

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 74.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007114**Date Inspected:** 11-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Goodwin Steel, UK**Location:** Stoke on Trent, UK

CWI Name:	N/A	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:	Cable Band	

Summary of Items Observed:

The following report is based on METS observations at Goodwin Foundry in Stoke on Trent and Goodwin International Machine shop in Trentham, England.

Magnetic Particle Testing

QA inspector observed, Goodwin Steel Castings NDT Level II technician Mr. Alan Banks perform Magnetic Particle testing (MT) of Cable Band casting B10/F, GG29435-1. The MT was performed in accordance with ASTM standard E709 and Goodwin Steel Castings Magnetic Particle Procedure for Cable Band Castings MT06-09-02 revision 1, using the prod method with leach magnet contacts. Wet florescent magnetic particles were utilized. Several relevant indications were found by Mr. Banks. The indications were evaluated in accordance with ASTM E125 and Goodwin Steel Castings Magnetic Particle Procedure for Cable Band Castings MT06-09-02 revision 1. Indications found to be rejectable in accordance with MT-06-09-02 were marked for excavation and reported. The testing was not completed on this date and the Quality Assurance Inspector did concur with Mr. Bank's inspection results.

Mechanical Testing

The following tensile testing was performed by Goodwin Steel Castings Quality Control Technician, Mr. Rob Freeman. The testing was witnessed and completed today:

GG231825-1, Heat E10653, After PWHT

Yield Strength 427 N/mm²Ultimate Tensile Strength 605 N/mm²

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Elongation 28

Reduction of area 47

Repair

QA inspector witnessed repair welding of casting B7/M-1, GG29430-1 as submitted in ABF-SUB-000366 Rev. 33.

The welder, Adam Migas, was observed welding in the flat position utilizing approved welding procedure WPS04-0120F4B. Amperage of 155 Amps was verified utilizing a clamp type meter. Parameters were observed to be within the limits of the WPS.

Documents received and reviewed

The QA inspector received and completed a review of the document packages including the Certificate of Conformity for;

GG31826-1, Drawing 5540-B14-SBT; this casting is awaiting dispatch to Goodwin International.

GG29417-3, Drawing 5540-B1-1-F; this casting is awaiting dispatch to Goodwin International.

GG29417-6, Drawing 5540-B1-1-F; this casting is awaiting dispatch to Goodwin International.

GG29449-1, Drawing 5540-B15-F; this casting is awaiting dispatch to Goodwin International.

The foundry operations are complete including Visual Inspection, Nondestructive Testing, Mechanical Testing, and casting repair.

The QA inspector received a copy of the Goodwin Steel Castings "Weld Excavation Map" for casting GG29431-1, B7/F. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. The QA inspector found two locations which appeared to require repair that were not on the weld excavation map. The weld excavation map was revised and the locations were added. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B228-019-09 was assigned for tracking purposes.

The QA inspector received a copy of the Goodwin Steel Castings "Weld Excavation Map" for casting GG29436-1, B9/M. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B228-020-09 was assigned for tracking purposes.

Dressing

Two Goodwin employees were observed removing excess material from the exterior surfaces of two type B14 strong-back castings. The exterior surfaces of the castings were dressed by grinding. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

Fettle

Two Goodwin employees were observed removing riser material from the exterior surface of two Type 1 cable band castings. The material was removed utilizing an Oxygen Fuel Gas Torch method. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

Radiography

The QA inspector witnessed radiography performed by Goodwin Steel Castings. Mr. Scott Bennett performed radiography on casting GG29434-1, B8/F-1, a type 2 cable band. The casting was radiographed using a single wall exposure. The radiographs were performed using a 3.2mm effective focal spot size, 8MEV linear accelerator.

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The source to film distance was maintained at 2,500mm. Number 40 to 80 hole type and Set 1C or 1D wire type image quality indicators were placed source side on each different thickness radiographed. AGFA type D4 and D7 film of various sizes were used for single and composite views to cover the range of thicknesses. Radiography of this casting was not completed on this date. Radiography of the main body outside the suspender grooves was performed by Applied Inspections.

Machine

The QA inspector periodically observed the in process machining of casting B14/CBT, GG29446-1. Interior of this casting was being machined on a horizontal mill. Goodwin International personnel performed the machining. The remainder of the type B14 cable bands are at the machine shop awaiting start of final machining.

During this visit, METS met with Mr. Keith Salt, Goodwin International Purchasing Manager who showed this QA inspector an accidental tooling mark on the end face of the B14 cable band being machined. See attached digital image. Mr. Salt reported that the Goodwin International intends to submit an RFI to ABF Joint Venture to allow the tooling Mark to remain in the finished product.

Summary of Conversations:

As noted above.

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.

Inspected By:	Lanz,Joe	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
