DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 99.28

WELDING INSPECTION REPORT

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

Report No: WIR-006640
Date Inspected: 08-May-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: HoChang/DooSan

OSM Arrival Time: 800
OSM Departure Time: 1800
Location: Unyang/Changwon, Kore

CWI Name: Sang Ho, Kwak

Inspected CWI report:	☐ Yes	☐ No	☑ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Pier E2 bearing and Shear key

Summary of Items Observed:

The following report is based on METS observations at HoChang Machinery Industries (HCMI). Current work: Casting, forging and machining.

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HCMI) located at Unyang, Korea and DooSan Heavy Industries (DHIC) located at Changwon, Korea. The Purpose of this trip was to observe quality control during fabrication and process of following items.

The QA inspector observed DHIC QC inspector perform hardness testing on following castings. QA inspector Checked calibration date and calibration test on standard block. DHIC used EQUOTIP D-type Equipment.

Forging

1. Bearing Bottom Housing (B1-07/F07302-010): Completed Hardness Testing.
2. Bearing Bottom Housing (B2-07/F07302-020): Completed Hardness Testing.
3. Bearing Bottom Housing (B3-07/F07302-030): Completed Hardness Testing.
4. Bearing Bottom Housing (B4-07/F07302-040): Completed Quenching and tempering.
5. Spherical Ring (S1-07/F07302-050): Completed Hardness Testing.
6. Spherical Ring (S2-07/F07302-060): Completed Hardness Testing.
7. Spherical Ring (S3-07/F07302-070): Completed Hardness Testing.
8. Spherical Ring (S4-07/F07302-080): Completed Hardness Testing.
9. Solid Shaft (B1-02/F07302-090): Completed Hardness Testing.

10. Solid Shaft (B2-02/F07302-100): Completed Hardness Testing.
11. Solid Shaft (B3-02/F07302-110): Completed Quenching and tempering.
12. Solid Shaft (B4-02/F07302-120): Completed Quenching and tempering.

• F number is DooSan Production Number.
• B number is drawing Number.

Casting

On this date DHIC has started repair welding on castings, QA inspector, HMIC QC
Inspector and DHIC QC inspector has checked welding parameters prior start repair welding.
DHIC used listed qualified welder Mr. DJ Kang, Mr. G. S. Kim, and Mr. J. H. Kim.
Welding process utilized Gas Shielded Flux Core Arc Welding (FCAW-G) with E81T1-K2, 1.6mm diameter
Manufacture by SEAH-ESAB, Brand name Dual shield 1181-K2.
QA inspector checked welding parameters 23-26 volts, 210-250 amps, travel speed 13-16 cm/min,
Gas flow 10-25l/min, preheat temperature over 100ºC and 24 hours maintaining preheat temperature.
All of welding parameters were found to comply with approved welding procedure specification A-F-Z1Z1-219.

1. Bearing Top Housing (B1-06, C07039-010): Completed defect removal and initial NDT.
2. Bearing Top Housing (B2-06, C07039-020): Completed defect removal and initial NDT.
3. Bearing Top Housing (B3-06, C07039-030): Continue repair welding.
4. Bearing Top Housing (B4-06, C07039-040): Completed defect removal and initial NDT.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Completed repair welding.
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Completed defect removal and initial NDT.
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Completed repair welding.
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Completed repair welding.
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Completed repair welding.
10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Completed defect removal and initial NDT.
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Completed defect removal and initial NDT.
12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Completed defect removal and initial NDT.
13. Shear Key Stub (S1-01, C07039-090): Continue repair welding.
14. Shear Key Stub (S2-01, C07039-100): Continue repair welding.
15. Shear Key Stub (S3-01, C07039-110): Completed defect removal and initial NDT.
16. Shear Key Stub (S4-01, C07039-120): Completed defect removal and initial NDT.
17. Shear key Housing (S1-03, C07039-130): Completed defect removal and initial NDT.
18. Shear key Housing (S2-03, C07039-130): Completed defect removal and initial NDT.
19. Shear key Housing (S3-03, C07039-130): Continue to remove out defects.
20. Shear key Housing (S4-03, C07039-130): Continue to remove out defects.

* S and B number is drawing number.
* C number is DSHI ID number.

PRE-HEATING ON STUB

WELDING ON STUB

TOO RUSTY FOR UT

WELDING ON BEARING TOP HOUSING

DHIC QC INSPECTOR PERFORMING HARDNESS TESTING ON FORGING

DHIC QC INSPECTOR CALIBRATED HARDNESS TEST EQUIPMENT

Summary of Conversations:

*Discuss with Mr. S. H. Kwak regarding general project schedule.

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, (858)531-0335, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

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Inspected By:	Shin,DJ	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer