



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

4/14/2015 Board Meeting

8-2

Subject

Appropriate \$41 million; award \$31,762,914 contract to J. F. Shea Construction, Inc. to rehabilitate filters at the F. E. Weymouth Water Treatment Plant; and authorize increase of \$815,000 to agreement with MWH Americas, Inc., for a new not-to-exceed total of \$2.09 million (Approp. 15477)

Executive Summary

This action awards a construction contract to rehabilitate aging filters at the F. E. Weymouth Water Treatment Plant. Due to over 70 years of continuous operation, the existing filter media and internal hydraulic and structural components of the filters have deteriorated and need to be replaced. This work should be completed prior to start-up of the plant's new ozone facilities, which is scheduled for 2017. This action also authorizes an amendment to an agreement for technical support during construction, and certifies a Final Environmental Impact Report (EIR) for upcoming projects at the Weymouth plant.

Timing and Urgency

The Weymouth filters were designed in the 1930s based on state-of-the-art technology of that era. Following decades of continuous operation, the existing filters no longer provide the level of reliable performance expected, particularly in light of increasingly stringent water quality regulations. Staff conducted an assessment of the condition and performance of the existing Weymouth filters, and concluded that they need to be rehabilitated. In 2012, staff evaluated alternative configurations of internal filter components including underdrains, troughs, media, and surface wash systems, in order to determine the most cost-effective combination that will reliably comply with current and anticipated regulations. Based on the results of this evaluation, staff recommends moving forward to rehabilitate the Weymouth filters in order to maintain plant reliability and enable the plant's new ozone system to commence operation on schedule.

The new ozone facilities at the Weymouth plant will be operational in 2017. In order to reduce assimilable organic carbon (AOC) in the plant's treated water after ozonation begins, the filters will convert to biological filtration. Replacing the existing filter media prior to start-up of the ozone process will ensure that accumulated manganese will not be released into the distribution system. The manganese was deposited onto the media over time, due to its presence as a trace constituent of ferric chloride, which was previously employed as the Weymouth plant's primary coagulant.

This project has been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and is categorized as an Infrastructure Reliability project. Funds for this work have been included within Metropolitan's capital expenditure plan for fiscal year 2014/15.

In addition to authorizing the Filter Rehabilitation project, this action also adopts an EIR for planned projects at the Weymouth plant. Metropolitan initiated preparation of environmental documentation in 2013 to assess the cumulative environmental impacts of these upcoming projects. The environmental process has now been completed, and staff recommends certification of the Final EIR at this time.

Details

Background

The Weymouth plant was placed into service in 1941 with an initial capacity of 100 million gallons per day (mgd), and has been expanded twice to its current treatment capacity of 520 mgd. The plant delivers a blend of waters from the Colorado River Aqueduct and State Water Project to a service area within Los Angeles and Orange Counties. The Weymouth plant is located in the city of La Verne.

The 48 filters at the Weymouth plant vary in age from 50 to over 70 years old. While considered state-of-the-art at the time of their construction, the filters were designed to meet much less stringent performance and water quality standards than exist today. The filters originally contained a single layer of fine sand media and were designed to operate at low filtration and backwash rates. In order to enhance performance, the filters were subsequently retrofitted with dual media comprised of anthracite coal and silica sand. While this measure did improve their performance, the filters remain constrained due to their limited depth of media and shallow submergence. These factors render the filters susceptible to air binding and media loss. Although it is not feasible to deepen the existing filter beds due to hydraulic limitations, the other filter components (e.g., troughs, underdrains, media, etc.) may be modified to compensate for the shallow filter depth and provide a higher level of performance.

In 2012, four filters were reconfigured and tested with different designs of underdrains, media, and backwash troughs, so the performance of the modified filters could be evaluated under full-scale operation. These modified filters were evaluated over a range of water quality and operating conditions to develop an optimal configuration for full-scale implementation. The planned improvements include replacing the filter media with optimized size and depth specifications; replacing the surface wash system with larger piping and improved flow configuration; replacing the underdrains; modifying flow distribution flumes; raising and replacing the existing troughs to accommodate a higher depth of filter media; and reinforcing the filter gullet walls to improve seismic stability.

