

**AMENDMENT No. 7**  
**to**  
**Agreement for Professional Services**  
**between**  
**Monterey County Water Resources Agency and AECOM Technical Services, Inc.**

The undersigned parties hereby agree to amend that certain Agreement for Professional Services between the Monterey County Water Resources Agency (hereinafter "Agency") and AECOM Technical Services, Inc., (hereinafter "CONTRACTOR") executed and effective on May 26, 2015 and amended on January 25, 2016, June 27, 2016, July 24, 2017, September 29, 2017, August 2, 2018 and December 18, 2018 (hereinafter "Agreement").

Section 1 of the Agreement is hereby amended to read as follows:

1. Employment of CONTRACTOR. Agency hereby engages CONTRACTOR and CONTRACTOR hereby agrees to perform the services set forth in Exhibits A, C, E, G, I, K, M, O, Q and S in conformity with the terms of this Agreement.
  - (a) The work to be performed is generally described as follows:

*Dam safety surveillance and performance evaluation of San Antonio Dam, access hatch design for the San Antonio Dam 84-inch low level conduit, Nacimiento Dam spillway plunge pool erosion control evaluation work and Nacimiento Dam flow control energy dissipation low-level outlet design.*
  - (b) The CONTRACTOR shall perform its services under this Agreement in accordance with usual and customary care and with generally accepted practices in effect at the time the services are rendered. The CONTRACTOR and its agents and employees performing work hereunder are specially trained, experienced, competent, and appropriately licensed to perform the work and deliver the services required by this Agreement.
  - (c) CONTRACTOR, its agents and employees shall perform all work in a safe and skillful manner and in compliance with all applicable laws and regulations. All work performed under this Agreement that is required by law to be performed or supervised by licensed personnel shall be performed in accordance with such licensing requirements.
  - (d) CONTRACTOR shall furnish, at its own expense, all materials and equipment necessary to carry out the terms of this Agreement, except as otherwise provided herein. CONTRACTOR shall not use Agency premises, property (including equipment, instruments, or supplies) or personnel for any purpose other than in the performance of its obligations hereunder.
  - (e) Agency hereby engages CONTRACTOR and CONTRACTOR hereby agrees to perform the services set forth in Exhibits A, C, E, G, I, K, M, O, Q and S in conformity with the terms of this Agreement. CONTRACTOR shall manage and pay for the work of all subcontractors as required to proceed forward with the work set forth in Exhibits A, C, E, G, I, K, M, O, Q and S.

Section 2 of the Agreement is hereby amended to read as follows:

2. Term of Agreement. The term of this Agreement shall begin upon execution of this Agreement by CONTRACTOR and Agency, and will terminate on **June 30, 2022** unless earlier terminated as provided herein.

Section 3 of the Agreement is hereby amended to read as follows:

3. Payment to CONTRACTOR; maximum liability. Subject to the limitations set forth herein, Agency shall pay to CONTRACTOR the amounts provided in Exhibits B, D, F, H, J, L, N, P, R and T for work completed and/or in progress pursuant this Agreement, summarized below:

Original Agreement: \$ 49,450 for FY 2015-16  
Amendment No. 1: No cost associated with Amendment No.1.  
Amendment No. 2: \$ 50,164 for FY 2016-17  
Amendment No. 3: \$ 50,150 for FY 2017-18  
Amendment No. 4: \$ 73,010 for FY 2017-18 (payable from Fund 130)  
Amendment No. 5: \$ 53,830 for FY 2018-19 (\$3,000 payable from Fund 130 for inundation maps)  
Amendment No. 6: \$100,000 for FY 2018-19 (Nacimiento seismic stability & plunge pool erosion initial work)  
Amendment No. 7: \$381,990 (for San Antonio Dam FY 2019-20 annual performance evaluation and access hatch design for 84-inch conduit; additional Nacimiento Dam plunge pool erosion evaluation, and flow control low level outlet design)  
Not to Exceed Total: \$758,594

The maximum amount payable to CONTRACTOR under this Agreement as amended by Amendment No's.: 1, 2, 3, 4, 5, 6 and 7 is \$758,594.

Section 31 of the Agreement is hereby amended to read as follows:

31. Exhibits. The following Exhibits are attached hereto and incorporated by reference:

<b>Exhibit A</b>	- Scope of Work and Work Schedule (Original Agreement)
<b>Exhibit B</b>	- Payment Provisions (Original Agreement)
<b>Exhibit C</b>	- Scope of Work and Work Schedule (Amendment No. 2)
<b>Exhibit D</b>	- Payment Provisions (Amendment No. 2)
<b>Exhibit E</b>	- Scope of Work and Work Schedule (Amendment No. 3)
<b>Exhibit F</b>	- Payment Provisions (Amendment No. 3)
<b>Exhibit G</b>	- Scope of Work and Work Schedule (Amendment No. 4)
<b>Exhibit H</b>	- Payment Provisions (Amendment No. 4)
<b>Exhibit I</b>	- Scope of Work and Work Schedule (Amendment No. 5)
<b>Exhibit J</b>	- Payment Provisions (Amendment No. 5)
<b>Exhibit K</b>	- Scope of Work and Work Schedule (Amendment No. 6)
<b>Exhibit L</b>	- Payment Provisions (Amendment No. 6)
<b>Exhibit M</b>	- Scope of Work and Work Schedule (Amd No. 7 – San Antonio Dam FY 2019-20 performance evaluation)
<b>Exhibit N</b>	- Payment Provisions (Amd No. 7 – San Antonio Dam FY 2019-20 performance evaluation)
<b>Exhibit O</b>	- Scope of Work and Work Schedule (Amd No. 7 – San Antonio Dam low level conduit access hatch design)
<b>Exhibit P</b>	- Payment Provisions (Amd No. 7 – San Antonio Dam low level conduit access hatch design)
<b>Exhibit Q</b>	- Scope of Work and Work Schedule (Amd No. 7 – Nacimiento Dam spillway plunge pool erosion evaluation)
<b>Exhibit R</b>	- Payment Provisions (Amd No. 7 – Nacimiento Dam spillway plunge pool erosion evaluation)

- Exhibit S** - Scope of Work and Work Schedule  
(Amd No. 7 – Nacimiento Dam flow control energy dissipation outlet design)
- Exhibit T** - Payment Provisions  
(Amd No. 7 – Nacimiento Dam flow control energy dissipation outlet design)

All other provisions of the Agreement remain in full force and effect.

