



SUMMARY REPORT

Agenda Date: 5/12/2020

To: Board of Directors, Sonoma County Water Agency
Department or Agency Name(s): Sonoma County Water Agency
Staff Name and Phone Number: Chris Delaney / 547-1946
Vote Requirement: Majority
Supervisorial District(s): Countywide

Title:

Hydrologic and Hydraulic Engineering Support for the Lake Mendocino Forecast Informed Reservoir Operations Final Viability Assessment

Recommended Action:

- A) Authorize Sonoma County Water Agency's General Manager to execute the First Amended Agreement for Hydrologic and Hydraulic Engineering Support for the Lake Mendocino Forecast Informed Reservoir Operations Final Viability Assessment with HDR Engineering, Inc., to continue to provide hydrologic and hydraulic engineering support for the Lake Mendocino forecast informed reservoir operations final viability assessment. The amended agreement increases the amount by \$270,000 and expands the scope of work to include additional modeling development and testing, for a new not-to-exceed agreement total of \$700,000 and adds one year to the end date for a new term of March 31, 2022.
- B) Adopt a Resolution authorizing adjustments to the Board Adopted Budget for FY 2019/2020 for the Sonoma County Water Agency Russian River Projects Fund in the amount of \$270,000. □
(4/5 Vote Required)

Executive Summary:

Forecast Informed Reservoir Operations is a proposed alternative management strategy that aims to use data from watershed monitoring and state of the art weather and water forecasting to adaptively manage reservoir storage levels by incorporating forecasts of available water to meet the goals of improving water supply reliability without impairing flood protection to downstream communities.

This item requests authority for Sonoma County Water Agency's (Sonoma Water) General Manager to execute an agreement with HDR Engineering, Inc., (Consultant), to continue to provide hydrologic and hydraulic engineering services for the preparation of the Lake Mendocino Forecast Informed Reservoir Operations Final Viability Assessment for the new amount of \$700,000.

Discussion:

HISTORY OF ITEM/BACKGROUND

Lake Mendocino is located on the East Fork of the Russian River in Mendocino County, California. Created in 1958 by the Coyote Valley Dam, it provides flood control, water supply, recreation, and stream flow regulation. The United States Army Corps of Engineers (Corps) owns and operates the dam in accordance with the Lake Mendocino Water Control Manual (Manual), 1959, revised in 1986. Sonoma Water is the local partner that manages water stored in Lake Mendocino for water supply. The Manual specifies elevations for an upper

volume of reservoir storage that must be kept available for capturing storm runoff and reducing flood risk and a lower volume of storage that may be used for water supply. During a flood event, runoff is captured by the reservoir and released soon after to create storage space for another potential storm. The Manual is based on typical historical weather patterns- wet during the winter, dry otherwise.

The Manual utilizes gross estimates of flood potential to establish reservoir storage and release requirements. It does not account for changing conditions in the watershed, such as increased variation in dry and wet weather patterns and reductions to imported flows into Lake Mendocino that have occurred since 1986. Also, the Manual's reservoir operations procedures were developed decades ago, without the benefit of current science that more accurately predicts weather and streamflow.

Given reduced supplies, changed hydrologic conditions, and technological advances, some adjustments to the current reservoir operating procedures may be possible to optimize the goals of maintaining flood control while bolstering water supply reliability for downstream users and the environment (e.g., to support recovery of endangered and threatened fish).

Lake Mendocino is the first pilot location to evaluate the feasibility of Forecast Informed Reservoir Operations (FIRO), which is led by an interagency Steering Committee consisting of members from the University of California San Diego, Scripps Institute, California Department of Water Resources, Corps, National Oceanic and Atmospheric Administration (NOAA), Bureau of Reclamation, United States Geological Services, and Sonoma Water.

In July 2017, the Steering Committee completed a preliminary viability assessment (PVA) of FIRO for Lake Mendocino, which found that a forecast based decision support system could be a viable solution to meet project goals. In October 2018, the Corps approved a major deviation request made by the Steering Committee to implement components of the PVA for water year 2019, and results of this limited implementation have supported the findings of the PVA. The Steering Committee has begun development of the Final Viability Assessment (FVA), which will build off of the studies completed for the PVA to further analyze the feasibility of FIRO for Lake Mendocino and potentially make recommendations for permanent modification of the Manual. For Water Year 2019, the Corps authorized a Major Deviation to the Water Control Plan to allow FIRO to be evaluated under actual conditions. A similar deviation was granted by the Corps for Water Year 2020 and has shown significant water supply storage benefits. As of March 30th, Lake Mendocino's water supply was about 19% higher than estimated storage levels under standard (non-FIRO) operations.

Sonoma Water and Consultant entered into an agreement for hydrologic and hydraulic engineering services for the preparation of the Lake Mendocino Forecast Informed Reservoir Operations Final Viability Assessment, dated July 23, 2019, in the amount of \$430,000.