Construction of the Weymouth ozone facilities is scheduled to be completed in mid-2017. When ozone becomes the primary disinfectant, all filters will be operated in biological filtration mode to reduce the levels of disinfection by-product (DBP) precursors and nutrients. However, based on Metropolitan's previous ozone operating experience, the discontinuation of chlorination upstream of the filters would result in a release of manganese from the filters. Manganese was a trace constituent in ferric chloride, which was previously employed as the primary coagulant at the Weymouth plant. Over time, manganese was absorbed onto the filter media. When ozone is added instead of chlorine upstream of the filters, insoluble manganese within the filters will change into its soluble form and be released, resulting in higher turbidity levels and colored (yellowish or brownish) water, which can lead to complaints from consumers and potential violation of treated water turbidity standards. Replacement of a portion of the filter media is the best method to remove the manganese and prevent this occurrence. As the result of a similar situation which occurred at the Mills plant in 2003, each of Metropolitan's treatment plants has replaced a portion of its filter media prior to start-up of its new ozone facilities. At the Weymouth plant, since rehabilitation of the filters will necessitate replacement of the existing media, the Filter Rehabilitation project has been timed so that the new media will be in place prior to start-up of the plant's new ozone facilities.

Weymouth Filter Rehabilitation – Construction (\$41,000,000)

Specifications No. 1777 for the Weymouth Filter Rehabilitation project was advertised for bids on November 18, 2014. As shown in [Attachment 2](#), ten bids were received and opened on February 10, 2015. The low bid from J. F. Shea Construction, Inc. in the amount of \$31,762,914 complies with the requirements of the specifications. The nine higher bids ranged from approximately \$34.7 million to \$60.8 million, while the engineer's estimate was \$45 million. Staff investigated the difference between the engineer's estimate and the low bid and attributes the difference to the highly competitive pricing by suppliers for the filter media and internal filter components, primarily due to the magnitude of the procurement. In addition, the bids from prime contractors were competitive based on projected efficiencies created by the repetitive nature of the work.

For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 18 percent of the bid amount. J. F. Shea Construction, Inc. has committed to meet this level of participation. The subcontractors for this contract are listed in [Attachment 3](#).

This action appropriates \$41 million and awards a \$31,762,914 contract to J. F. Shea Construction, Inc. to rehabilitate the filters at the Weymouth plant. In addition to the amount of the contract, the requested funds include \$901,000 for construction support by Metropolitan forces, which includes Supervisory Control and Data Acquisition (SCADA) integration, sequential shutdown and start-up of filters, water sampling and testing, and filter media testing. The requested funds also include \$3.28 million for construction inspection; \$1,019,000 for submittals review, technical support, and record drawing preparation; \$600,000 for contract administration, project controls, and reporting to the state Division of Drinking Water; and \$3,437,086 for remaining budget. Final design of the Weymouth Filter Rehabilitation project was primarily performed by MWH Americas, Inc., while Metropolitan staff designed a portion of the work to refurbish drain chutes within the filter gullets. MWH Americas, Inc. will review the majority of shop drawings and prepare responses to most of the Requests for Information (RFIs) received from the contractor. Metropolitan staff will review submittals associated with the portion of the design that was prepared by staff.

Inspection of the construction will be performed by Metropolitan staff. For this project, the anticipated cost of inspection is approximately 10 percent of the total construction cost. Engineering Services' goal for inspection of projects with construction cost greater than \$3 million is 9 to 12 percent. The total cost of construction for this project, which includes the contract and Metropolitan force activities, is \$32.66 million.

Technical Services During Construction (MWH Americas, Inc.) – Amendment to Existing Agreement

MWH Americas, Inc. performed final design of the Weymouth Filter Rehabilitation project under a board-authorized agreement. As the engineer of record, MWH Americas, Inc. is recommended to provide technical support during construction. Planned activities include review of submittals, responding to RFIs from the contractor, advising staff on technical issues as they may arise, and preparing record drawings. Amendment of the existing MWH Americas, Inc. agreement is consistent with the planned approach for project implementation. For this agreement, Metropolitan has established an SBE participation level of 12 percent. MWH Americas, Inc. has agreed to provide this level of participation. The planned subconsultants under this agreement are Beyaz & Patel, Inc., Integrated Engineering Management, and Robert E. Milton Engineering.

