THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

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

12/12/2017 Board Meeting

8-2

## Subject

Adopt CEQA determination and appropriate $6.26 million; award $4,394,400 contract to Kaveh Engineering & Construction, Inc. for seismic upgrades to the filter outlet conduit at the Robert B. Diemer Water Treatment Plant; and authorize increase of $190,000 to an agreement with AECOM, for a new not-to-exceed total of $1,315,000 (Appropriation No. 15380)

## Executive Summary

This action awards a construction contract to strengthen the slope below the east filter outlet conduit at the Robert B. Diemer Water Treatment Plant. This improvement will reduce the risk of interruption of treated water deliveries to member agencies within the Diemer service area due to a major seismic event. This action also authorizes an amendment to a professional services agreement for technical support during construction.

### Timing and Urgency

Metropolitan has an ongoing program to evaluate the seismic stability of its facilities in order to maintain water delivery reliability. While Metropolitan facilities have always been designed to meet up-to-date codes and regulations that were in place at the time of their construction, building codes and engineering practices are periodically updated, particularly following a major earthquake.

A seismic assessment of the Diemer plant's filter outlet conduit identified that the stability of the slope below the pipeline needs to be improved in order to maintain the integrity of the line during a major earthquake. To reduce the risk of water delivery interruptions from the plant, staff recommends proceeding with construction at this time.

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 2017/18.

## Details

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd), and was expanded in 1969 to its present capacity of 520 mgd. It delivers a blend of waters from the Colorado River Aqueduct and the State Water Project to Metropolitan's Central Pool portion of the distribution system, and to an exclusive service area in Orange County.

The Diemer plant is located on the top of a hill in the city of Yorba Linda. The plant was originally constructed by excavating 55 to 70 feet of native material from the site's ridge and filling the adjacent ravines to produce a large level pad. While the fill areas were constructed in accordance with grading practices of that time, the fill was not benched into competent rock as current seismic practices would require. Further, the Whittier Fault is located approximately one-third mile north of the Diemer plant. This fault is capable of generating a 6.8 magnitude earthquake. To minimize the risk of damage to the plant during a major earthquake, staff initiated a seismic assessment program in 2004 to identify and upgrade structures and major conduits that are potentially at risk.

Of the 32 structures and major conduits located at the Diemer plant, 27 facilities were found to be structurally adequate or have been previously upgraded, while five facilities are being addressed. Seismic upgrades to the administration building are currently under construction, with completion scheduled for mid-2018. Final design of structural upgrades to the West Filter Building is also underway, while preliminary design is complete to remediate the slope below the Washwater Reclamation Plant. A future action is planned for protection of a section of the Second Lower Feeder along the plant's main access road.

In July 2013, Metropolitan's Board authorized design of seismic upgrades to the filter outlet conduit. Final design is now complete, and staff recommends proceeding with construction at this time.

**Diemer Filter Outlet Conduit Seismic Upgrades – Construction ($6,260,000)**

A section of the Diemer plant's filter outlet conduit passes along the north side of Basin No. 4, where it crosses a zone of fill material. Detailed structural and geotechnical analyses have concluded that during a major earthquake, the soil which supports this 10-foot-diameter pipeline could slide down the plant's north slope, potentially rupturing the line. To address this vulnerability, staff considered several alternatives for maintaining treated water deliveries from the plant, including relocation of the conduit. The most cost-effective solution was determined to be strengthening of the slope within the zone of fill material. As a result, this project will construct a 450-foot-long concrete-caisson retaining wall to restrain the soil that supports the pipeline. The retaining wall will include 46 caissons that have a maximum depth of 83 feet. Other components of the work include relocation of water lines, temporary shoring, re-vegetation, and final paving.

The Diemer plant is bounded on the north by Chino Hills State Park, which straddles Telegraph Canyon. This canyon is an environmentally sensitive area containing endangered species and rare plant communities. In January 2016, Metropolitan's Board certified an Environmental Impact Report (EIR) for planned upgrades at the Diemer plant, including the filter outlet conduit. This project incorporates environmental mitigation pursuant to the 2016 EIR.

Specifications No. 1881 for the Diemer Filter Outlet Conduit Seismic Upgrades was advertised for bids on September 18, 2017. As shown in **Attachment 2**, five bids were received and opened on October 24, 2017. The low bid from Kaveh Engineering & Construction, Inc. in the amount of $4,394,400 complies with the requirements of the specifications. The four higher bids ranged from $4,604,151 to $6,825,000, while the engineer's estimate was $6 million. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 15 percent of the bid amount. Kaveh Engineering & Construction, Inc. is an SBE firm and thus achieves 100 percent participation. The subcontractors for this contract are listed in **Attachment 3.**

This action appropriates $6.26 million and awards a $4,394,400 contract to Kaveh Engineering Construction, Inc. for seismic upgrades to the Diemer plant's filter outlet conduit. In addition to the amount of the contract, the requested funds include $640,000 for construction inspection and support; $250,000 for submittals review, responding to requests for information, and preparation of record drawings by Metropolitan staff; $190,000 for technical support by AECOM, as discussed below; $105,000 for environmental monitoring by Psomas, Inc., as discussed below; $334,000 for contract administration, consultations with regulatory agencies, and project management; and $346,600 for remaining budget.

Construction inspection will be performed by Metropolitan staff. For this project, the anticipated cost of inspection is approximately 14.5 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction greater than $3 million is 9 to 12 percent. The recommended level of inspection for this project is greater than typical due to the specialized nature of the project and continuous inspection required for drilling adjacent to the Diemer plant's outlet conduit while it remains in service. The total cost of construction for this project is $4,394,000.

**Technical Support During Construction (AECOM) – Agreement Amendment**

AECOM (formerly URS) performed final design of the geotechnical and structural components of the filter outlet conduit seismic upgrades under a board-authorized agreement. As the engineer of record, AECOM is recommended to provide technical support during construction. Planned activities include responding to requests

for information from the contractor, review of contractor submittals, and advising staff on technical issues as they may arise. The estimated cost for these services is $190,000.

This action authorizes an increase of $190,000 to the existing agreement with AECOM, for a new not-to-exceed total of $1,315,000, to provide technical support during construction of the filter outlet conduit seismic upgrades. For this agreement, Metropolitan established an SBE participation level of six percent. AECOM has agreed to meet this level of participation. The sole subconsultant is Clark & Green Associates.

**Environmental Support During Construction (Psomas, Inc.) – No Action Required**

Environmental monitoring will be performed by Psomas, Inc. under a new professional services agreement that is planned to be awarded under the General Manager's Administrative Code authority. Psomas, Inc. was prequalified to provide environmental support via Request for Qualifications No. 1143, and was selected for this project based on its expertise with regulatory permits and its experience with projects in environmentally sensitive locations. This work is specialized and Metropolitan has insufficient technical staff in-house to perform these activities. The estimated cost for these services is $105,000.

The planned scope includes continuous monitoring of construction activities for compliance with the mitigation measures contained in the project's environmental documentation; providing technical expertise on air quality, biology, cultural resources, hydrology, and site restoration in compliance with permit requirements; and preparation of compliance reports. For this agreement, Metropolitan established an SBE participation level of 25 percent. Psomas, Inc. has agreed to meet this level of participation. The planned subconsultants for this agreement are listed in **Attachment 4**.

**Summary**

This action appropriates $6.26 million; awards a $4,394,400 contract to Kaveh Engineering & Construction, Inc. for seismic upgrades to the Diemer plant's filter outlet conduit; and authorizes an amendment to an agreement with AECOM for technical support. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2017/18 capital expenditure plan. See **Attachment 1** for the Financial Statement, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the listing of Subcontractors for Low Bidder, and **Attachment 5** for the Location Map.

This project is included within capital Appropriation No. 15380, the Diemer Improvements Appropriation, which was initiated in fiscal year 2001/02. With the present action, the total funding for this appropriation will increase from $159,996,600 to $166,256,600.

The total estimated cost to complete the filter outlet conduit upgrades, including the amount appropriated to date and current funds requested, is $8.1 million.

***Project Milestone***

December 2019 – Completion of construction

## Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

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

By Minute Item 49476, dated July 9, 2013, the Board authorized final design of seismic upgrades to the Diemer filter outlet conduit.

## California Environmental Quality Act (CEQA)

**CEQA determination for Option #1:**

The environmental effects from the construction of the proposed project were evaluated in the Diemer Upgrades Final Environmental Impact Report (Final EIR), SCH#2013101072, which was certified by the Board on January 12, 2016. The Board also approved the Findings of Fact (findings), Statement of Overriding Considerations (SOC), the Mitigation Monitoring and Reporting Program (MMRP), and the project itself. The current action is based on the construction of seismic upgrades to the filter outlet conduit and not on any changes to the approved project itself.

The previous environmental documentation acted on by the Board in conjunction with the proposed action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act on the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the certified 2016 Final EIR, findings, SOC, MMRP, and that no further environmental analysis or documentation is required.

**CEQA determination for Option #2:**

None required

## Board Options

**Option #1**

Adopt the CEQA determination that the proposed action has been previously addressed in the certified 2016 Final EIR, findings, SOC, MMRP, and that no further environmental analysis or documentation is required, and

a. Appropriate $6.26 million;
b. Award $4,394,400 contract to Kaveh Engineering & Construction, Inc. for seismic upgrades to the Diemer filter outlet conduit; and
c. Authorize increase of $190,000 to an agreement with AECOM, for a new not-to-exceed total of $1,315,000, to provide technical support.

**Fiscal Impact:** $6.26 million of capital funds under Appropriation No. 15380
**Business Analysis:** This project will reduce the risk of delivery interruptions from the Diemer plant due to a major earthquake.

**Option #2**

Do not proceed with the seismic upgrades at this time.
**Fiscal Impact:** None
**Business Analysis:** This option would forego an opportunity to enhance reliability of the Diemer plant in the event of a major earthquake.

## Staff Recommendation

Option #1

11/21/2017
*Gordon Johnson* *Date*
*Manager/Chief Engineer*
*Engineering Services*

11/22/2017
*Jeffrey Kightlinger* *Date*
*General Manager*

**Attachment 1 – Financial Statement**

**Attachment 2 – Abstract of Bids**

**Attachment 3 – Subcontractors for Low Bidder**

**Attachment 4 – Subconsultants for Agreement with Psomas, Inc.**

**Attachment 5 – Location Map**

Ref# es12652826

## Financial Statement for Diemer Improvements Appropriation

A breakdown of Board Action No. 27 for Appropriation No. 15380[1] is as follows:

| | Previous Total Appropriated Amount (July 2015) | Current Board Action No. 27 (Dec. 2017) | New Total Appropriated Amount |
|---|---|---|---|
| Labor | | | |
| Studies & Investigations | $ 1,930,200 | $ - | $ 1,930,200 |
| Final Design | 9,960,700 | - | 9,960,700 |
| Owner Costs (Program mgmt., envir. monitoring, contract admin.) | 9,890,004 | 334,000 | 10,224,004 |
| Submittals Review & Record Drwgs. | 3,492,702 | 250,000 | 3,742,702 |
| Construction Inspection & Support | 11,002,968 | 640,000 | 11,642,968 |
| Metropolitan Force Construction | 6,015,166 | - | 6,015,166 |
| Materials & Supplies | 1,149,916 | - | 1,149,916 |
| Incidental Expenses | 1,826,462 | - | 1,826,462 |
| Professional/Technical Services | 11,021,375 | - | 11,021,375 |
| AECOM | 500,000 | 190,000 | 690,000 |
| Psomas, Inc. | - | 105,000 | 105,000 |
| Equipment Use | 96,608 | - | 96,608 |
| Contracts | 97,998,945 | - | 97,998,945 |
| Kaveh Engineering & Construction, Inc. | - | 4,394,400 | 4,394,400 |
| Remaining Budget | 5,111,554 [2] | 346,600 | 5,458,154 |
| **Total** | **$ 159,996,600** | **$ 6,260,000** | **$ 166,256,600** |

