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47



JANUARY 29, 1998

Los Angeles County
Metropolitan
Transportation
Authority

One Gateway Plaza
Los Angeles, CA
90012

213.922.6000

PROJECT: METRO RED LINE, EAST SIDE EXTENSION
SEGMENT 3

CONTRACT: E0070, ENGINEERING MANAGEMENT
CONSULTANT

ACTION: CONTRACT MODIFICATION AND INCREASE
TO AUTHORIZATION FOR EXPENDITURE
OF \$327,507

RECOMMENDATION

Approve:

- a) revision No. 1 to Contract Work Order (CWO) No. 47 to contract E0070 with the Engineering Management Consultant (EMC) for final design services on the East Side Extension project. This revision adds a testing program for precast concrete tunnel liner and gaskets in the negotiated/audited amount of \$327,507.
- b) an increase to the Authorization for Expenditure (AFE) for CWO No. 47 in the amount of \$328,000 to provide sufficient funding for this change. This action increases the AFE value for this CWO from \$5,080,000 to \$5,408,000.

MERIT

Design services authorized in this action are included in the East Side Extension demobilization plan approved by the Board on January 14, 1998. The scope change is in compliance with the terms and conditions of the Contract and Public Utilities Code § 130243 and has been reviewed by the Project Staff, MTA Procurement Department, and Legal Counsel. The change notice is required to confirm that the precast concrete tunnel liner and gaskets designed for the East Side Extension will withstand gas in the surrounding soil, ground shaking, and displacement during an earthquake. Management Audit Services has completed **the required audit of this item and all outstanding issues have been resolved.**

BACKGROUND

After a review of geotechnical conditions along the East Side route, and consideration of the experience on other tunnel projects, MTA decided to follow the recommendations of the Tunnel Advisory Panel and incorporate the use of closed-face tunneling technology for the Project so that the impact of tunneling to the community might be minimized.

Closed-face technology requires that a single tunnel lining of precast concrete segments installed by the Tunnel Boring Machine become the permanent, structural lining of the tunnel, supporting the soil and preventing the intrusion of groundwater and gases. This requirement differs significantly from the two-pass lining system used on prior Red Line projects, where the initial lining is temporary and a High Density Polyethylene (HDPE) membrane and a second, cast-in-place reinforced concrete lining are required.

Single-pass segmental concrete tunnel liners have proven very successful on projects around the world. However, two significant challenges are present on the East Side Extension which are not typically present in other projects. These challenges are the stresses and strains resulting from earthquakes and the chemical impact of hydrocarbons and other soil gases present in the ground. If these challenges are not overcome, it may be necessary to install an HDPE membrane and an inner concrete lining in the East Side tunnels, greatly increasing the cost of the Project.

A single-pass precast concrete gasketed tunnel lining has been designed for use with the Earth Pressure Balance or slurry closed-face tunneling machines which will be used on the East Side project. The testing program requested in this change will determine whether this lining can withstand the dual challenges of a) ground shaking and displacement that it is estimated will occur during an earthquake and, b) the long-term impact of gas on the gaskets. If the testing program successfully demonstrates the structural adequacy of the segmental tunnel liner design, it will verify the earlier cost savings decision to eliminate the HDPE membrane and supplemental cast-in-place inner concrete lining. The cost of the HDPE and inner lining might be as high as \$20,000,000.

PROPOSAL AMOUNT	ESTIMATOR'S POSITION	NEGOTIATED AMOUNT
\$418,027	\$331,987	\$327,507

MTA's negotiation position was based on its fair cost estimate. A negotiation of the labor hours required to complete the scope of work, together with audit exceptions, related to travel expenses and equipment rental resulted in a total cost savings of \$90,502 or 22%.

BUDGET IMPACT

Original Budget	\$83,038,000.
Current Cumulative Contract/CWO Value	\$56,820,629.
Prior authorizations	\$ 2,331,223.
<i>This Action</i>	<u>\$ 327,507.</u>
New Cumulative Contract/CWO Value	\$59,479,359.

Funds for this action are available within the Board approved demobilization budget for the Project in the amount of \$34,610,000. The current status of the Contract including the impact of this recommended action is shown in Attachment 1. *This action does not impact the Project Contingency, the MTA Fiscal Year Budget, or the Sources of Funds, either in the fiscal year or over the life of the project.*

Potential for Cost Recovery: Yes No:

ALTERNATIVES CONSIDERED

The use of the closed-face tunneling machines allows the alternative of eliminating the HDPE membrane and cast-in-place inner concrete tunnel lining. However, this alternative is contingent upon the lining passing the seismic and gas requirements. The Board has the option to disapprove this action which would suspend the testing program. This may prevent the Project team from realizing up to \$20,000,000 in cost savings.

SMALL BUSINESS PARTICIPATION

The Contract has a DBE participation goal of 27%. The contract terminates on April 2, 2002. The current DBE participation as determined by MTA’s EO Programs Department’s Contract Compliance Unit’s recent audit findings is 19.83%. The Equal Opportunity Department has been conducting an audit to verify D/M/WBE eligibility and to confirm the Contractor’s utilization of both DBE and M/WBE firms being counted toward the contract established utilization goals. It is anticipated that EMC will achieve its DBE participation commitment given the years remaining on the contract.

