

**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 #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-006584**Date Inspected:** 06-May-2009**Project Name:** SAS Superstructure**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Contractor:** Japan Steel Works**OSM Arrival Time:** 730**OSM Departure Time:** 1630**Location:** Muroran, Japan

<b>CWI Name:</b>	Chung Fu Kuan		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	Yes	No	N/A

**Bridge No:** 34-0006**Component:** Tower, Jacking, and Deviation Saddles**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

**Fabrication Shop #4**

Machining Operation of Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the inside of the north cable trough is being milled to final dimensions on the tower saddle segment.

Machining Operation of Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed no machining being performed.

Storage of Saddle: West Deviation Saddle Segment W2-E1 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 has been moved from Machine Shop #2 to Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E1.

Welding Operation of Saddle: Tower Saddle Segment T1-3 (cast section being welded to steel section)

The QA Inspector observed the partial-joint penetration groove root and fill pass weld operation on the rib plate

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(steel section) to rib plate (cast section) of tower saddle segment T1-3. The QA Inspector observed Quality Control (QC) Inspector Mr. Makhmud Ashadi verify prior to and during the welding operation that the minimum preheat temperature of 110 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Ohkawa (03-3091) on weld joint no. 9Y-12U-3- (root and fill passes) and Mr. K. Sadakawa (06-2929) on weld joint no. 9Y-12U-2 were in compliance with WPS SJ-3012-4 per the SMAW process using LB52A 7016 electrode in the (2G) horizontal position with (4.0) mm diameter electrode on the root pass and (5.0) mm diameter on the fill passes. The QA Inspector observed that the partial-joint penetration groove fill pass weld operation was in process at the QA Inspectors' shift.

**Welding Operation of Saddle: West Deviation Saddle Segment W2-E3 (cast section being welded to steel section)**  
The QA Inspector observed that the JSW personnel were in process on re-positioning- (turning over) west deviation saddle segment W2-E3 in preparation to resume the welding on the 2nd side of the partial-joint penetration groove welds on the rib plate (steel section) to rib plate (cast section). The QA Inspector observed that the re-positioning of west deviation saddle segment W2-E3 was in process at the end of the QA Inspectors' shift.

**Fit-up Operation of Saddle: West Deviation Saddle Segment W2-W1 (cast section being fit to steel section)**  
The QA Inspector observed JSW personnel completed the fit-up operation of west deviation saddle segment W2-W1 (cast section) to west deviation saddle segment W2-W1 (steel section). On this date, the QA Inspector observed that no welding was performed on this date.

**Machining Operation of Saddle: Tower Saddle Segment T1-2 (cast section welded to steel section)**  
The QA Inspector observed that tower saddle segment T1-2 is located in Machine Shop #4 to have the steel plate section of the ribs and stems on the prepared groove areas (root face) milled prior to the fit-up operation of the base plate. On this date, the QA Inspector observed the JSW personnel setting up the tower saddle segment in preparation to take dimensions from the assembly control lines prior to the start of the machining operation on the prepared groove areas.

**Welding Operation on Saddle: West Deviation Saddle Segment W2-W2 (steel section being welded to base plate)**  
The QA Inspector observed the partial-joint penetration groove fill pass weld operation on the rib plate (steel section) to base plate (steel section) and rib plate (steel section) to stem plate (cast section) on west deviation saddle segment W2-W2. The QA Inspector observed Quality Control (QC) Inspector Mr. Makhmud Ashadi verify prior to and during the welding operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Watanabe (08-5153) on weld joint no. W2Y-12L and Mr. M. Kashiwada (08-2008) on weld joint no. W2Y-11V were in compliance with WPS SJ-3011-2 and WPS SJ-3011-3, respectively per the FCAW process in the (1G) flat position using (1.6) mm diameter TM95 electrode. The QA Inspector observed that the partial-joint penetration groove fill pass weld operation was in process at the QA Inspectors' shift.

**Temporary attachments on Base Plate of Saddle: West Deviation Saddle Segment W2-W3 (steel section)**  
The QA Inspector observed that JSW welding personnel completed the welding of temporary attachments to the edge of the base plate and to the edge of the fixture of west deviation saddle segment W2-W3. The Quality Control Inspector Mr. Makhmud Ashadi informed the QA Inspector that the fit-up operation of the rib plates to the base plate on the west deviation saddle segment would start on the second ("B" shift). The QA Inspector observed JSW personnel were preparing the rib plates' prepared edges with a grinder to remove any deleterious material prior to

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the start of the fit-up operation. The QA Inspector observed that the grinding / cleaning operation on the prepared edges was in process at the end of the QA Inspectors' shift.

### Foundry Shop:

Storage of Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W2 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed.

Grinding Operation on Saddle: East Saddle E2-E1 (cast saddle)

The QA Inspector observed that JSW personnel were performing the grinding operation on the shaped areas on the outside of the trough section and on the rib sections where previously the excess removal of cast material- (scarfing operation by the air-carbon-arc method) on the rough casting was performed on east saddle E2-E1. The purpose of the grinding operation is to profile the areas to a smooth finish and for subsequently the NDT operation. The QA Inspector observed that the grinding operation was in process at the end of the QA Inspectors shift.

Repair Operation pending on Saddle: East Saddle E2-W1 (cast saddle)

The QA Inspector was informed by JSW Representative Mr. Hideaki Kon that JSW personnel will perform the gouging operation (air-carbon arc method) of discontinuities marked up by Nikko Inspection Services (NIS) QC NDT Personnel Mr. H. Kohama (#86) from the magnetic particle test (MPT) inspection and the ultrasonic test (UT) inspection on the outside of the trough section and rib sections of east saddle E2-W1 (cast section). The QA Inspector observed that no work was performed on this date.

NDT Operation on Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed Nikko Inspection Services (NIS) QC NDT personnel Mr. A. Seino (#82) performing the magnetic particle test (MPT) inspection (wet method) on west deviation saddle W2-W3 (cast section) on the as finished surface of level (1) areas as shown on the plans on the outside of the trough section and of level (3) areas as shown on the plans on the rib sections of the west deviation saddle. The NIS QC NDT Inspector verified the lifting force of the yoke and the sensitivity of the yoke as per ASTM E709 prior to the start of the MPT inspection. The QA Inspector also verified that the bath concentration of the non-fluorescent particles were between (1.2 and 2.4) mL per (100) mL as per ASTM E709 Section 20.6.3 and the manufacturer recommendations. The actual settling volume was recorded at (1.9) mL as measured using a pear shape centrifuge tube with a (1.5) mL stem and after allowing the particles to settle for approximately (30) minutes prior to taking the settling volume measurement. The QA Inspector observed that the MPT inspection performed by Mr. A. Seino was in process at the end of the QA Inspectors' shift.

Machining Operation of Saddle: West Jacking Saddle (cast saddle)

The QA Inspector observed that the west jacking saddle is located in Machine Shop #2. On this date, the QA Inspector observed that no machining was performed on the west jacking saddle.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with applicable contract documents.

### Summary of Conversations:

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No significant 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 Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

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

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