



● **Board of Directors**
Engineering and Operations Committee

9/11/2018 Board Meeting

7-1

Subject

Adopt CEQA determination and appropriate \$970,000; and authorize: (1) preliminary investigations to remediate slopes at the Robert B. Diemer Water Treatment Plant; and (2) agreement with GEI Consultants in an amount not to exceed \$485,000 to provide geotechnical support (Appropriation No. 15478)

Executive Summary

This action authorizes field investigations and conceptual design of improvements to reduce erosion in the slope areas of the Robert B. Diemer Water Treatment Plant. This project will repair erosion damage and remediate the slopes to maintain compliance with operating permits issued by the California Division of Safety of Dams (DSOD). This action also authorizes an agreement to provide specialized geotechnical support.

Timing and Urgency

The Diemer plant is located on the top of a hill. The plant's primary hydraulic structures occupy a plateau that was created by grading ridges and filling in the surrounding ravines. Several of these fill areas support water-bearing structures that fall under the jurisdiction of DSOD. Over successive winter seasons, storm flows have caused erosion and localized slump issues within the slope areas of the plant. Improvements are needed to repair the recent damage, reduce the risk of potential storm-related erosion, and maintain compliance with the plant's DSOD operating permits.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is included in the Treatment Plant Reliability Program. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2018/19.

Details

Background

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd), and was expanded to its present capacity of 520 mgd in 1969. The Diemer plant delivers a blend of waters from the Colorado River Aqueduct and State Water Project to Metropolitan's Central Pool and to an exclusive service area in Orange County. The plant is located within the city of Yorba Linda on the top of a hill, adjacent to Chino Hills State Park.

The Diemer plant was originally constructed by removing approximately 55 to 70 feet of native material from on-site ridges, and placing that material in adjacent ravines to produce a level pad. The fill material placed in these ravines was not engineered and benched into competent material as would be customary today. As a result, some of the plant facilities located on or near these fill areas are potentially at risk of movement during a seismic event. Several major projects have been completed at the Diemer plant over the last decade to reduce the risk of damage from an earthquake. While these projects have substantially improved the seismic resilience of the plant, the slopes and engineered fill areas must be monitored and actively managed.

Several of the slopes at the Diemer plant support water-bearing structures that are under the jurisdiction of DSOD, including the ozone contactors, finished water reservoir, and Basin No. 8, which is a component of the plant's west treatment module. These structures are inspected regularly in accordance with their operating permits, and summary reports are submitted regularly to DSOD.

Recent surveys of the Diemer plant's embankments identified several locations that have experienced slope slumping and erosion. Rills on a slope can concentrate stormwater flows, leading to: (1) loss of topsoil and vegetation; (2) undermining of drainage benches and channels; and (3) clogging of drainage systems with dirt. Over a number of rain cycles, erosion may lead to slope slumping and failure if unchecked. The causes of slope erosion at the Diemer plant are attributed to a combination of factors, including: (1) gradual deterioration of perimeter drainage facilities that have eroded after more than 50 years of operation; (2) concentrated runoff flows that occurred as a result of the 2008 Freeway Complex fire; and (3) changes to drainage patterns due to years of construction.

Along with the slope erosion, a portion of the north-facing slope below Basin No. 8 has slumped at its toe and at its crest. These two areas require immediate investigation and repair as they support Basin No. 8, which is under the jurisdiction of DSOD. Due to the recent slumping, DSOD has directed Metropolitan to prepare and submit a slope repair plan. While there is no immediate threat to Basin No. 8 from a potential slope failure, repairs are needed so the erosion does not increase in size and severity.

Staff recommends proceeding with geotechnical investigations to protect the slopes at the Diemer plant. For the erosion on the east, west, and south slopes of the main plant level, repair measures will be identified. These may include regrading, backfilling, and compacting eroded gullies. In addition, modifications to the drainage systems may be required. At the toe and crest of the slope supporting Basin No. 8, the geotechnical investigations will determine the extent and methodology for slope remediation. Remediation measures may include slope reconstruction by over-excavating the existing unstable material, preparing the subgrade, and replacing the excavated material with engineered fill. Staff will return to the Board to authorize design of the remediation measures.

Diemer Slope Remediation – Preliminary Investigations (\$970,000)

The planned activities include: (1) surveying and geotechnical investigations; (2) hydrological analyses of runoff and flow patterns; (3) development of conceptual layouts of erosion control measures; (4) development of design criteria; (5) independent review of conceptual layouts by a technical expert; (6) permitting with DSOD; (7) conducting an environmental assessment; and (8) development of a conceptual cost estimate. The geotechnical investigations will be conducted by GEI Consultants, and the environmental assessment will be conducted by Tierra Data, Inc., as described below. The independent technical review will be performed by a specialized consultant. All other work will be performed by Metropolitan staff.

This action appropriates \$970,000 and authorizes preliminary investigations and conceptual design to repair erosion damage and remediate the slopes at the Diemer plant. The requested funds include \$625,000 for the geotechnical investigations, and conceptual design; \$214,000 for permitting, project management, the environmental assessment, and technical review; and \$131,000 for remaining budget. Staff will return to the Board at a later date to authorize design of the improvements and preparation of environmental documentation.

Geotechnical Support (GEI Consultants) – New Agreement

Specialized geotechnical support is recommended to be provided by GEI Consultants under a new professional services agreement. GEI Consultants was prequalified to provide geotechnical services through a competitive process via Request for Qualification (RFQ) No. 1134. Subsequently, GEI Consultants was selected for this project based on its expertise and experience with remediation of slopes. The planned scope of work includes field investigations, finite element computer modeling, and development of design criteria and repair methodologies. The estimated cost for these services is \$485,000.

This action authorizes an agreement with GEI Consultants in an amount not to exceed \$485,000 to provide specialized geotechnical support. For this agreement, Metropolitan established a Small Business Enterprise (SBE) participation level of 25 percent. GEI Consultants has committed to meet this level of participation. The planned subconsultants for this agreement are Lettis Consultants International, Inc. and GEOVision.

Specialized Technical Review – No Action Required

The independent technical review of the conceptual improvements will be performed by a specialty geotechnical firm under an agreement planned to be executed under the General Manager's Administrative Code authority to award contracts of \$250,000 or less. The estimated cost for these services is \$50,000.

Environmental Assessment (Tierra Data, Inc.) – No Action Required

Specialized environmental support will be provided by Tierra Data, Inc. under an existing agreement that was previously awarded under the General Manager's Administrative Code authority. Tierra Data, Inc. was prequalified to provide environmental support through a competitive process via RFQ No. 1143, and was subsequently selected for this project due to its extensive experience with construction in environmentally sensitive locations. The planned activities include conducting specialized biological assessments for potential impacts to waterways, threatened or endangered species, and identified habitat. The latter includes a walnut woodland conservation area and adjacent portions of Chino Hills State Park. This work is specialized and Metropolitan has insufficient technical staff in-house to perform these activities. The estimated cost for Tierra Data, Inc. to provide these services is \$35,000.

No amendment is needed to the existing agreement with Tierra Data, Inc. to perform this work. Tierra Data, Inc. is an SBE firm, and thus achieves 100 percent SBE participation for the agreement. No subconsultants are planned for this agreement.

Summary

This action appropriates \$970,000, authorizes preliminary investigations and conceptual design to repair erosion damage and remediate slope areas of the Diemer plant, and authorizes an agreement for geotechnical support. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2018/19 capital expenditure plan. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

This project is included within capital Appropriation No. 15478, the Diemer Improvements Appropriation - FY 2012/13 Through FY 2017/18, which was initiated in fiscal year 2012/13. With the present action, the total funding for this appropriation will increase from \$375,000 to \$1,345,000.

Project Milestone

June 2019 – Completion of preliminary investigations

Policy

Metropolitan Water District Administrative Code 5108: Appropriations

Metropolitan Water District Administrative Code 8121: General Authority of the General Manager to Enter Contracts

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, data collection, and design of drainage and erosion protection improvements at an existing facility with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1 and Class 6 Categorical Exemptions (Sections 15301 and 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under two Categorical Exemptions (Class 1, Section 15301 and Class 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

Board Options

Option #1

Adopt the CEQA determination that the proposed action is categorically exempt, and

- a. Appropriate \$970,000;
- b. Authorize preliminary investigations to remediate slopes at the Diemer plant; and
- c. Authorize agreement with GEI Consultants in an amount not to exceed \$485,000 to provide geotechnical support.

Fiscal Impact: \$970,000 in capital funds under Appropriation No. 15478

Business Analysis: This option will reduce the risk of slope erosion damage at the Diemer plant, and will maintain compliance with the DSOD operating permit for Basin No. 8.

Option #2

Do not proceed with the preliminary investigations at this time.

Fiscal Impact: None

Business Analysis: Under this option, staff would continue to monitor erosion on the Diemer plant’s slopes. This option would forego an opportunity to repair existing slope damage and may lead to the removal of Basin No. 8 from service, which would reduce treatment capacity of the Diemer plant.

Staff Recommendation

Option #1



 Michael J. Rojas
 Interim Manager/ Chief Engineer
 Engineering Services

8/27/2018
 Date



 Jeffrey Nightlinger
 General Manager

8/28/2018
 Date

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Ref# es12659374

Financial Statement for Diemer Improvements Appropriation – FY 2012/13 Through FY 2017/18

A breakdown of Board Action No. 2 for Appropriation No. 15478¹ is as follows:

	Previous Total Appropriated Amount (Aug. 2016)	Current Board Action No. 2 (Aug. 2018)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 187,000	\$ 140,000	\$ 327,000
Final Design	-	-	-
Owner Costs (Program mgmt. & permitting)	51,800	100,000	151,800
Submittals Review & Record Drwgs.	85,700	-	85,700
Construction Inspection & Support	-	-	-
Metropolitan Force Construction	-	-	-
Materials & Supplies	-	-	-
Incidental Expenses (Permit fees)	600	30,000	30,600
Professional/Technical Services	-	-	-
GEI Consultants	-	485,000	485,000
Independent review firm	-	50,000	50,000
Tierra Data, Inc.	-	35,000	35,000
Equipment Use	-	-	-
Contracts	-	-	-
Remaining Budget	49,900	130,000	179,900
Total	\$ 375,000	\$ 970,000	\$ 1,345,000

Funding Request

Appropriation Name:	Diemer Improvements – FY 2012/13 Through FY 2017/18		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15478	Board Action No.:	2
Requested Amount:	\$ 970,000	Budget Page No.:	287
Total Appropriated Amount:	\$ 1,345,000	Total Appropriation Estimate:	\$ 13,281,000

¹ This is the initial action for improvements to repair erosion damage and remediate slopes at the Diemer plant.

Distribution System