(Based on dollars paid to prime as of July 31, 1997)

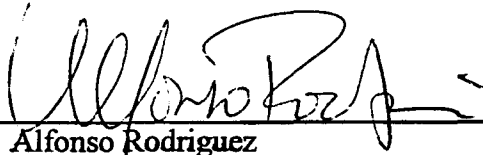
	FEDERALLY FUNDED OR ASSISTED PROJECTS*	
1 ST tier only	DBE	12.3%
2 ND tier only	DBE	7.47%
TOTAL Participation	DBE	19.83%

*Federally funded or assisted projects includes work performed on Metro Red Line Segments 1, 2 & 3, North Hollywood, Mid-City, East Side, Special Projects-Burbank, Green Line and System-wide assignments.

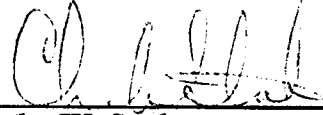
ATTACHMENTS

1 - Contract Value Status

Prepared by: Michael F. Merrick, Engineering Project Manager
Raymond Hergert, Contract Administrator



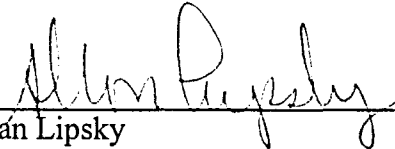
Alfonso Rodriguez
Deputy Executive Officer, Construction
Metro Red Line, East Side Extension



Charles W. Stark
Executive Officer, Construction



Arthur J. Kimball
Executive Officer, Procurement



Allan Lipsky
Office of the Chief Executive Officer

ATTACHMENT 1 CONTRACT VALUE STATUS SUMMARY

R84 Metro Red Line - Segment 3 - East Side
CHANGE NOTICEE0070-CN-574.03

Only shows cost allocated to R84

CONTRACTOR: PARSONS-BRINCKERHOFF/DMJM / ENGINEERING MANAGEMENT CONSULTANTS
ACTION DESCRIPTION: NTE INCREASE: EASTSIDE EXTENSION SEGMENT DESIGN TESTING PROGRAM - PRECAST CONCRE

CUMULATIVE CONTRACT WORK ORDER VALUE STATUS

1.	CUMULATIVE AWARD AMOUNT: [1]	\$56,820,629.00	<i>(Includes \$49,155,690.00 in Planned Scope Amendments)</i>
2.	PREVIOUSLY EXECUTED CHANGES:	\$331,500.00	
3.	CURRENT VALUE: (1+2)	\$57,152,129.00	
4.	AUTHORIZED WACN'S (NTE):	\$1,999,723.00	
5.	OBLIGATED VALUE: (3+4)	\$59,151,852.00	
6.	VALUE OF THIS ACTION:	\$327,507.00	
7.	NEW VALUE (IF APPROVED): (5+6)	\$59,479,359.00	

CUMULATIVE AUTHORIZATION FOR EXPENDITURE STATUS

AFE INCREASE REQUIRED/REQUESTED:

8.	MTA APPROVED AFE:	\$59,904,680.00	
9.	NEW VALUE: (Line 7)	\$59,479,359.00	
10.	REMAINING AFE: (8-9)	\$425,321.00	\$0.00 For this action
11.	OTHER PENDING CHANGES (merited)	\$1,088,879.80	
12.	REMAINING AFE VALUE (w/Changes: 10-11)	(\$663,558.80)	\$663,558.80 For all merited changes (projected cost)
13.	ALLOWANCE FOR UNDEFINED CHANGES:	\$0.00	
14.	REMAINING AFE VALUE (w/Allowance: 12-13)	(\$663,558.80)	\$663,558.80 For all merited and undefined changes

CUMULATIVE BUDGET STATUS

BUDGET VARIANCE (Initial to Current)

15.	INITIAL BUDGET: (PBCR # 0, 12/19/94[2])	\$83,038,000.00	
16.	CURRENT BUDGET:	\$99,208,601.00	\$16,170,601.00 Initial to Current Budget
17.	NEW VALUE (IF APPROVED): (Line 7)	\$59,479,359.00	
18.	REMAINING BUDGET: (16-17)	\$39,729,242.00	
19.	OTHER PENDING CHANGES (merited) (Line 11)	\$1,088,879.80	
20.	REMAINING BUDGET w/Changes (18-19)	\$38,640,362.20	

REVIEWED BY PROGRAM CONTROL:

D. Estimer

DATE:

1/20/98

[1] - Award Amount includes initial award and Planned Scope Amendments

[2] - PBCR = Project Budget Change Request

ATTACHMENT 1: Allocated Contract Data

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ATTACH 1 (WACN)

PRINTED BY: DENNIS PARTRIDGE
DATA AS OF 01/15/98 17:31:25
rev 2.5w 10/07/97 dbp

**ATTACHMENT 1
INDIVIDUAL CONTRACT VALUE STATUS SUMMARY**

R84 Metro Red Line - Segment 3 - East Side
CHANGE NOTICE E0070-CN-574.03

CONTRACTOR: PARSONS-BRINCKERHOFF/DMJM / ENGINEERING MANAGEMENT CONSULTANTS
ACTION DESCRIPTION: NTE INCREASE: EASTSIDE EXTENSION SEGMENT DESIGN TESTING PROGRAM - PRECAST CONCRE

