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

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 74.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-028860
Date Inspected: 12-Dec-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Goodwin Steel, UK

OSM Arrival Time: 630
OSM Departure Time: 1700
Location: Trentham, UK

CWI Name:	Alan Bentley - QC Director			**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: Type B16 Cable Band

Summary of Items Observed:

The Quality Assurance (QA) Inspector Art Peterson arrived at Goodwin International (GI) Machine Shop in Trentham, United Kingdom to observe the major repair weld operation being performed on a Type B16 supplementary cable band casting due to the cable band bore wall thickness being under the tolerance specified on GI's approved shop drawing.

The manufacturing of the Type B16 supplementary cable bands are part of a risk management strategy to address the concern with certain cable band gaps closing up as the work is progressing on-site during the main cable load transfer to the orthotropic box girders. The following items observed on this date were:

Cable Band Casting GG37014-9 (Male Section) and GG37015-9 (Female Section):
The QA Inspector randomly observed GI welding personnel Mick Edwards performing the Shielded Metal Arc Welding (SMAW) operation in the (1G) flat position on two (2) areas identified as a major repair on the exterior side of the bore of cable band casting Male section GG37014-9. The two (2) major repair areas were identified as (#19) with an area dimension of (460 mm long x 320 mm wide x 10 mm deep of weld build-up); and (#20) with an area dimension of (380 mm long x 340 mm wide x 10 mm deep of weld build-up).

The two (2) areas requiring the weld build-up were verified by this QA Inspector after GI Chief Inspector Tony Godwin outlined the two (2) areas that were under tolerance – nominal dimension for the bore wall thickness is: (35 mm + 5mm – 0.15 mm). The nominal dimensions of the bore wall thickness outlined in the two (2) areas ranged from (29 mm ~ 32 mm).

The QA Inspector verified the dimensions of the two (2) repair areas as mentioned above as major weld repairs prior to the repair map being prepared by GI's Quality Control (QC) Coordinator Chris Ryder along with preparing the major weld repair submittal to Goodwin Steel Casting's Quality Assurance Manager Jason Cross who will forward the submittal to American Bridge / Fluor (ABF) for written approval by the Caltrans Engineer.

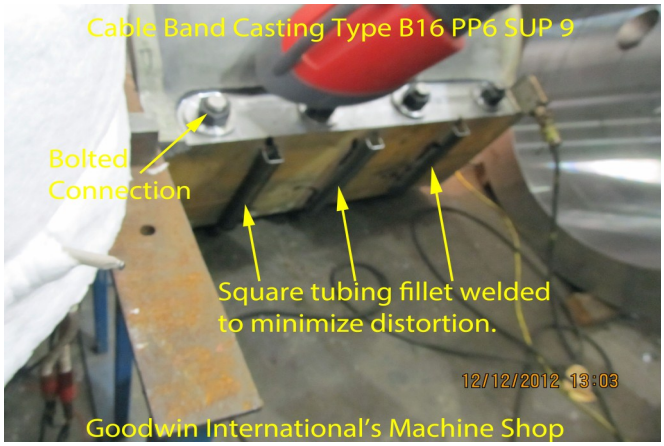
Prior to the start of the major repair weld operation, the QA Inspector observed GI personnel (assemble / bolt) the cable band casting Male section GG37014-9 to cable band casting Female section GG37015-9 to minimize the distortion during the major repair weld operation performed on the two (2) areas of the exterior side of the cable band casting Male section's bore.

Afterwards, the QA Inspector observed GI welding personnel Mick Edwards fillet weld per the SMAW process in the (3F) vertical position square tubing to each side of the cable band casting at three (3) locations in between the bolted connections and across the mating faces of the cable band casting as part of GI's distortion control plan. The locations of the square tubing were mapped out on a drawing and a copy was provided to this QA Inspector for review.

The QA Inspector observed the cable band casting being preheated by GI welding personnel Mick Edwards to the minimum temperature listed in WPS 04-0120F4B Issue 5 of 160 degrees Celsius and Mick Edwards utilized the 160 degree Celsius tempilstik to verify the temperature was maintained in an area of at least 75 mm around the perimeter of the two (2) major repair weld areas identified as (#19 and #20).

Afterwards, GI welding personnel Mick Edwards proceed with the weld build-up on the exterior side of the cable band bore on cable band casting Male Section GG37014-9 per the SMAW process in the (1G) flat position and this QA Inspector verified that the welding parameters – (Amps) were observed to be between the minimum of (100) and maximum of (180) on the welding machine utilizing the (4.0) mm diameter E7018 electrode as listed on the approved WPS 04-0120F4B Issue 5.

The repair weld operation being performed on major repair area (#19) appeared to be in general compliance with WPS 04-0120F4B Issue 5. The repair weld operation was in-process at the end of this QA Inspector's shift.



Summary of Conversations:

WELDING INSPECTION REPORT

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Except as noted above, only general conversations between this QA Inspector and Goodwin International welding and inspection personnel relevant to the welding operation performed on the (1) Type B16 cable band casting.

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 Gary Thomas, 916-764-6027, who represents the Office of Structural Materials for your project.

Inspected By:	Peterson,Art	Quality Assurance Inspector
Reviewed By:	Foerder,Mike	QA Reviewer