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TO: BOARD OF DIRECTORS

FROM: CHARLES W. STARK *CWS*
EXECUTIVE OFFICER, CONSTRUCTION

SUBJECT: CONTRACT CO311 REVISED CONCRETE AND REBAR
REQUIREMENTS FOR THE CIP FINAL LINING

ISSUE

The purpose of this report is to inform the MTA Board of Contract CO311 issuance of Change Notice No. 163, for a more cost-effective manner to comply with the Consent Decree and utilize the funds as previously approved by the Board.

BACKGROUND

A Consent Decree was imposed on the project which contains more stringent groundwater control criteria than contractually defined. The MTA commissioned groundwater, engineering, and cost studies to evaluate alternatives. The apparent optimum option in specific Tunnel Reaches consisted of modifications to the concrete final lining and selective crack and formation grouting to meet the requirements of the Consent Decree.

The final tunnel, as originally designed, includes weep holes through the concrete to regulate the hydrostatic pressures on the concrete lining caused by the natural groundwater levels. The pressures are regulated by allowing seepage of groundwater into the tunnels. The water collected is disposed through the tunnel drainage provisions.

During the excavation of the running tunnels, a supplemental formation grouting program was performed to regulate the groundwater inflows to the criteria established by the Consent Decree. This process was particularly effective in Reach 4. However in Reach 1, the supplemental grouting was determined to be ineffective without first installing the final concrete lining to prevent leakage of the grout into the tunnel.

A Design Change Notice (DCN) has been prepared to modify the final concrete lining to resist the increased hydrostatic loads from the deletion of the weep holes, and the need to maintain the surface springs as required by the Consent Decree.

The Rough Order of Magnitude cost for Change Notice No. 163, the redesigned tunnel liner is \$1,500,000. This is the most technically efficient and cost-effective method of complying with the Consent Decree in Reach 1 (Granodiorite).

On August 28, 1996, the MTA Board approved Work Authorization Change Notice No. 58 (WACN) for a not-to-exceed amount of \$5,600,000 for provision of both "face" and "supplemental" grouting under the Seasonal Springs to comply with the Consent Decree. To-date, approximately \$3,200,000 has been expended, leaving a balance of approximately \$2,400,000. The \$900,000 remaining in WACN No. 58, after deducting the cost of the redesigned liner, will be utilized to complete the grouting of the Basalts in Reach 4 that are directly associated with the Seasonal Springs.

The level of grouting effort required to complete compliance with the Consent Decree will not be known until post concrete liner installation formation grouting takes place. It is not realistic at this time to determine if the funds remaining in WACN No. 58 will complete the costs of compliance with the Consent Decree.

Change Notice No. 163 for the redesigned tunnel liner replaces in a more cost effective manner, a portion of the Seasonal Spring grouting as required by the Consent Decree.

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