This action authorizes an increase of \$815,000 to the existing agreement with MWH Americas, Inc., for a new not-to-exceed total of \$2.09 million, for technical support during construction of the Weymouth Filter Rehabilitation project.

Environmental Documentation for Planned Weymouth Plant Improvements – Certification of Final EIR (No funds required)

Over the past several years, Metropolitan staff conducted a condition assessment of the Weymouth plant and identified several needed rehabilitation and upgrade projects, including the Weymouth Filter Rehabilitation project. Environmental documentation is required to assess these projects' potential impacts to air quality and other factors such as traffic, noise, and cultural resources, in accordance with the California Environmental Quality Act (CEQA). In May 2013, Metropolitan's Board authorized preparation of environmental documentation for planned improvements at the Weymouth plant. The EIR assessed 12 potential projects at the La Verne site and considered measures to either mitigate potential impacts, or where feasible, reduce them to a level less than significant. This effort is now complete.

This action certifies that the Final EIR has been prepared in compliance with CEQA and the State CEQA guidelines. The CEQA determination is discussed in a later section of this letter.

Environmental Monitoring (Rincon Consultants, Inc.) – No Action Required

Environmental monitoring for the Weymouth filter rehabilitation project will be performed by Rincon Consultants, Inc. under a new professional services agreement that will be awarded under the General Manager's Administrative Code authority. Planned activities include monitoring of construction activities for compliance

with environmental mitigation measures; providing technical expertise on air quality, biology, noise, and traffic; and preparing compliance reports. This work is specialized and Metropolitan has insufficient technical staff in-house to perform these activities. The estimated cost for these services is \$75,000.

Rincon Consultants, Inc. was selected through a competitive process. For this agreement, Metropolitan established an SBE participation level of 18 percent. Rincon Consultants, Inc. has agreed to meet this level of participation. Applied Earthwork, Inc. is the sole subconsultant planned under this agreement.

Summary

This action appropriates \$41 million; awards a \$31,762,914 contract to J. F. Shea Construction, Inc.; authorizes an amendment to an existing agreement with MWH Americas, Inc.; and certifies a Final EIR for upcoming projects at the Weymouth plant. This work has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds are available within the fiscal year 2014/15 capital expenditure plan. See [Attachment 1](#) for the Financial Statement, [Attachment 2](#) for the Abstract of Bids, [Attachment 3](#) for the List of Subcontractors, and [Attachment 4](#) for the Location Map.

The total estimated cost to complete the Weymouth Filter Rehabilitation, including the amount appropriated to date and current funds requested, is approximately \$42.83 million.

This project is included within capital Appropriation No. 15477, the Weymouth 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 Appropriation No. 15477 will increase from \$6,962,000 to \$47,962,000.

Project Milestone

June 2017 – Complete refurbishment of the Weymouth plant's filters

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

California Environmental Quality Act (CEQA)

CEQA determination for Options #1 and #2:

Metropolitan's Board authorized the preparation of environmental documentation in 2013 to analyze potential impacts from planned improvements at the Weymouth plant. Staff has completed preparation of the EIR in compliance with CEQA. The EIR covered 12 potential projects at the La Verne site, including the Weymouth Filter Rehabilitation project, and incorporated measures to either mitigate potential impacts or, where feasible, reduce them to a level less than significant. Staff will return to the Board for future actions on each of these projects (collectively identified as the "proposed project").

As required under CEQA and the State CEQA Guidelines, a Notice of Preparation/Initial Study (NOP/IS) was prepared and circulated for public review on December 19, 2013. The NOP/IS stated that the proposed project had the potential to cause one or more significant effects on the physical environment and that Metropolitan would prepare a Draft EIR. The 30-day public review period remained open through January 17, 2014, and was extended for an additional 30 days ending on February 14, 2014. During the public review period, comments and input were solicited from federal, state and local government agencies, as well as private organizations and individuals that may have an interest in the proposed project.

On October 21, 2014, Metropolitan released the Draft EIR for public review for a period of 45 days and filed the Notice of Completion. The Notice of Availability of the Draft EIR was published in the San Gabriel Valley Tribune on October 21, 2014, and copies of the Draft EIR were provided to Metropolitan's Reference and Research Center, the La Verne Public Library, and the San Dimas Public Library. Moreover, Metropolitan distributed approximately 183 copies of the Draft EIR to responsible agencies, trustee agencies, affected public

agencies, nearby property owners, and other interested parties. The public review period ended on December 6, 2014. Metropolitan received five letters commenting on the Draft EIR. These comment letters and responses to comments are included in the Final EIR.

As the lead agency, the Board must certify that the Final EIR has been completed in compliance with CEQA and the State CEQA Guidelines. The Board also must certify that it has reviewed and considered the information presented in the Final EIR. Finally, the Board must certify that the Final EIR reflects Metropolitan's independent judgment and analysis.

CEQA requires that public agencies adopt a Mitigation Monitoring and Reporting Program (MMRP) when they approve a project that contains mitigation measures to reduce or avoid significant environmental impacts (Public Resources Code § 21081.6). The Final EIR evaluated potentially significant environmental impacts and proposed feasible mitigation measures; those mitigation measures are included in the MMRP. Metropolitan staff will be responsible for administering the MMRP. The Final EIR identified two environmental impact categories that cannot be mitigated to less-than-significant levels: Air Quality and Noise. These impacts can be reduced by the adoption of feasible mitigation measures. However, because they cannot be feasibly mitigated to below a level of significance, the Board must adopt a Statement of Overriding Considerations (SOC) for these impacts. The SOC concludes that the benefits of the proposed project substantially outweigh the unavoidable significant adverse impacts that would result from project implementation. In addition, the Board also must adopt the Findings of Fact (Findings) which explains the rationale for approving or carrying out a project.

See [Attachment 5](#) for the NOP/IS; [Attachment 6](#) for the Draft EIR; [Attachment 7](#) for the Final EIR (Responses to Comments and clarifications to the Draft EIR); and [Attachment 8](#) for the Findings, the SOC, and the MMRP. Each of these attachments is available for review in the Board Executive Secretary's office.

The CEQA determination is: Certify that the Final EIR has been completed in compliance with CEQA and the State CEQA Guidelines; certify that the Board has reviewed and considered the information presented in the Final EIR; certify that the Final EIR reflects Metropolitan's independent judgment and analysis; and adopt the Findings, the SOC, and the MMRP.

Board Options

Option #1

Certify that the Final EIR has been completed in compliance with CEQA and the State CEQA Guidelines; certify that the Board has reviewed and considered the information presented in the Final EIR; certify that the Final EIR reflects Metropolitan's independent judgment and analysis; and adopt the Findings, the Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Program, and

- a. Appropriate \$41 million;
- b. Award \$31,762,914 contract to J. F. Shea Construction, Inc. to rehabilitate filters at the Weymouth plant; and
- c. Authorize increase of \$815,000 to the existing agreement with MWH Americas, Inc., for a new not-to-exceed total of \$2.09 million.

Fiscal Impact: \$41 million in capital funds under Approp. 15477

Business Analysis: This option will enhance reliability and performance of the filters at the Weymouth plant, and allow timely start-up of the plant's new ozonation facilities.

Option #2

Certify that the Final EIR has been completed in compliance with CEQA and the State CEQA Guidelines; certify that the Board has reviewed and considered the information presented in the Final EIR; certify that the Final EIR reflects Metropolitan's independent judgment and analysis; and adopt the Findings, the Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Program, and do not proceed with rehabilitation of the Weymouth filters at this time.

Fiscal Impact: None

Business Analysis: This option would forgo an opportunity to enhance reliability and treatment performance of the Weymouth plant, and would delay the on-line date of the new ozone facilities.

Staff Recommendation

Option #1



Gordon Johnson
Manager/Chief Engineer
Engineering Services

3/24/2015

Date



Jeffrey Knightlinger
General Manager

3/27/2015

Date

Attachment 1 – Financial Statement

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Attachment 5 – Notice of Preparation/Initial Study

Attachment 6 – Draft EIR

Attachment 7 – Final EIR (Responses to Comments and Clarification to the Draft EIR)

Attachment 8 – Findings, Statement of Overriding Consideration, Mitigation Monitoring and Reporting

Ref# es12633891

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

A breakdown of Board Action No. 11 for Appropriation No. 15477 for rehabilitation of filters at the Weymouth plant¹ is as follows:

	Previous Total Appropriated Amount (Jan. 2015)	Current Board Action No. 11 (Apr. 2015)	New Total Appropriated Amount
Labor			
Studies & Investigations	\$ 1,260,400	\$ -	\$ 1,260,400
Final Design	1,044,500	-	1,044,500
Owner Costs (Program mgmt. & permitting)	993,900	585,000	1,578,900
Submittals Review & Record Drwgs	60,000	204,000	264,000
Construction Inspection & Support	64,000	3,280,000	3,344,000
Metropolitan Force Construction	70,000	790,700	860,700
Materials & Supplies	5,500	5,300	10,800
Incidental Expenses	44,900	45,000	89,900
Professional/Technical Services	978,000	-	978,000
MWH Americas, Inc.	1,275,000	815,000	2,090,000
Rincon Consultants, Inc.	-	75,000	75,000
Contracts	368,480	31,762,914	32,131,394
Remaining Budget	797,320	3,437,086	4,234,406
Total	\$ 6,962,000	\$ 41,000,000	\$ 47,962,000

Funding Request

Appropriation Name:	Weymouth Improvements Appropriation – FY 2012/13 Through FY 2017/18		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15477	Board Action No.:	11
Requested Amount:	\$ 41,000,000	Budget Page No.:	326
Total Appropriated Amount:	\$ 47,962,000	Total Appropriation Estimate:	\$81,800,000

¹The total amount expended to date on the Weymouth Filter Rehabilitation is approximately \$1.1 million. The total estimated cost to complete the filter rehabilitation, including the amount authorized to date and current funds requested, is approximately \$42.83 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on February 10, 2015 at 2:00 P.M.

Specifications No. 1777

F. E. Weymouth Water Treatment Plant Filter Rehabilitation

The work consists of replacement of internal components of 48 filters including piping, troughs, underdrains, filter media, pressure transmitters, perimeter handrails and lighting; repair of spalled concrete; and modification of electrical and control components.

Engineer's Estimate: \$45,000,000

Bidder and Location	Total	SBE \$	SBE %	Met SBE¹
J. F. Shea Construction, Inc. Walnut, CA	\$31,762,914	\$ 7,855,107	24.71%	Yes
Archer Western Construction, LLC San Diego, CA	\$34,674,298	-	-	-
Environmental Construction, Inc. Woodland Hills, CA	\$35,462,132	-	-	-
Balfour Beatty Infrastructure, Inc. West Covina, CA	\$37,472,777	-	-	-
Kiewit Infrastructure West Co. Santa Fe Springs, CA	\$37,917,000	-	-	-
PCL Construction, Inc. Corona, CA	\$37,973,083	-	-	-
Icon West, Inc. Los Angeles, CA	\$39,450,000	-	-	-
Stronghold Engineering, Inc. Riverside, CA	\$41,727,217	-	-	-
S. J. Amoroso Construction Co., Inc. Costa Mesa, CA	\$45,087,000	-	-	-
Abhe and Svoboda, Inc. Jordan, MN	\$60,812,240	-	-	-

¹ SBE (Small Business Enterprise) participation level was established at 18 percent for this contract

The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

Specifications No. 1777

Weymouth Filter Rehabilitation

Low Bidder: J. F. Shea Construction, Inc.

Subcontractor and Location
Environmental Construction, Inc., Signal Hill, CA
CL Industrial Coatings, Inc., Stanton, CA
CSI Electrical Contractors, Inc., Santa Fe Springs, CA