CONTRACT WORK ORDER (CWO) VALUE STATUS FOR CWO: 23.00 FINAL DESIGN SERVICES

1.	AWARD AMOUNT: [1]	\$6,766,509.00	(Includes \$6,516,509.00 in previously approved Planned Scope Amendments)
2.	PREVIOUSLY EXECUTED CHANGES:	\$0.00	
3.	CURRENT VALUE: (1+2)	\$6,766,509.00	
4.	AUTHORIZED WACN'S (NTE):	\$0.00	
5.	OBLIGATED VALUE: (3+4)	\$6,766,509.00	
6.	VALUE OF THIS ACTION:	\$0.00	
7.	NEW VALUE (IF APPROVED): (5+6)	\$6,766,509.00	

CONTRACT WORK ORDER (CWO) VALUE STATUS FOR CWO: 28.00 FINAL DESIGN SERVICES

1.	AWARD AMOUNT: [1]	\$44,915,358.00	(Includes \$42,639,181.00 in previously approved Planned Scope Amendments)
2.	PREVIOUSLY EXECUTED CHANGES:	\$331,500.00	
3.	CURRENT VALUE: (1+2)	\$45,246,858.00	
4.	AUTHORIZED WACN'S (NTE):	\$1,302,483.00	
5.	OBLIGATED VALUE: (3+4)	\$46,549,341.00	
6.	VALUE OF THIS ACTION:	\$0.00	
7.	NEW VALUE (IF APPROVED): (5+6)	\$46,549,341.00	

CONTRACT WORK ORDER (CWO) VALUE STATUS FOR CWO: 36.00 DESIGN SERVICES RELATED TO METRO ART PROGRAM

1.	AWARD AMOUNT: [1]	\$311,313.00	(Includes \$0.00 in previously approved Planned Scope Amendments)
2.	PREVIOUSLY EXECUTED CHANGES:	\$0.00	
3.	CURRENT VALUE: (1+2)	\$311,313.00	
4.	AUTHORIZED WACN'S (NTE):	\$0.00	
5.	OBLIGATED VALUE: (3+4)	\$311,313.00	
6.	VALUE OF THIS ACTION:	\$0.00	
7.	NEW VALUE (IF APPROVED): (5+6)	\$311,313.00	

REVIEWED BY PROGRAM CONTROL:



DATE:

1/20/98

[1] - Award Amount includes initial award and Planned Scope Amendments

[2] - PBCR = Project Budget Change Request

ATTACHMENT 1: Allocated Contract Data

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rev 2.5w 10/07/97 dbp

ATTACHMENT 1 CONTRACT VALUE STATUS SUMMARY

R84 Metro Red Line - Segment 3 - East Side
CHANGE NOTICEE0070-CN-574.03

Only shows cost allocated to R84

CONTRACTOR: PARSONS-BRINCKERHOFF/DMJM / ENGINEERING MANAGEMENT CONSULTANTS
ACTION DESCRIPTION: NTE INCREASE: EASTSIDE EXTENSION SEGMENT DESIGN TESTING PROGRAM - PRECAST CONCRE

CONTRACT WORK ORDER (CWO) VALUE STATUS FOR CWO: 47.00 FINAL DESIGN - FACILITIES

1.	AWARD AMOUNT: [1]	\$4,327,449.00	<i>(Includes \$0.00 in previously approved Planned Scope Amendments)</i>
2.	PREVIOUSLY EXECUTED CHANGES:	\$0.00	
3.	CURRENT VALUE: (1+2)	\$4,327,449.00	
4.	AUTHORIZED WACN'S (NTE):	\$697,240.00	
5.	OBLIGATED VALUE: (3+4)	\$5,024,689.00	
6. \$\$	VALUE OF THIS ACTION:	\$327,507.00	
7.	NEW VALUE (IF APPROVED): (5+6)	\$5,352,196.00	

CONTRACT WORK ORDER (CWO) VALUE STATUS FOR CWO: 50.00 FINAL DESIGN - BID & AWARD ADDENDA

1.	AWARD AMOUNT: [1]	\$500,000.00	<i>(Includes \$0.00 in previously approved Planned Scope Amendments)</i>
2.	PREVIOUSLY EXECUTED CHANGES:	\$0.00	
3.	CURRENT VALUE: (1+2)	\$500,000.00	
4.	AUTHORIZED WACN'S (NTE):	\$0.00	
5.	OBLIGATED VALUE: (3+4)	\$500,000.00	
6.	VALUE OF THIS ACTION:	\$0.00	
7.	NEW VALUE (IF APPROVED): (5+6)	\$500,000.00	

REVIEWED BY PROGRAM CONTROL:

D. Estuini

DATE:

1/20/98

[1] - Award Amount includes Initial award and Planned Scope Amendments

[2] - PBCR = Project Budget Change Request

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