**IN WITNESS WHEREOF**, Agency and CONTRACTOR have caused this Amendment No. 7 to be executed as follows:

**MONTEREY COUNTY  
WATER RESOURCES AGENCY**

**AECOM TECHNICAL SERVICES, INC.**

\_\_\_\_\_  
David E. Chardavoyne, General Manager

By \_\_\_\_\_  
(signature)

DATED: \_\_\_\_\_

\_\_\_\_\_  
(print name and title)\*

DATED: \_\_\_\_\_

By \_\_\_\_\_  
(signature)

\_\_\_\_\_  
(print name and title)\*

DATED: \_\_\_\_\_

\* INSTRUCTIONS: If CONTRACTOR is a corporation (including limited liability and nonprofit corporations), the full legal name of the corporation shall be set forth together with the signatures of two specified officers. If CONTRACTOR is a partnership, the name of the partnership shall be set forth together with the signature of a partner with authority to execute this Agreement on behalf of the partnership. If CONTRACTOR is contracting in an individual capacity, the individual shall set forth the name of his or her business, if any, and shall personally sign the Agreement.

**AECOM Technical Services, Inc.**  
**Amendment No. 7**

\* \* \* \* \*

Approved as to form:

\_\_\_\_\_  
Deputy County Counsel

DATED: \_\_\_\_\_

Approved as to fiscal provisions:

\_\_\_\_\_  
CAO Analyst

DATED: \_\_\_\_\_

\_\_\_\_\_  
Auditor-Controller

DATED: \_\_\_\_\_



## **EXHIBIT M AMENDMENT No. 7**

### **Scope of Work and Work Schedule San Antonio Dam Surveillance and Performance Evaluation**

#### **Introduction:**

AECOM Technical Services, Inc., (Contractor) shall provide the following Scope of Work related to dam surveillance and performance evaluation of San Antonio Dam, for the period of July 1, 2015 through June 30, 2020. The Agency intends to renew this Agreement annually for up to five years, beginning July 1, 2015, dependent upon satisfactory completion of each year's Scope of Work, and the continuation of Mr. Stanley Kline as the project engineer/manager.

#### **Tasks to Be Performed:**

##### **Task 1 - Annual Inspection**

Provide on-site inspection of San Antonio Dam at a time to be scheduled by the Agency. The inspection will include, at a minimum, examination of the instrumentation, relief wells, drains, embankment slopes, dam crest, and spillway for visible signs of failure, distress, erosion, or maintenance needs, and observation of operating mechanisms, including but not limited to valves, gates, drains, and safety devices for signs of malfunction or wear.

**Deliverables:** Contractor will provide field notes to the Agency after inspection is completed and any appropriate recommendations. One inspection per year.

##### **Task 2 - Piezometer / Drain Data Review**

Review and evaluate bi-monthly data from approximately 85 piezometers, 34 drains, and 10 relief wells. Data will be collected and provided to the Contractor by the Agency supplied in electronic spreadsheet format. This review includes comparison of current monitoring data with past data during periods of similar reservoir conditions and against original design assumptions and criteria, as appropriate, to check for development of significant trends or changes in the data. Contractor is to make recommendations for corrective action if required. Up to six (6) data sets will be provided to Contractor per year.

**Deliverables:** Contractor will provide the Agency a brief summary of data review conclusions and any appropriate recommendations, promptly upon each periodic review, and prior to development of the surveillance and performance evaluation report.

### **Task 3 - Survey Data Review**

Review and evaluate annual dam, spillway, and outlet tunnel survey displacement data supplied by the Agency. Include a comparison of current monitoring data with past data during periods of similar reservoir conditions and against original design assumptions and criteria, as appropriate, to check for development of significant trends or changes in the data. Contractor is to make recommendations for corrective action if required.

**Deliverables:** Contractor will provide an executive summary of data review conclusions and any appropriate recommendations upon review, and incorporate review and conclusions into the surveillance and performance evaluation report.

### **Task 4 - Instrumentation Data Plots**

Generate piezometer and drain flow data plots, and survey displacement data plots from data provided by the Agency. The Contractor shall organize and format the plots for ease of interpretation. The plots will include data for the past ten (10) years. The plots will be generated annually.

**Deliverables:** Included in Task 5 deliverables.

### **Task 5 - Reporting**

Prepare an annual dam surveillance and performance evaluation report (report) for Agency submittal to DSOD. The report will include evaluation of the current annual piezometer, drain, and survey monitoring data with comparison to historic data and trends; documentation of the field inspection; conclusions regarding the current condition of the dam, appurtenant facilities, and instrumentation; and applicable recommendations for repair, maintenance, or adjustments to the instrumentation and surveillance program. The report will be submitted initially as a draft; after receiving and incorporating Agency comments, the report will be presented in final form.

**Deliverables:**

- Upon Agency request, send via e-mail copies of draft reports to Agency's Project Manager and Deputy General Manager of Operations and Maintenance, to be followed by three (3) hard copy draft reports.
- Five (5) bound copies of the final report and one (1) bound final report with wet signature and engineer's stamp, totaling six (6) bound final reports.
- One (1) unbound master copy of the final report with original signature and engineer's stamp.
- Copies of final reports in Adobe® Portable Document Format (.PDF) on Compact Disc (CD).

- Electronic data shall be readable using Microsoft® Word, Excel, Project, and plan sets in AutoCAD by Autodesk®. ESRI ArcGIS® and AutoCAD, images to be imported in a document are to be provided at 300 dpi.
- Digital photos shall be 2048 x 1536 pixels at 72 pixels per inch or better, and delivered in .PDF, .TIFF or .JPEG formats.

### **Task 6 - Meetings**

The Contractor will allow for additional meetings as required, in addition to the site inspection, with the Agency and/or DSOD. Such meetings are in addition to Task 1.

**Deliverables:** Allow for two (2) meetings per year.

### **Task 7 - On-Call Response**

The Contractor shall be available on a time and expense basis in the event of a natural disaster or other threat to San Antonio Dam, or other unexpected urgent situation or unusual operating condition regarding the safety or integrity of the dam. The Contractor, in the event of such situation, would be expected to inspect the dam within 24 hours, or provide detailed monitoring data review and evaluation as applicable, consult with the Agency as needed, and prepare written recommendations for the continued safe operation of the structure. This task would be funded on an as-needed basis.

**Deliverables:** Allow for one on-site inspection and inspection report per year, or equivalent data review and evaluation effort.

#### **Task 7.1 - Earthquake Event Data Review**

When requested by Agency in the event of a significant earthquake, piezometer, drain, and other data will be collected on a more frequent basis, perhaps daily or weekly. These additional data will need to be evaluated and incorporated in the surveillance and performance evaluation report. The evaluation may be requested at the time immediately after data collection for such event.

**Deliverables:** Allow for up to 12 datasets to be evaluated and presented in the surveillance and performance evaluation report.