## Funding Request

| | | | |
|---|---|---|---|
| **Appropriation Name:** | Diemer Improvements | | |
| **Source of Funds:** | Revenue Bonds, Replacement and Refurbishment or General Funds | | |
| **Appropriation No.:** | 15380 | **Board Action No.:** | 27 |
| **Requested Amount:** | **$** 6,260,000 | **Budget Page No.:** | 227 |
| **Total Appropriated Amount:** | **$** 166,256,600 | **Total Program Estimate:** | $ 238,000,000 |

[1] The total amount expended to date on seismic upgrades to the Diemer filter outlet conduit is approximately $1.84 million. The total estimated cost to complete the upgrades, including the amount appropriated to date and current funds requested, is $8.1 million.

[2] Includes previous reallocation from Remaining Budget of $536,000 for construction change orders and extended construction support for the Diemer Electrical Upgrades Stage 2, and $440,300 for preparation of an additional bid package for rehabilitation of the west basins as a staged project. The amount also reflects a previous reallocation to Remaining Budget of $3,117,376 from the Diemer filter valve replacement and new 66kV incoming electrical service projects, which were completed under budget.

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on October 24, 2017 at 2:00 P.M.**

**Specifications No. 1881**
**Diemer Filter Outlet Conduit Seismic Upgrades**

The work consists of installation of cast-in-hole piles, relocation of water lines, excavation and backfill, temporary shoring, landscaping, paving, and asbestos abatement.

Engineer's estimate: $6,000,000

| Bidder and Location | Total | SBE $ | SBE % | Met SBE[1] |
|---|---|---|---|---|
| **Kaveh Engineering & Construction, Inc.<br>Yorba Linda, CA** | **$4,394,400** | **$4,394,400** | **100%** | **Yes** |
| Environmental Construction, Inc.<br>Woodland Hills, CA | $4,604,151 | - | - | - |
| Metro Builders & Engineers, Ltd.<br>Newport Beach, CA | $5, 670,112 | - | - | - |
| Malcolm Drilling Company, Inc.<br>Irwindale, CA | $6,204,279 | - | - | - |
| USS Cal Builders, Inc.<br>Stanton, CA | $6,825,000 | - | - | - |

[1] SBE (Small Business Enterprise) participation was established at 15% for this contract

**The Metropolitan Water District of Southern California**

**Subcontractors for Low Bidder**

**Specifications No. 1881**
**Diemer Filter Outlet Conduit Seismic Upgrades**

Low Bidder: Kaveh Engineering & Construction, Inc.

| Subcontractor and Location |
|---|
| Holcomb Engineering Contractors, Inc., Baldwin Park, CA |
| Performance Abatement Services, Anaheim, CA |
| Phoenix Landscape, Inc., Fullerton, CA |

**The Metropolitan Water District of Southern California**

**Subconsultants for Agreement with Psomas, Inc.**

| Subconsultant and Location |
|---|
| Bloom Biologist, Inc., Santa Ana, CA |
| C Young Associates, La Jolla, CA |
| Pamela Daly, MSHP, Riverside, CA |
| dBF Associates, Inc., San Diego, CA |
| Diaz Yourman & Associates, Santa Ana, CA |
| Greenwood and Associates, Pacific Palisades, CA |
| Leatherman Bio Consulting, Inc., Yorba Linda, CA |
| Leopold Biological Services, San Diego, CA |
| MBC Applied Environmental Sciences, Costa Mesa, CA |
| Natural Resources Assessment, Inc., Riverside, CA |
| Normandeau Associates, Inc., Bedford, NH |
| Paleo Solutions, Inc., Monrovia, CA |
| Petra Resources Management, San Diego, CA |
| Phoenix Biological Consulting, Piñon Hills, CA |
| Randel Wildlife Consulting, Inc., South Pasadena, CA |
| The Sanberg Group, Inc., Flagstaff, AZ |
| SJM Biological Consultants, Inc., Flagstaff, AZ |
| Yorke Engineering, LLC, San Juan Capistrano, CA |


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
Diemer Plant
Lower Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY