

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 #: 69.25B**QUALITY ASSURANCE -- NON-CONFORMANCE REPORT****Location:** Changxing Island, Shanghai, PRC**Report No:** NCR-000372**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 09-Aug-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island**NCR #:** ZPMC-0346**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component: West Shaft
Procedural	Procedural	Description: West Shaft, Lift 4, Skin C	

Reference Description: Inadequate pre-heat on West Shaft, Lift 4, Skin C longitudinal stiffener welds**Description of Non-Conformance:**

QA observed ZPMC personnel performing Shield Metal Arc Welding (SMAW) without adequate preheat on weld joints designated as WSD1-FCSA4-4D/D-28A & 56A. The welders were identified as #040733 and #040690. The recorded temperature at the adjacent base material was less than 180 degrees Celcius.

**Applicable reference:**

Welding Procedure Specification WPS- B-T-3211-TC-U5b-1 specifies a minimum pre-heat of 180 degrees Celcius.

Who discovered the problem: Dilip Chakrabarti**Name of individual from Contractor notified:** Wong Jiong Hua**Time and method of notification:** 8-10-09, 1:00; Verbal**Name of Caltrans Engineer notified:** Scott Kennedy**Time and method of notification:** 8-10-09, 11:00; E-mail**QC Inspector's Name:** An Qing Xing

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Was QC Inspector aware of the problem: **Yes** **No**

Contractor's proposal to correct the problem:

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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Sinevod,Serge	ASMR
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Reviewed By:	Wahbeh,Mazen	SMR
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DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
 333 Burma Road
 Oakland CA 94607
 Tel: 510-808-4618 Fax:

NON-CONFORMANCE REPORT TRANSMITTAL

To: AMERICAN BRIDGE/FLUOR, A JV
 375 BURMA ROAD
 OAKLAND CA 95607

Date: 12-Aug-2009

Contract No: 04-0120F4
 04-SF-80-13.2 / 13.9

Dear: Mr. Charles Kanapicki
Job Name: SAS Superstructure

Attention: Mr. Thomas Nilsson Project/Fabrication Manager
Document No: 05.03.06-000335

Subject: NCR No. ZPMC-0346

Reference Description: Inadequate pre-heat on West Shaft, Lift 4, Skin C longitudinal stiffener welds

The attached Non-Conformance Report describes an occurrence where the contractor did not comply with a requirement of the contract document as indicated below:

- Material or Workmanship not in conformance with contract documents.
- Quality Control (QC) not performed in conformance with contract documents.
- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

Material Location: Tower **Lift:** 04

Remarks:

QA observed ZPMC personnel performing Shield Metal Arc Welding (SMAW) without adequate preheat on weld joints designated as WSD1-FCSA4-4D/D-28A & 56A. The welders were identified as #040733 and #040690. The recorded temperature at the adjacent base material was less than 180 degrees Celsius.

Welding Procedure Specification WPS- B-T-3211-TC-U5b-1 specifies a minimum pre-heat of 180 degrees Celsius.

Action Required and/or Action Taken:

Propose a resolution for this systematic non-conformance including documentation that the welds placed are in compliance with the contract requirements. In addition to addressing Production's failure to perform the required preheat of the material, address the failure of Quality Control to identify the inadequate preheat. Provide documentation of the steps/actions taken by Production and Quality Control to prevent future occurrences. Also detail what steps/actions are being taken by ABFJV to address the quality control failures of ABFJV's fabricator/ZPMC.

Recent failures by Quality Control to identify and Production to perform the required preheating of the material have resulted in the issuance of NCR ZPMC-0202, ZPMC-0233, ZPMC-0249, ZPMC-0251, ZPMC-0259, ZPMC-0262, ZPMC-0275, and ZPMC-0319.

Transmitted by: Ken Lee Transportation Engineer

Attachments: ZPMC-0346

cc: Rick Morrow, Gary Pursell, Mark Woods, Doug Coe

File: 05.03.06

NCR PROPOSED RESOLUTION

To: CALTRANS - SAS Superstructure
333 Burma Road
Oakland CA 94607

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000335

Subject: NCR No. ZPMC-0346

Dated: 24-Aug-2009

Contract No.: 04-0120F4
04-SF-80-13.2 / 13.9

Job Name: SAS Superstructure

Document No.: ABF-NPR-000340 **Rev:** 00

Contractor's Proposed Resolution:

Reference Resolution: ABF QA lead inspectors have been informed to increase monitoring of ZPMC QC regarding preheat temperatures. ABF has informed ZPMC QC supervision of this nonconformance.

ABF QA lead inspectors have been informed to increase monitoring of ZPMC QC regarding preheat temperatures. ABF has informed ZPMC QC supervision of this nonconformance. ZPMC will submit the necessary inspection reports at a later date to close this NCR.

Submitted by:

Attachment(s): ABF-NPR-000340R00

Caltrans' comments:

Status: AAP

Date: 31-Aug-2009

The response is acceptable, but the Non-Conformance is not closed.

Please provide documentation of the weld repairs that were performed and that the repairs were acceptable. The Department will review the Contractor's proposal to close Non-Conformance ZPMC-0346 at that time.

The Non-Destructive Testing (NDT) for these welds should be at least 72 hours after welding to ensure that there are no delayed cracks from any possible hydrogen contamination.

Submitted by: Wright, Doug

Date: 31-Aug-2009

Attachment(s):

NCR PROPOSED RESOLUTION

To: CALTRANS - SAS Superstructure
333 Burma Road
Oakland CA 94607

Attention: Pursell, Gary
Resident Engineer

Ref: 05.03.06-000335

Subject: NCR No. ZPMC-0346

Dated: 29-Sep-2009

Contract No.: 04-0120F4
04-SF-80-13.2 / 13.9

Job Name: SAS Superstructure

Document No.: ABF-NPR-000340 **Rev:** 01

Contractor's Proposed Resolution:

Reference Resolution: ZPMC has now included the necessary explanation to support closure of NCR. ZPMC requests closure of this NCR.

ZPMC has now included the necessary explanation to support closure of NCR. ZPMC requests closure of this NCR.

Submitted by:

Attachment(s): ABF-NPR-000340R01;

Caltrans' comments:

Status: CLO

Date: 29-Sep-2009

The proposed resolution is acceptable. The welds in question have been found to be acceptable by MT and UT results shown in the attached documents. The Department concurs that Non-Conformance ZPMC-346 is closed.

Submitted by: Kennedy, Scott

Date: 29-Sep-2009

Attachment(s):



PROJECT: SAN FRANCISCO OAKLAND BAY BRIDGE

DATE: 09/29/2009

TO: ROSE MARY/ ABFJV QA DEPARTMENT

FROM: ZPMC QA DEPARTMENT

SUBJECT: CT NCR FOR CLOSURE

SUBMITTED FOR YOUR APPROVAL.

ENCLOSED WITH THIS TRANSMITTAL IS ONE COPY OF

- (1) LETTER OF RESPONSE WITH NO.T-062 FOR CLOSURE.
- (2) CT NCR-000372(ZPMC-0346)
- (3) MT REPORT T787-MT-6119
- (4) UT REPORT T787-UT-2289

PLEASE SIGN THIS TRANSMITTAL AND RETURN TO ME.

ACKNOWLEDGEMENT:



 PLAN HOLDER

RECEIVED 29 SEP 2009

 DATE



 COMPANY

 PHONE NO.

PLAN NUMBER: N/A

#R787-QCP-102



No. T-062

LETTER OF RESPONSE

TO: American Bridge/Flour JV

DATE: 2009-8-24

REGARDING: NCR-000372 (ZPMC-0346)

ZPMC received NCR-000372 (ZPMC-0346), it mentioned that ZPMC performed Shield Metal Arc Welding without adequate preheat on weld joints designated as WSD1-FDSA4-4D/D-28A&56A. According the requirement, the minimum preheat temperature should be 180 degree Celsius.

ZPMC acknowledged this problem. ZPMC had already inculcated the work team to enhance the management and control of preheating, and it must be checked by QC before welding in compliance with proper WPS. Here attached relatively NDT reports(which we did the NDT for these welds after at least 72 hours after welding), the result shows there is no delayed cracks from any possible hydrogen contamination.

So ZPMC hope CT could take a review and close this NCR.

According to the NPR we have already prepared the paper work see attach:

ATTACHMENT:

REPORT OF MGNETIC PARTICLE EMAMINATION: T787-MT-6119

REPORT OF ULTRASONIC EXAMINATION: T787-UT-2289

Li Xinyang
09.9.25.

DEPARTMENT OF TRANSPORTATION - District 4 Toll Bridge
333 Burma Road
Oakland CA 94607
Tel: 510-808-4618 Fax:

Call/Refer

NON-CONFORMANCE REPORT TRANSMITTAL

To: AMERICAN BRIDGE/FLUOR, A JV
375 BURMA ROAD
OAKLAND CA 95607

Date: 12-Aug-2009

Contract No: 04-0120F4
04-SF-80-13.2 / 13.9

Dear: Mr. Charles Kanapicki
Attention: Mr. Thomas Nilsson Project/Fabrication Manager
Subject: NCR No. ZPMC-0346

Job Name: SAS Superstructure
Document No: 05.03.06-000335

Reference Description: Inadequate pre-heat on West Shaft, Lift 4, Skin C longitudinal stiffener welds

The attached Non-Conformance Report describes an occurrence where the contractor did not comply with a requirement of the contract document as indicated below:

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- Recurring QC issue that constitutes a systematic problem in quality control.
- Non-Conformance Resolved.

Material Location: Tower

Lift: 04

Remarks:

QA observed ZPMC personnel performing Shield Metal Arc Welding (SMAW) without adequate preheat on weld joints designated as WSD1-FCSA4-4D/D-28A & 56A. The welders were identified as #040733 and #040690. The recorded temperature at the adjacent base material was less than 180 degrees Celsius.

Welding Procedure Specification WPS- B-T-3211-TC-U5b-1 specifies a minimum pre-heat of 180 degrees Celsius.

Action Required and/or Action Taken:

Propose a resolution for this systematic non-conformance including documentation that the welds placed are in compliance with the contract requirements. In addition to addressing Production's failure to perform the required preheat of the material, address the failure of Quality Control to identify the inadequate preheat. Provide documentation of the steps/actions taken by Production and Quality Control to prevent future occurrences. Also detail what steps/actions are being taken by ABFJV to address the quality control failures of ABFJV's fabricator/ZPMC.

Recent failures by Quality Control to identify and Production to perform the required preheating of the material have resulted in the issuance of NCR ZPMC-0202, ZPMC-0233, ZPMC-0249, ZPMC-0251, ZPMC-0259, ZPMC-0262, ZPMC-0275, and ZPMC-0319.

Transmitted by: Ken Lee Transportation Engineer

Attachments: ZPMC-0346

cc: Rick Morrow, Gary Pursell, Mark Woods, Doug Coe

File: 05.03.06

02.02;15.04

h2 05.03.06-000335,NCT

Received
NCT-000335 12 Aug 09

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
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(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.25B

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

Location: Changxing Island, Shanghai, PRC

Report No: NCR-000372

Prime Contractor: American Bridge/Fluor Enterprises, a JV

Date: 09-Aug-2009

Submitting Contractor: Zhenhua Port Machinery Company, Ltd.(ZPMC), Changxing Island

NCR #: ZPMC-0346

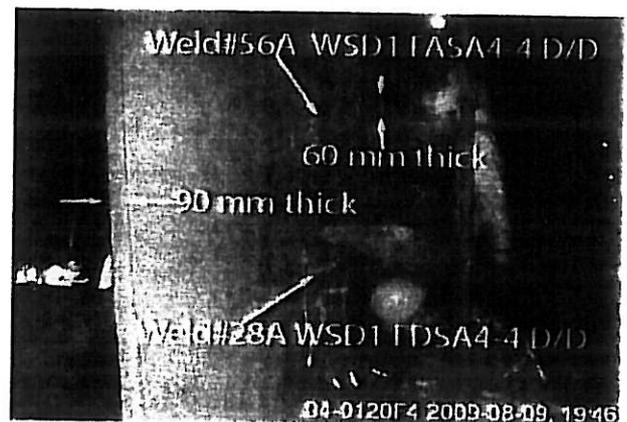
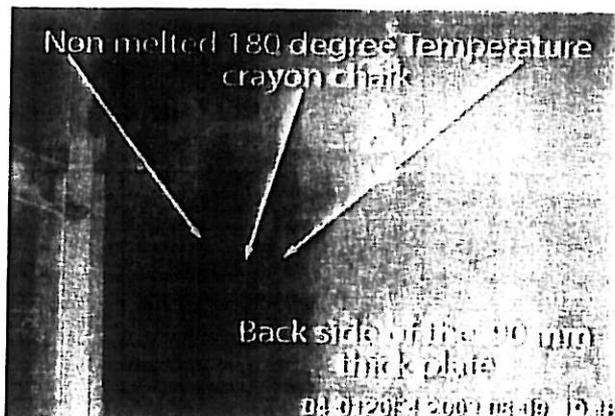
Type of problem:

Welding Concrete Other
Welding Curing Procedural Bridge No: 34-0006
Joint fit-up Coating Other Component: West Shaft
Procedural Procedural Description: West Shaft, Lift 4, Skin C

Reference Description: Inadequate pre-heat on West Shaft, Lift 4, Skin C longitudinal stiffener welds

Description of Non-Conformance:

QA observed ZPMC personnel performing Shield Metal Arc Welding (SMAW) without adequate preheat on weld joints designated as WSD1-FCSA4-4D/D-28A & 56A. The welders were identified as #040733 and #040690. The recorded temperature at the adjacent base material was less than 180 degrees Celcius.



Applicable reference:

Welding Procedure Specification WPS- B-T-3211-TC-U5b-1 specifies a minimum pre-heat of 180 degrees Celcius.

Who discovered the problem: Dilip Chakrabarti

Name of individual from Contractor notified: Wong Jiong Hua

Time and method of notification: 8-10-09, 1:00; Verbal

Name of Caltrans Engineer notified: Scott Kennedy

Time and method of notification: 8-10-09, 11:00; E-mail

QC Inspector's Name: An Qing Xing

QUALITY ASSURANCE -- NON-CONFORMANCE REPORT

(Continued Page 2 of 2)

Was QC Inspector aware of the problem: Yes No

Contractor's proposal to correct the problem:

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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Sinevod,Serge	--	ASMR
Reviewed By:	Wahbeh,Mazen	--	SMR



REPORT OF MAGNETIC PARTICLE EXAMINATION

磁粉检测报告

REPORT NO. 报告编号 T787-MT-6119 DATE日期 2009.09.25 PAGE 01/01 Revision No: 0

PROJECT NO. 工程编号: ZP06-787 CONTRACTOR: 用户: CALTRANS

DRAWING NO. 图号: WSD1-FDSA4-4D THE 4TH Lifting Tower(W) CALTRANS CONTRACT NO. 加州工程编号: 04-0120F4

REFERENCING CODE 参考规范编码 AWS D1.5-2002	ACCEPTANCE STANDARD 接受标准 AWS D1.5-2002	PROCEDURE NO. 程序编号 ZPQC-MT-01	CALIBRATION DUE DATE 仪器校正有效期 Dec. 28 ST , 2009
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EQUIPMENT 设备 MT YOKE	MANUFACTURER 制造商 PARKER	MODEL NO. 样式编号 B310S.	SERIAL NO. 连续编号 5620 5395 5617
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MAGNETIZING METHOD 磁化方法 Continuous magnetic yoke 磁轭式连续法	CURRENT 电流 AC
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PARTICLE TYPE 磁粉类型 Dry magnet powder 干磁粉	YOKE SPACING 磁轭间距 70~150mm
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MATERIAL TO BE EXAMINED 检测材料 <input checked="" type="checkbox"/> WELDING 焊接件 <input type="checkbox"/> CASTING 铸件 <input type="checkbox"/> FORGING 锻造	Material & thickness 母材,厚度 A709M-HPS-485T2-Z 60*90mm
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WELDING PROCESS 焊接方法 SMAW	TYPE OF JOINT 焊缝类型 T-JOINT
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WELD I.D. 焊缝编号	DISCONTINUITY 不连续性			ACCEPT 接受	REJECT 拒收	REMARKS 备注
	INDICATION 指示	TYPE 类型	LENGTH IN mm 长度			
WSD1-FDSA4-4D/D-28A/B				ACC.		100%MT
WSD1-FDSA4-4D/D-56A/B				ACC.		100%MT

AFTER HSR1(T)-10139

BLANK

EXAMINED BY 主探 Cai Xinxin <i>Cai Xinxin 09.09.25</i>	REVIEWED BY 审核 Wang Weli <i>Wang Weli 09.09.25</i>
LEVEL - II SIGN 签名 / DATE 日期	LEVEL-II SIGN / DATE 日期
质量经理 / QCM	用户 CUSTOMER
签字 SIGN / 日期 DATE	签字 SIGN / 日期 DATE



REPORT OF ULTRASONIC EXAMINATION

UT探伤报告

REPORT NO. 报告编号 T787-UT-2289 DATE 2009.09.25 PAGE 1 OF 1 Revision No: 0

PROJECT NO.: 工程编号 ZP06-787 CONTRACTOR: CALTRANS

ITEMS NAME: FOUTH LIFTING TOWER DRAWING NO.: WSD1-FDSA4-4D/D CALTRANS CONTRACT NO.: 04-0120F4
 部件名称 图号 加州工程编号

REFERENCING CODE 参考规范 ACCEPTANCE STANDARD 接受标准 PROCEDURE NO. 程序编号
 AWS D1.5-2002 AWS D1.5-2002(Table 6.3) ZPQC-UT-01

WELDING PROCESS 焊接方法 JOINT TYPE 焊缝类型 CALIBRATION DUE DATE 仪器校正有效期
 SMAW T-JOINT Dec. 28ST, 2009

EQUIPMENT 设备 MANUFACTURER 制造商 MODEL NO. 样式编号 SERIAL NO. 序列编号
 UT SCOPE PANAMETRICS EPOCH-4B 071565311, 061488510, 061495811, 070152011,

CALIBRATION BLOCK 试块 COUPLANT 耦合剂 MATERIAL/THICKNESS 材料厚度
 AWS IIW BLOCK TYPE II C.M.C A709M-HPS-485T2-Z 60/90mm

TRANSDUCER 探头

MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸	MANUFACTURER 制造商	ANGLE 角度	FREQUENCY 频率	SIZE 尺寸
Changchao	70°	2.5MHz	18×18mm	Changchao	60°	2.5MHz	18×18mm
Changchao	0°	2.5MHz	20mm	Changchao	45°	2.5MHz	18×18mm

Reference Level 参考灵敏度

20dB

Base metal inspected per AWS D1.5-2002 Section 6.19.5 0° UT OK.

WELD IDENTIFICATION 焊缝部件编号	INDICATION NO. 指示号	PROBE ANGLE 探测角度	FROM FACE 检测面	LEG (次数)	DECIBELS分贝				DISCONTINUITY 不连续性					Discontinuity Evaluation 缺陷估计	Remark 备注	
					Indication Level	Reference Level	Attenuation Factor	Indication Rating	LOCATION OF DISCONTINUITY 不连续位置(mm)							
									a	b	c	d	Length 长度			Sound Path 声程
WSD1-FDSA4-4D/D-28A/B		60													ACC.	100%
		70													ACC.	100%
		45													ACC.	100%
		0													ACC.	100%
WSD1-FDSA4-4D/D-56A/B		60													ACC.	100%
		70													ACC.	100%
		45													ACC.	100%
		0													ACC.	100%

AFTER HSR1(T)-10139

EXAMINED BY 主探 <i>vn chao</i> 09.25.25	REVIEWED BY 审核 <i>Da. Brian shew</i> 09.25.25
LEVEL - II SIGN / DATE	LEVEL - II SIGN / DATE
质量经理 / QCM	用户CUSTOMER
签字 SIGN / 日期 DATE	签字 SIGN / 日期 DATE

DEPARTMENT OF TRANSPORTATION

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(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: xx.25A**QUALITY ASSURANCE -- NON-CONFORMANCE RESOLUTION****Location:** Changxing Island, Shanghai, PRC**Report No:** NCS-000299**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**Date:** 23-Sep-2009**Submitting Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **NCR #:** ZPMC-0346**Type of problem:**

Welding	Concrete	Other	
Welding	Curing	Procedural	Bridge No: 34-0006
Joint fit-up	Coating	Other	Component:
Procedural	Procedural	Descriptor:	

Date the Non-Conformance Report was written: 09-Aug-2009**Description of Non-Conformance:**

QA observed ZPMC personnel performing Shield Metal Arc Welding (SMAW) without adequate preheat on weld joints designated as WSD1-FCSA4-4D/D-28A & 56A. The welders were identified as #040733 and #040690. The recorded temperature at the adjacent base material was less than 180 degrees Celcius.

Contractor's proposal to correct the problem:

ZPMC stated that pre-heat will be monitored more closely.

Corrective action taken:

The affected weld has been verified with NDT and subsequently green tagged. ABF QCM has informed ZPMC QC to educate the persons performing the pre-heat of the WPS requirements to pre-heat based on material thickness and that tack welding has the same requirements as the balance of the welding. ABF QCM has explained the consequences of hydrogen embrittlement and that thicker materials should be heated from the opposite side to ensure through thickness heat distribution.

Did corrective action require Engineer's approval? Yes No**If so, name of Engineer providing approval:****Date:****Is Engineer's approval attached?** Yes No**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 Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By: Sinevod, Serge

Quality Assurance Inspector

Reviewed By: Wahbeh, Mazen

QA Reviewer