14, 2010.

The bolt sizes used were M22 x 65 RC Lot # DHGM220092 and the final torque value established was 466 N-m.

The bolt sizes used were M22 x 65 RC Lot # DHGM220021 and the final torque value established was 543 N-m.

The bolt sizes used were M22 x 70 RC Lot # DHGM220038 and the final torque value established was 480 N-m.

The bolt sizes used were M22 x 80 RC Lot # DHGM220091 and the final torque value established was 460 N-m.

The Manual Torque wrench used was Serial No. XO2-676. Please reference the pictures attached for more comprehensive details.

Segment 9DW to 9EW (Transverse Splice T-Ribs)

This QA Inspector performed Dimension Control Inspection on the Transverse Splice T-Ribs to T-Ribs after bolting for the Segment 9DW to Segment 9EW between Panel Point (PP) 82 to PP 83 at the following locations:

Work Point W6 towards Work Point W4 (Side Panel Cross Beam Side) total 19 T-Ribs.

Work Point W4 towards Work Point W3 (Bottom Panel) total 18 T-Ribs.

Work Point W3 towards Work Point W1 (Side Panel Counter Weight Side) total 19 T-Ribs.

The QA Inspector measured the Vertical Offset using 1(One) Meter Straight Edge and measured the Horizontal Offset on the web 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 9CW to Segment 9DW (Transverse Splice T-Ribs)

This QA Inspector witnessed final bolt tension verification on bolts connecting T-Rib to T-Rib for Transverse Splice at Bottom Panel (from work point W4 towards W3) between Panel Point (PP) 79 to PP 80 for Segment 9CW to Segment 9DW, 2 bolts on every T-Ribs (except on 14th T-Rib from work point W4). Bolts are installed next to temporary sea fastening. Inspected the bolt tensioning on a random basis and found the tension to be in general compliance. Inspection was performed against the Notification 00491 Dated September 14, 2010.

The bolt sizes used were M22 x 70 RC Lot # DHGM220038 and the final torque value established was 480 N-m.

The Manual Torque wrench used was Serial No. XO2-676.

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Segment 10BE to 10CE (Root Gap and Offset)

This QA Inspector performed Dimension Control Inspection for measuring root gap on September 12, 2010 and offset on September 14, 2010 at the Transverse Splice for the Segment 10BE to Segment 10CE between Panel Point (PP) 91 to PP 92 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).

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.

Lift 9 West

This QA Inspector along with Caltrans QA Inspector Mr. Shailesh Wadkar photographed the temporary Sea-fastening at various locations prior to the shipment of (Voyage 5) of Lift 9 West en-route to Yerba Buena Island, California, USA. The Lift 9 West is located on ZPMC Ship Zhenhua # 18 on top of Lift 9 East.

The Segments are identified as following.

Segment 9AW at Panel Points (PP) 71.25, PP 72, PP 72.5 and PP 73.

Segment 9BW at Panel Points (PP) 73.5, PP 74, PP 74.5, PP 75, PP 75.5 and PP 76.

Segment 9CW at Panel Points (PP) 76.5, PP 77, PP 77.5, PP 78, PP 78.5 and PP 79.

Segment 9DW at Panel Points (PP) 79.5, PP 80, PP 80.5, PP 81, PP 81.5 and PP 82.

Segment 9EW at Panel Points (PP) 82.5, PP 83, PP 83.5, PP 84, PP 84.5 and PP 85.

The following locations are where the photographs were taken and the photographs are available for review upon request.

Intermediate Corner Assembly for cross and vertical truss post bolting area (Cross Beam and Counter Weight Side).

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Corner Assembly covering overall view, Deck Panel I-stiffeners, Edge Panel I-Stiffeners and Side

Corner Assembly I-Stiffeners (Cross Beam and Counter Weight Side) facing west and facing east.

Longitudinal Diaphragm looking on north and south side at work point W3 and W4 (Cross Beam and Counter Weight Side) facing west and facing east.

Lower and Upper Chevron with sea fastening structures (Cross Beam and Counter Weight Side) facing west and facing east.

Floor Beam (Cross Beam and Counter Weight Side) facing west and facing east.

Sea fasteners installed at the Bottom Panel facing west and facing east.

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



## Summary of Conversations:

No relevant conversations were reported on this date.

## Comments

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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.

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<b>Inspected By:</b>	Math,Manjunath	Quality Assurance Inspector
<b>Reviewed By:</b>	Peterson,Art	QA Reviewer

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