Due to the innovative nature of the FIRO program, the scope of the FVA had to be developed by Sonoma Water, the Corps and the Steering Committee members. Consequently, the original agreement did not include the full scope of work necessary to complete the evaluation of FIRO alternatives required for the FVA. Therefore, this First Amended Agreement expands the scope to include tasks needed for the FVA, which include modeling simulation and evaluation of FIRO alternatives developed by Sonoma Water and the Corps. In addition, the amended agreement removes components from the original agreement that were determined to be lower priority or no longer necessary. The removed tasks include the evaluation of channel capacity downstream of Lake Mendocino, which can be completed as part of future FIRO studies, and the development of a FIRO

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alternative similar to the operations that were implemented for Folsom Reservoir, which is now being completed by the Corps. In addition, this First Amended Agreement adds \$270,000 to the amount and adds one year to the end date for a new term of March 31, 2022, to allow Consultant to continue providing hydrologic and hydraulic engineering support for Lake Mendocino FIRO final viability assessment.

SELECTION PROCESS

On June 4, 2018, Sonoma Water issued a Request for Statements of Qualifications to the following six firms:

1. David Ford Consulting Engineers, Sacramento, CA (since merged with HDR Engineering, Inc.)
2. West Consultants, Folsom, CA
3. Environmental Science Associates, San Francisco, CA
4. Schaaf & Wheeler Consulting Engineers, Santa Rosa, CA
5. Balance Hydrologies, Berkeley, CA
6. CH2M Hill, San Diego, CA

The five firms listed below submitted Statements of Qualifications:

1. David Ford Consulting Engineers (now HDR Engineering, Inc.)
2. ENGEO Incorporated, Rocklin, CA
3. Water Resources Engineering, Albany, CA
4. West Consultants
5. Wood Environment & Infrastructure Solutions, Inc., Petaluma, CA

The following criteria were used to evaluate each firm:

- 1) Thoroughness of SQQ
- 2) Professional qualifications and demonstrated ability to perform the work
- 3) Exceptions to standard terms in the sample agreement

Consultant, formerly David Ford Consulting Engineers, was selected for the subject work because of their expertise and past experience in the fields of hydrology and hydraulics. Additionally the team assembled to complete the project has significant experience in forecast informed reservoir operations at Lake Mendocino and other reservoirs in California.

Sonoma Water may seek to amend or enter into subsequent agreement(s) with Board approval if required, relying upon this competitive selection process, after the preliminary or initial work is completed.

SERVICES TO BE PERFORMED

Under the proposed amended agreement, Consultant will continue to evaluate water control plan alternatives developed by Sonoma Water with additional analysis to support the FIRO Final Viability Assessment for Lake Mendocino.

The additional cost is \$270,000, for a new not-to-exceed agreement total of \$700,000. The new end date is March 31, 2022.

Prior Board Actions:

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- 07/23/2019: Approved agreement between Sonoma Water and HDR Engineering, Inc., for hydrologic and hydraulic engineering support for the Lake Mendocino forecast informed reservoir operations final viability assessment. Cost \$430,000; term end March 31, 2021
- 10/23/2018: Approved fifth amended agreement between Sonoma Water and HDR Engineering, Inc., for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$83,915, term extended for a new not-to-exceed agreement total of \$363,915 and end date of June 30, 2019.
- 10/25/2016: Approved fourth amended agreement between Sonoma Water and David Ford Consulting Engineers, Inc., for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$150,000, term extended for a new not-to-exceed agreement total of \$280,000 and end date of June 30, 2019.
- 10/25/2016: Approved second amended agreement between Sonoma Water and David Ford Consulting Engineers, Inc., for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$36,000, term extended for a new not-to-exceed agreement total of \$130,000 and end date of April 30, 2017.
- 10/13/2015: Approved first amended agreement between Sonoma Water and David Ford Consulting Engineers, Inc., for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$69,000, term extended for a new not-to-exceed agreement total of \$94,000 and end date of December 31, 2016.
- 06/23/2015: Execute an agreement with Regents of the University of California Scripps Institution of Oceanography to prepare the Lake Mendocino Forecast Informed Reservoir Operations Preliminary Feasibility Study in an amount not to exceed \$345,000; agreement terminates on January 31, 2017.
- 12/18/2014: Approved agreement between Sonoma Water and David Ford Consulting Engineers, Inc., for forecast-informed reservoir operation design, development, deployment, and related services. Cost \$25,000; term end December 31, 2015.

FISCAL SUMMARY

Expenditures	FY 19-20 Adopted	FY20-21 Projected	FY 21-22 Projected
Budgeted Expenses			
Additional Appropriation Requested	\$270,000		
Total Expenditures	\$270,000		
Funding Sources			
General Fund/WA GF			
State/Federal			
Fees/Other			
Use of Fund Balance	\$270,000		
Contingencies			
Total Sources	\$270,000		

Narrative Explanation of Fiscal Impacts:

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Additional appropriations are required to process this expense. With Board approval of the attached budgetary resolution, FY 2019/2020 appropriations of \$270,000 will be made in the Russian River Projects Fund. Estimated ending fund balance may be below target and will be supplemented by Sonoma Water General Fund if needed.

Staffing Impacts:			
Position Title (Payroll Classification)	Monthly Salary Range (A-I Step)	Additions (Number)	Deletions (Number)

Narrative Explanation of Staffing Impacts (If Required):

Attachments:

Attachment 1: Resolution

Attachment 2: Amended Agreement with HDR Engineering, Inc.

Related Items "On File" with the Clerk of the Board:

None