## **EXHIBIT N AMENDMENT No. 7**

### **Payment Provisions**

**for**

#### **San Antonio Dam Surveillance and Performance Evaluation**

#### **PAYMENT:**

For the Scope of Work defined in Exhibit M, Agency shall pay Contractor on a time and expense basis an amount not to exceed \$53,310. Payable costs shall be the sum of direct labor costs, other direct costs and sub-consultant mark-up as defined below. If Contractor time and expense costs necessary to complete the Scope of Work defined in Exhibit M are less than \$53,310 the Agency enjoys the savings. If Contractor requires time and expense to complete the Scope of Work defined in Exhibit M are over and above \$53,310 the maximum amount payable to Contractor remains \$53,310. Budget detail is shown on page 3.

**Direct Labor Costs:** Are the hourly billing rate, per the Direct Labor Rate Schedule herein, times the number of hours worked by the personnel.

**Other Direct Costs:** Other Direct Costs are identifiable costs necessarily incurred to complete the Scope of Work. Such costs include, but are not limited to, travel and subsistence expenses, document reproduction costs, postal, and materials costs. Expenses shall be accounted for in each invoice by submittal of receipts for such costs and a description of their necessity. Monterey County Travel Policy requires overnight lodging, meals, and incidentals be billed at U.S. General Services Administration (GSA) rates, no mark-up; mileage is billable at IRS allowable rate at time of travel, no mark-up. Non-Travel Policy costs may be marked-up 10%.

**Sub-Contractor Mark-up** is the percentage multiplier designated for each sub-Contractor times the sum of sub-Contractor direct labor and other direct charges. All sub-Contractor mark-up multipliers shall not exceed 1.10 (10% mark-up).

#### **DIRECT LABOR RATE SCHEDULE:**

The Direct Labor Rate Schedule herein shall be valid for a twelve-month period, beginning July 1, 2019. The hourly billing rate schedule and other direct costs chargeable to the project may be modified as agreed by Agency and Contractor after said period of time. The parties shall agree to such modifications in writing as an Amendment to the Agreement.

Professional and Technical Staff	Rate/Hour
Principal Engineer.....	\$250.00
Senior Technical Lead.....	\$220.00
Project Manager .....	\$210.00
Senior Engineer.....	\$180.00
Project Engineer/Geologist .....	\$150.00
Senior Staff Engineer .....	\$135.00
Staff Engineer.....	\$120.00
Support GIS.....	\$140.00
Support CAD.....	\$120.00
Support Administrative.....	\$100.00
John Roadifer, Dam Engineer.....	\$215.00
Rick Dulin, Dam Engineer.....	\$200.00
John Paxton, Dam Engineer.....	\$185.00

#### **INVOICES:**

Invoices may be submitted monthly. Invoices shall include the direct labor costs by individual and task, showing the individual's hours charged, hourly rate and total amount charged to each task. Other direct charges shall be added to the sum of the direct labor costs by task. Other direct charges shall be accounted for in each invoice by submittal of receipts for such costs and description of their necessity. Percent of task completion shall be included on each invoice.

#### **NOTIFICATION:**

When, during performance of the work, Contractor incurs 75 percent of the total task cost allotted to a task, Contractor shall so notify the Agency to that effect. If Consultant has reason to believe that the costs which it expects to incur to finish the task, when added to the costs previously incurred, will exceed the total task cost, Contractor shall so notify the Agency to that effect. The notice shall state: (1) the estimated amount of additional funds required to complete the task; (2) justification for the need for additional funds; and (3) the estimated date Contractor expects its total costs incurred to meet the total task cost.

**BUDGET DETAIL:**

Rate:		\$220.00	\$210.00	\$150.00	\$120.00	\$100.00			
Task No.	Task Description	Yadon Principal	Kline PM / PE	Eng. Support	CAD / Prod. Support	Admin. Support	Subtotal Manhours	Expenses	Task Cost Estimate
1	Annual Inspection	0	10	0	0	0	10	\$200	\$2,300
2	Piezometer / Drain Data Review	0	40	0	0	0	40	\$0	\$8,400
3	Survey Data Review	0	16	0	0	0	16	\$0	\$3,360
4	Instrumentation Data Plots	0	32	16	0	0	48	\$0	\$9,120
5	Reporting	4	50	16	16	10	96	\$500	\$17,200
6	Meetings	0	12	0	0	0	12	\$150	\$2,670
7	On-Call Response	0	22	0	0	4	26	\$200	\$5,220
7.1	Earthquake Event Data Review	0	24	0	0	0	24	\$0	\$5,040
<b>Total:</b>		<b>4</b>	<b>206</b>	<b>32</b>	<b>16</b>	<b>14</b>	<b>272</b>	<b>\$1,050</b>	<b>\$53,310</b>

# **EXHIBIT O AMENDMENT No. 7**

## **Scope of Work and Work Schedule San Antonio Dam Low-Level Conduit Access Hatch Design**

### **Introduction:**

Improved access into the San Antonio Dam 84-inch low level conduit is needed to more safely perform maintenance work inside the pipe. Existing access to the center portion of the 1,100 foot long conduit consists of two 24-inch diameter manways. One manway is located on top of the 84-inch conduit, approximately 12 feet above the floor; the second manway is located at the conduit spring line approximately 8 feet above the floor. Both manways are very difficult for personnel ingress/egress and any rescue operations. Another path for conduit entry exists through the Howell-Bunger valve at the downstream end of pipe, but this also has restrictions. A larger, more accessible hatch is needed to improve worker access safety and facilitate rescue operations if needed. DSOD review and approval will be required for the new hatch design.

### **INITIAL ACCESS HATCH DESIGN CRITERIA (Provided by MCWRA)**

- Existing 24-inch diameter manways are inadequate
- Larger hatch needed for maximum ventilation and rescue capability
- Maintenance personnel need to get in/out easily
- Fan/ventilation tube access may be sufficient through existing manways
- Connection points needed for attaching non-entry personnel retrieval equipment
- Location of new hatch to be determined; midway along the pipe segment downstream of the butterfly valve could be a good option, or immediately downstream of valve.

The above criteria will be refined and clarified as information becomes available during the design process.

The proposed scope of work for design of the new hatch is presented below.

### **SCOPE OF WORK**

#### **TASK 1 - EXISTING DATA REVIEW AND SITE VISIT**

AECOM will review available existing information on the 84-inch outlet conduit and related infrastructure, including as-built records, drawings, design reports, construction records, etc.

This task includes a site visit to view the 84-inch conduit and surrounding facilities. AECOM will also meet and interview MCWRA staff to discuss project objectives and design criteria.

*Assumptions:* MCWRA will provide existing data for review.

*Deliverables:* Findings will be included in subsequent Preliminary Design Technical Memorandum (TM) in Task 2.

## **TASK 2 - PRELIMINARY DESIGN**

AECOM will identify recommended design criteria, recommended access hatch configuration, budget level construction cost estimate, and operational parameters, and document such in a Preliminary Design Technical Memorandum (TM). The TM will be equivalent to a 30% design effort level.

This task includes one meeting with Agency staff at AECOM's Oakland office. This task also includes a conference call/Webex meeting with DSOD to obtain their input before the Preliminary Design memorandum is completed.

*Assumptions:* Design will follow industry standard access hatch design procedures developed by AWWA, ASCE and ASME. No military standards will be evaluated. The Agency will review the draft memorandum and provide comments, which will be addressed during Task 3.

*Deliverables:* Preliminary Design submittal delivered to MCWRA in PDF electronically.

## **TASK 3 - FINAL DESIGN**

AECOM will prepare the final design, incorporating comments from MCWRA and DSOD on the preliminary design. The final design will consist of two phases consisting of 60% and 100% design level.

### **Subtask 3.1: Prepare 60% Design**

The 60% design will consist of the following elements:

- Plan Drawings
- Technical Specifications
- Construction Cost Estimate and Schedule
- Draft Final Design Memorandum

*Assumptions:* MCWRA will review the Draft 60% documents and provide comments to AECOM. AECOM will incorporate Agency comments as appropriate and submit Final 60% documents to Agency. Agency will submit Final 60% documents to DSOD for their information and review. DSOD approval is not expected until after the 100% submittal.

*Deliverables:* Draft and Final 60% design packages delivered to MCWRA in PDF electronically.

### **Subtask 3.2: Prepare 100% Design**

Following receipt of any comments on the 60% design, AECOM will prepare a comment/response log and meet with MCWRA to discuss and resolve comments (if needed). AECOM will then update the design elements the 100% submittal including:

- Plan Drawings, signed and stamped by a California PE
- Technical Specifications, signed and stamped by a California PE
- Construction Cost Estimate and Schedule
- Final Design Memorandum
- Draft Operations & Maintenance Manual
- Draft Construction Inspection Plan (including special inspection requirements)

*Assumptions:* MCWRA will provide Division 0 and 1 specifications and will assemble the necessary documents for contractor bidding and construction. MCWRA will review the Draft 100% documents and provide comments to AECOM. AECOM will incorporate Agency comments as appropriate and submit Final 100% documents to Agency. MCWRA will submit



100% design documents to DSOD for review and approval. AECOM will provide responses to DSOD comments and will provide associated revisions for the Final 100% design. One iteration of revisions is assumed for MCWRA and DSOD reviews.

*Deliverables:* Draft and Final 100% Design package delivered to MCWRA in PDF electronically.

#### **TASK 4 - DESIGN ENGINEERING SERVICES DURING CONSTRUCTION**

AECOM will assist MCWRA during the construction phase on an as-needed basis. For scoping purposes, the following services were assumed:

- Participation in periodic project meetings with Contractor (by phone)
- Answering Requests for Information (6 total)
- Construction submittal/shop drawing review (8 total)
- Evaluating Change Order Requests (1 total)
- Design Engineer on-site construction observation (8 days total) including during key activities such as:
  - Survey & layout of new hatch
  - Cutting of 84-inch Conduit
  - Welding of reinforcement around opening
  - Fabrication of new hatch
  - Welding of new hatch
  - Restoration of linings and coatings

*Assumptions:* MCWRA will provide contract administration, resident engineering, daily construction inspection, and specialized inspections as required. MCWRA will forward documents to AECOM when input is needed.

*Deliverables:* AECOM responses and site observation notes provided to MCWRA in PDF electronically.

#### **TASK 5 - PROJECT MANAGEMENT**

Project management activities include internal planning, coordination, QA/QC, monthly invoicing and monthly progress reports, project setup, and communications with MCWRA during an estimated 6-month duration of this task (4 mos. design, 2 mos. construction). Progress meetings will be held by telephone/WebEx on a biweekly basis.

#### **WORK SCHEDULE**

AECOM's design effort is estimated to take 16 weeks in total following kickoff, which does not include MCWRA or DSOD review times. Construction duration is estimated to be 2 months.

## **EXHIBIT P AMENDMENT No. 7**

### **Payment Provisions**

**for**

#### **San Antonio Dam Low-Level Conduit Access Hatch Design**

#### **PAYMENT:**

For the Scope of Work defined in Exhibit O, Agency shall pay Contractor on a time and expense basis an amount not to exceed \$66,100. Payable costs shall be the sum of direct labor costs, other direct costs and sub-consultant mark-up as defined below. If Contractor time and expense costs necessary to complete the Scope of Work defined in Exhibit O are less than \$66,100 the Agency enjoys the savings. If Contractor requires time and expense to complete the Scope of Work defined in Exhibit O are over and above \$66,100 the maximum amount payable to Contractor remains \$66,100. Budget detail is shown on page 3.

**Direct Labor Costs:** Are the hourly billing rate, per the Direct Labor Rate Schedule herein, times the number of hours worked by the personnel.

**Other Direct Costs:** Other Direct Costs are identifiable costs necessarily incurred to complete the Scope of Work. Such costs include, but are not limited to, travel and subsistence expenses, document reproduction costs, postal, and materials costs. Expenses shall be accounted for in each invoice by submittal of receipts for such costs and a description of their necessity. Monterey County Travel Policy requires overnight lodging, meals, and incidentals be billed at U.S. General Services Administration (GSA) rates, no mark-up; mileage is billable at IRS allowable rate at time of travel, no mark-up. Non-Travel Policy costs may be marked-up 10%.

**Sub-Contractor Mark-up** is the percentage multiplier designated for each sub-Contractor times the sum of sub-Contractor direct labor and other direct charges. All sub-Contractor mark-up multipliers shall not exceed 1.10 (10% mark-up).

#### **DIRECT LABOR RATE SCHEDULE:**

The Direct Labor Rate Schedule herein shall be valid for a twelve-month period, beginning July 1, 2019. The hourly billing rate schedule and other direct costs chargeable to the project may be modified as agreed by Agency and Contractor after said period of time. The parties shall agree to such modifications in writing as an Amendment to the Agreement.

Professional and Technical Staff	Rate/Hour
----------------------------------	-----------

Principal Engineer.....	\$250.00
Senior Technical Lead .....	\$220.00
Project Manager .....	\$210.00
Senior Engineer .....	\$180.00
Project Engineer/Geologist .....	\$150.00
Senior Staff Engineer.....	\$135.00
Staff Engineer .....	\$120.00
Support GIS .....	\$140.00
Support CAD.....	\$120.00
Support Administrative.....	\$100.00

#### **INVOICES:**

Invoices may be submitted monthly. Invoices shall include the direct labor costs by individual and task, showing the individual's hours charged, hourly rate and total amount charged to each task. Other direct charges shall be added to the sum of the direct labor costs by task. Other direct charges shall be accounted for in each invoice by submittal of receipts for such costs and description of their necessity. Percent of task completion shall be included on each invoice.

#### **NOTIFICATION:**

When, during performance of the work, Contractor incurs 75 percent of the total task cost allotted to a task, Contractor shall so notify the Agency to that effect. If Consultant has reason to believe that the costs which it expects to incur to finish the task, when added to the costs previously incurred, will exceed the total task cost, Contractor shall so notify the Agency to that effect. The notice shall state: (1) the estimated amount of additional funds required to complete the task; (2) justification for the need for additional funds; and (3) the estimated date Contractor expects its total costs incurred to meet the total task cost.

# **BUDGET DETAIL - San Antonio Dam Low-Level Conduit Access Hatch Design:**

Task	Rate:	Senior Reviewer/PIC	Sr. Engineer	Staff Engineer	CAD	Admin	Total Labor Hours	AECOM Labor Costs	Other Direct Costs	Total Costs
1	Data Review & Site Visit	8	12	12		\$100.00	32	\$ 5,960	\$ 200	\$ 6,160
2	Prelim Design	2	16	16	32		66	\$ 9,620		\$ 9,620
3.1	Draft Final Design	2	16	16	24		58	\$ 8,660		\$ 8,660
3.2	Final Design	2	8	18	16		44	\$ 6,260	\$ 200	\$ 6,460
4	Engineering During Const.	4	80	40			124	\$ 22,600	\$ 1,000	\$ 23,600
5	PM (6 mos.)	40				16	56	\$ 11,600		\$ 11,600
<b>Total Hours</b>		58	132	102	72	16	380			
<b>Total Labor Costs</b>		\$14,500	\$27,720	\$12,240	\$8,640	\$1,600		\$ 64,700	\$ 1,400	\$ 66,100

# **EXHIBIT Q AMENDMENT No. 7**

## **Scope of Work and Work Schedule Nacimientto Dam Spillway Plunge Pool Erosion Evaluation**

### **Introduction**

The Nacimientto Dam spillway plunge pool has experienced substantial erosion from spillway releases over time, most recently in 2011 and 2017. Left plunge pool bank erosion is considered severe and is exposed to additional erosion at flows above approximately 3,000 cfs (as estimated by MCWRA staff). Continued left bank erosion would encroach upon the left spillway toe. Right bank plunge pool erosion is also considered severe, although riprap protection installed in 2017 is estimated (by MCWRA staff) to provide erosion protection up to approximately 6,000 cfs. Spillway release above that value are estimated to cause additional right bank erosion in the general direction of the dam embankment, presently located approximately 300 feet from the eroded right plunge pool bank. Flows referenced above are a small fraction of the 101,000 cfs spillway flow capacity.

The Scope of Work for Task 5 herein replaces Task 5 in Exhibit K Amendment No. 6. Task 5 herein is modified from Exhibit K to adequately identify a preferred spillway plunge pool erosion control alternative, for subsequent Agency pursuit of engineering design and permitting, with a level of detail acceptable for Federal Energy regulatory Commission (FERC) and California Department of Water Resources, Division of Safety of Dams (DSOD) acceptance, and address recommendation R-1 from the Nacimientto Dam 2019 7th FERC Part 12D report regarding the suitability of the dam for continued safe and reliable operation which states "...Advanced hydraulic modeling is recommended to develop alternatives to stabilize the spillway plunge pool area and contain releases in a non-erosive manner."

### **SCOPE OF WORK**

The Scope of Work for Task 5 herein replaces Task 5 in Exhibit K Amendment No. 6.

### **TASK 5 - PLUNGE POOL EROSION CONTROL**

The proposed spillway plunge pool erosion control evaluation work includes preliminary hydraulic modeling and erodibility assessment to support development of erosion control improvement concept alternatives for the plunge pool. Analyses will be conducted on the concepts including analysis for a recommended preferred alternative to support preliminary design. The deliverable for this task will be a technical memorandum, incorporating the hydraulic modeling results and erodibility assessment. The assessment will include evaluation and comparison of alternatives, hydraulic modeling, and recommendation of a preferred concept alternative for design.

### **Task 5.1 - Hydraulic Modeling**



The Nacimiento Dam plunge pool has complicated hydraulics due to the large bedrock outcrop located in the southeast end of the pool. During the largest observed flows, the outcrop appears to divert flows to the northwest (left bank) or block flows, increasing the size of eddies forming along the sides of the pool. This has resulted in extensive erosion of the left bank (looking downstream) and significant but less erosion on the right bank. At higher flows, after the large rock outcrop is submerged, erosion patterns could change. Thus, adequate modeling and engineering is important to support a remedial design that will handle flows larger than have been experienced thus far.

An evaluation will be conducted to assess the hydraulics of the spillway plunge pool and the causes of the scour and erosion around the plunge pool for the existing conditions and with alternative mitigation strategies. The analysis will include the following:

- Spreadsheet based calculations to estimate trajectories of spillway discharge flow into the plunge pool under various flow rate conditions and associated evaluation of how the current bedrock outcrop at the center of the plunge pool might impact the trajectories or flow conditions.
- Preliminary three-dimensional Computational Fluid Dynamics (CFD) modeling of existing topographic and bathymetric conditions. The maximum historic spillway discharge flow of about 8,000 cfs since the latest spillway modifications and improvements, experienced in 2011 and 2017, will be modeled to evaluate scour potential around the plunge pool, to compare to existing trends in erosion. A second significantly higher spillway discharge flow rate will be modeled for existing conditions to evaluate the scour potential at higher flows if no action were taken to mitigate erosion. To encompass a range of hydraulic behavior for existing conditions, the second model run would be at a key higher flow rate identified by MCWRA of at least 18,000 cfs. The CFD model will provide estimated velocity, shear stress, and stream power at the bottom and sides of the pool that will then be used to evaluate scour potential. The proposed CFD modeling for the plunge pool will start from upstream of the spillway (reservoir) and end at an appropriate distance downstream from the plunge pool. The downstream boundary of the CFD model will be established by the tailwater elevation calculated from the Hydrologic Engineering Center River Analysis System (HEC-RAS) model.
- Additional CFD modeling will be conducted for up to three mitigation alternatives developed after the scour potential estimated from the initial CFD modeling is complete. The alternatives will each be analyzed under multiple flow conditions. The results from these modeling runs will be used to help recommend a preferred alternative for further investigation. Up to 10 model runs between potential alternatives and a range of spillway discharge flows is provided for.
- Final CFD modeling will be conducted for the preferred alternative under two phases of implementation for different flow conditions to add detail to support design. Up to 4 model runs is provided for.
- Overall, for the above steps of CFD modeling, a total of 15 model runs is provided for.
- To facilitate the CFD modeling, a one-dimensional hydraulic model based on HEC-RAS will be developed for the downstream exit channel to provide tailwater levels to be used in the CFD models. The model will include the plunge pool, road crossing, and a portion of the river downstream of the road crossing. Output from the model will be a rating

curve at the road crossing that can be used as the downstream boundary condition for the CFD model.

The CFD modeling for this project will be developed using the FLOW-3D computer program developed by FLOW Science, Inc. of Santa Fe, New Mexico, USA. The program is designed for the treatment of time-dependent (transient) problems in one, two, and three dimensions, and is based on a finite difference solution of the complete Navier-Stokes equations. Because the program is based on the fundamental laws of mass, momentum, and energy conservation, it can be applied to almost any type of flow process.

One of the major strengths of FLOW-3D for hydraulic analysis is its ability to accurately model problems involving free surface flow. In FLOW-3D, free surfaces are modelled using the Volume of Fluid (VOF) technique. The VOF method consists of three components: a scheme to locate the surface, an algorithm to track the surface as a sharp interface moving through a computational grid, and a means of applying boundary conditions at the surface. It handles transitions between sub-critical and super-critical flow within a single model set up.

#### **Task 5.2 - Erosion Resistance Assessment**

The results of the CFD modeling, in particular stream power and wave height and period, will be compared to the erodibility of the materials comprising the bottom and sides of the plunge pool for scour and erosion assessment of the pool. The erosion resistance assessment of the plunge pool materials will be based on site specific geologic and geotechnical conditions from prior studies along with information obtained from the site reconnaissance visit.

#### **Task 5.3 - Mitigation Alternatives Development**

Based on results of the hydraulic modeling and the erosion resistance assessment, conceptual alternatives for plunge pool improvement will be identified and evaluated. Alternatives will be developed that can be implemented in phases. Potential concepts for erosion control improvement and mitigation may include but are not limited to the following:

- Removal of the bedrock outcrop in the middle of the existing plunge pool
- Riprap installation around the pool with properly designed sizing and gradation
- Grouted rock installation
- Construction of a more resistant plunge pool with a concrete or RCC base slab and vertical or sloping side walls.
- Modification of the existing spillway chute terminal flip-bucket into a straight or curved chute terminal connected to a conventional stilling basin.

#### **Task 5.4 - Bathymetric Survey**

An important aspect to support the plunge pool hydraulic modeling is accurate topographic and bathymetric geometry of the ground surface in and around the plunge pool. Rough bathymetry of the plunge pool area surface has been provided, which will be updated and refined to properly support the CFD modeling. This scope assumes that MCWRA will obtain and provide to AECOM a ground survey of the area around the

plunge pool. Bathymetry of the plunge will be collected using single beam sonar, and the results will be incorporated into the model. Field survey work will be performed by a qualified subcontractor, and accompanied on-site by an AECOM engineer to define the area for survey data collection. AECOM will also process the data for modeling purposes and create a topo-bathymetric map of the site.

### **Task 5.5 - Meetings**

Meetings with MCWRA staff at AECOM's Oakland office at key points in the plunge pool evaluation work planned and provided for are as follows:

- Following preliminary modeling of existing conditions, associated with selection of mitigation alternatives for modeling of remedial conditions.
- Following additional modeling of alternatives, associated with selection of a preferred alternative.
- Following completion of the preferred alternative modeling and draft report deliverable, to discuss MCWRA review and follow-on design.

### **DELIVERABLES**

An Alternatives Report / Selection Recommendations Memorandum describing the results of the Nacimiento Dam spillway plunge pool erosion control alternatives evaluation work will be produced, including a description of the hydraulic modeling, erosion resistance assessment, alternatives identification and evaluation, and order of magnitude cost comparisons. The report will contain results of the supporting hydraulic modeling, summary of the scour and erosion resistance evaluation, comparison of the most viable erosion control alternatives, and recommendation of a preferred alternative to take forward into detailed design (detailed design is not included in this scope of work). The report will detail the various phases of the hydraulic modeling and the basis of decisions for remedial alternatives and preferred alternative selections with consideration of phased implementation and construction. A hardcopy and electronic file of the topo-bathymetric map will be provided to MCWRA. A draft report will be provided for MCWRA review and comment. Review comments will be addressed and incorporated into a final version of the report provided to MCWRA, which MCWRA can make available to DSOD and FERC.

### **WORK SCHEDULE**

A five-month duration from the time of Notice to Proceed is needed to complete the work as outlined herein. For elements of work where review and interaction with DSOD and/or FERC are required, a longer duration may be necessary due to factors beyond AECOM's control.



## **EXHIBIT R AMENDMENT No. 7**

### **Payment Provisions for Nacimiento Dam Spillway Plunge Pool Erosion Evaluation**

#### **PAYMENT:**

This Exhibit R replaces Task 5 of Exhibit L Amendment 6. For the Scope of Work defined in Exhibit Q, Agency shall pay Contractor on a time and expense basis an amount not to exceed \$177,400 (consisting of \$34,120 carried over from Exhibit L Amendment No. 6 plus \$143,280). Payable costs shall be the sum of direct labor costs, other direct costs and sub-consultant mark-up as defined below. If Contractor time and expense costs necessary to complete the Scope of Work defined in Exhibit Q are less than \$177,400 the Agency enjoys the savings. If Contractor requires time and expense to complete the Scope of Work defined in Exhibit Q are over and above \$177,400 the maximum amount payable to Contractor remains \$177,400. Budget detail is shown on page 3.

**Direct Labor Costs:** Are the hourly billing rate, per the Direct Labor Rate Schedule herein, times the number of hours worked by the personnel.

**Other Direct Costs:** Other Direct Costs are identifiable costs necessarily incurred to complete the Scope of Work. Such costs include, but are not limited to, travel and subsistence expenses, document reproduction costs, postal, and materials costs. Expenses shall be accounted for in each invoice by submittal of receipts for such costs and a description of their necessity. Monterey County Travel Policy requires overnight lodging, meals, and incidentals be billed at U.S. General Services Administration (GSA) rates, no mark-up; mileage is billable at IRS allowable rate at time of travel, no mark-up. Non-Travel Policy costs may be marked-up 10%.

**Sub-Contractor Mark-up** is the percentage multiplier designated for each sub-Contractor times the sum of sub-Contractor direct labor and other direct charges. All sub-Contractor mark-up multipliers shall not exceed 1.10 (10% mark-up).

#### **DIRECT LABOR RATE SCHEDULE:**

The Direct Labor Rate Schedule herein shall be valid for a twelve-month period, beginning July 1, 2019. The hourly billing rate schedule and other direct costs chargeable to the project may be modified as agreed by Agency and Contractor after said period of time. The parties shall agree to such modifications in writing as an Amendment to the Agreement.

Professional and Technical Staff	Rate/Hour
----------------------------------	-----------

Principal Engineer.....	\$250.00
Senior Technical Lead .....	\$220.00
Project Manager .....	\$210.00
Senior Engineer .....	\$180.00
Project Engineer/Geologist .....	\$150.00
Senior Staff Engineer.....	\$135.00
Staff Engineer .....	\$120.00
Support GIS .....	\$140.00
Support CAD.....	\$120.00
Support Administrative.....	\$100.00

#### **INVOICES:**

Invoices may be submitted monthly. Invoices shall include the direct labor costs by individual and task, showing the individual's hours charged, hourly rate and total amount charged to each task. Other direct charges shall be added to the sum of the direct labor costs by task. Other direct charges shall be accounted for in each invoice by submittal of receipts for such costs and description of their necessity. Percent of task completion shall be included on each invoice.

#### **NOTIFICATION:**

When, during performance of the work, Contractor incurs 75 percent of the total task cost allotted to a task, Contractor shall so notify the Agency to that effect. If Consultant has reason to believe that the costs which it expects to incur to finish the task, when added to the costs previously incurred, will exceed the total task cost, Contractor shall so notify the Agency to that effect. The notice shall state: (1) the estimated amount of additional funds required to complete the task; (2) justification for the need for additional funds; and (3) the estimated date Contractor expects its total costs incurred to meet the total task cost.

# BUDGET DETAIL - Nacimientto Dam Spillway Plunge Pool Erosion Evaluation

	Senior Reviewer/ PIC	Project Manager	Senior Geotech Lead	Project Geotech Engineer	Senior Geology Lead	Project Engineering Geologist	Senior Hydraulics Lead	Project Hydraulic Engineer	Staff Engineer	GIS	CAD	Admin	Total Labor Hours	AECOM Labor Costs	Other Direct Costs	Total Costs
<b>Task 5 - Budget Carryover from Exhibit L</b>	<b>Rate:</b>	<b>\$250.00</b>														
5.1 - Initial Hydraulic Modeling	4	16	4	0	4	0	82	24	12	0	\$120.00	\$100.00	186	\$ 33,920	\$ 200	\$ 34,120
5.2 - Erosion Resistance Assessment		4					40	16	12		24		96	\$ 16,360		\$ 16,360
5.3 - Mitigation Alternatives Development	4	8	4		4		8	8					20	\$ 4,360		\$ 4,360
<b>Task 5 - Additional Budget</b>	<b>16</b>	<b>28</b>	<b>24</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>394</b>	<b>0</b>	<b>20</b>	<b>16</b>	<b>70</b>	<b>8</b>	<b>596</b>	<b>\$ 120,080</b>	<b>\$ 23,200</b>	<b>\$ 143,280</b>
5.1 - Additional Hydraulic Modeling		4					130		20		36		190	\$ 36,160	\$ 7,000	\$ 43,160
5.2 - Erosion Resistance Assessment		4	16		16		96						132	\$ 29,000		\$ 29,000
5.3 - Mitigation Alternatives Development	4	8					120				30	8	170	\$ 33,480	\$ 200	\$ 33,680
5.4 - Bathymetric Survey	4	8					24			16	4		56	\$ 10,680	\$ 16,000	\$ 26,680
5.5 - Meetings	8	4	8		4		24						48	\$ 10,760		\$ 10,760
<b>Total Hours</b>	<b>20</b>	<b>44</b>	<b>28</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>476</b>	<b>24</b>	<b>32</b>	<b>16</b>	<b>106</b>	<b>12</b>	<b>782</b>			
<b>Total Labor Costs</b>	<b>\$5,000</b>	<b>\$9,240</b>	<b>\$6,160</b>	<b>\$0</b>	<b>\$5,280</b>	<b>\$0</b>	<b>\$104,720</b>	<b>\$3,600</b>	<b>\$3,840</b>	<b>\$2,240</b>	<b>\$12,720</b>	<b>\$1,200</b>	<b>\$154,000</b>	<b>\$ 154,000</b>	<b>\$ 23,400</b>	<b>\$ 177,400</b>

# **EXHIBIT S AMENDMENT No. 7**

## **Scope of Work and Work Schedule Nacimient Dam Flow Control Energy Dissipating Low-Level Outlet Design**

### **Introduction**

The Nacimient Dam low-level outlet works consists of a reservoir intake structure, with three 42-inch hydraulically actuated butterfly valves, converging into a 53-inch I.D. mortar lined steel conduit approximately 1,160 feet long. The conduit has six 24-inch outlets discharging into a concrete outlet basin structure. Each outlet is equipped with a 24-inch eccentric plug valve and a 90° discharge elbow directing flow to the floor of the basin.

Regulatory minimum reservoir release requirements increased in 2010 from 25 cfs to 60 cfs. However, the existing 24-inch plug valves were not designed for regulating flows in this range, and have experienced vibration and cavitation damage at these low flows. The existing MCWRA hydroelectric plant, located at the end of the low-level outlet conduit, is sized to handle minimum flows of approximately 25 cfs, so meeting the current 60 cfs minimum flow requires use of the 24-inch outlets to discharge the additional 35 cfs, causing further cavitation damage to the outlet valves and elbows. For these reasons, a new low flow control energy dissipating outlet is needed to release low flows meeting regulatory minimum flow requirements. In addition, relocation of the point of discharge to downstream of the outlet basin structure and hydroelectric plant is needed to allow dewatering of the outlet basin and powerplant tailrace for maintenance purposes while still meeting minimum flow release requirements. The scope of work presented in this proposal includes assessing alternative solutions and developing designs to address these needs.

### **DESIGN OBJECTIVES (Provided by MCWRA)**

- Provide one or two flow control energy dissipating outlets (as necessary to meet all criteria)
- Provide flow control over the full range of 1 to 100 cfs (more if possible)
- Provide energy dissipation at the point of discharge
- Prevent erosion at outlet discharge (riverbed/bank erosion)
- Prevent cavitation damage at discharge structure (concrete, steel, etc.)
- Prevent internal valve & pipe cavitation damage
- Discharge location may be phased to meet Agency budgetary constraints
  - Potential phases may include:
    - Phase 1 – discharge over concrete weir at outlet basin structure (to allow water release and dewatering of outlet structure)
    - Phase 2 – discharge at river downstream of hydroelectric plant (to allow water release and dewatering of hydro-plant tailrace, outlet works channel and outlet basin structure)

Design objectives may be modified as information becomes available during the design process. The proposed scope of work is presented in the following paragraphs.

## **SCOPE OF WORK**

### **TASK 1 - EXISTING DATA REVIEW AND SITE VISIT**

AECOM will review available existing information on the outlet basin structure and related infrastructure, including as-built records, drawings, design reports, construction records, etc.

This task includes a site visit to view the outlet structure and surrounding facilities. AECOM will also meet and interview MCWRA staff to discuss project challenges, preferences and objectives.

*Assumptions:* MCWRA will provide data for review.

*Deliverables:* Findings will be included in the Preliminary Design TM under Task 2.

### **TASK 2 - PRELIMINARY DESIGN**

AECOM will identify recommended design criteria, alternative outlet configurations, budget level construction cost considerations, operational parameters, and other relevant factors, and will present a recommended alternative for final design in a Preliminary Design Technical Memorandum (TM). MCWRA will review the draft TM and provide comments for incorporation into a final TM. The preliminary design will be equivalent to a 30% level design .

*Assumptions:* This task includes one meeting with Agency staff at AECOM's Oakland office. This task also assumes that separate conference call/Webex meetings may be needed with DSOD and FERC to obtain their input on the Preliminary Design TM.

*Deliverables:* Preliminary Design submittal delivered to MCWRA in PDF electronically, draft and final versions.

### **TASK 3 - FINAL DESIGN**

AECOM will prepare the final design upon Agency approval of the preliminary design. The final design will consist of two submittals equivalent to 60% and 100% design levels.

#### **Subtask 3.1: Prepare 60% Design**

The 60% design will consist of the following elements:

- Plan Drawings
- Technical Specifications
- Construction Cost and Schedule Estimate
- Draft Final Design Memorandum

*Assumptions:* MCWRA will review the 60% design and provide any comments to AECOM. AECOM will develop responses and incorporate MCWRA comments as appropriate in the next phase submittal. MCWRA will coordinate necessary reviews by DSOD and FERC.

*Deliverables:* 60% design package delivered to MCWRA in PDF electronically.



### **Subtask 3.2: Prepare 100% Design**

Upon receipt of comments on the 60% design, AECOM will prepare a comment/response log and meet with MCWRA to discuss and resolve comments as appropriate. AECOM will then update the design elements in the 100% submittal including :

- Plan Drawings, signed and stamped by a CA PE (8 sheets)
- Technical Specifications, signed and stamped by a CA PE (8 sections)
- Construction Cost and Schedule Estimate
- Final Design Memorandum
- Draft Operations and Maintenance Manual
- Draft Construction Quality Control Inspection Plan (QCIP) per FERC Engineering Guidelines Chapter VII (including special inspection requirements)

*Assumptions:* MCWRA will provide Division 0 and 1 specifications and will assemble the necessary documents for contractor bidding and construction. MCWRA will review the Draft 100% documents and provide comments to AECOM. AECOM will incorporate Agency comments as appropriate and submit Final 100% documents to Agency. MCWRA will submit 100% design documents to DSOD and FERC for review and approval. AECOM will provide responses to DSOD and FERC comments and will provide associated revisions for the Final 100% design. One iteration of revisions is assumed for MCWRA, DSOD, and FERC reviews.

*Deliverables:* Draft and Final 100% design package delivered to MCWRA in PDF electronically.

## **TASK 4 - DESIGN ENGINEERING SERVICES DURING CONSTRUCTION**

AECOM will assist MCWRA during the construction phase on an as-needed basis. For scoping purposes, the following services were assumed:

- Participation in periodic project meetings with Contractor (by phone)
- Answering Requests for Information (10 total)
- Construction submittal/shop drawing review (12 total)
- Evaluating Change Order Requests (2 total)
- Design Engineer on-site construction observation (8 days total for key activities)

*Assumptions:* MCWRA will provide contract administration, resident engineering, daily construction inspection, and specialized inspections as required. MCWRA will forward documents to AECOM when input is needed.

*Deliverables:* AECOM engineering during construction, responses and site visit observation notes provided to MCWRA in PDF electronically.

## **TASK 5 - PROJECT MANAGEMENT**

Project management activities include internal planning, coordination, QA/QC, monthly invoicing and monthly progress reports, project setup, and communications with MCWRA during the estimated 8-month duration of this task (5 months design plus 3 months construction). Progress meetings will be held by telephone/WebEx on a biweekly basis.

## **WORK SCHEDULE**

The AECOM design effort is estimated to take 20 weeks in total following Notice to Proceed, assuming a single phase of project implementation. If MCWRA decides to divide the project into phases for budgetary or other reasons, the overall design schedule and budget may need to be reevaluated. This schedule does not include MCWRA, DSOD or FERC review times.

## **EXHIBIT T AMENDMENT No. 7**

### **Payment Provisions**

**for**

#### **Nacimiento Dam Flow Control Energy Dissipating Low-Level Outlet Design**

#### **PAYMENT:**

For the Scope of Work defined in Exhibit S, Agency shall pay Contractor on a time and expense basis an amount not to exceed \$119,300. Payable costs shall be the sum of direct labor costs, other direct costs and sub-consultant mark-up as defined below. If Contractor time and expense costs necessary to complete the Scope of Work defined in Exhibit S are less than \$119,300 the Agency enjoys the savings. If Contractor requires time and expense to complete the Scope of Work defined in Exhibit S over and above \$119,300 the maximum amount payable to Contractor remains \$119,300. Budget detail is shown on page 3.

**Direct Labor Costs:** Are the hourly billing rate, per the Direct Labor Rate Schedule herein, times the number of hours worked by the personnel.

**Other Direct Costs:** Other Direct Costs are identifiable costs necessarily incurred to complete the Scope of Work. Such costs include, but are not limited to, travel and subsistence expenses, document reproduction costs, postal, and materials costs. Expenses shall be accounted for in each invoice by submittal of receipts for such costs and a description of their necessity. Monterey County Travel Policy requires overnight lodging, meals, and incidentals be billed at U.S. General Services Administration (GSA) rates, no mark-up; mileage is billable at IRS allowable rate at time of travel, no mark-up. Non-Travel Policy costs may be marked-up 10%.

**Sub-Contractor Mark-up** is the percentage multiplier designated for each sub-Contractor times the sum of sub-Contractor direct labor and other direct charges. All sub-Contractor mark-up multipliers shall not exceed 1.10 (10% mark-up).

#### **DIRECT LABOR RATE SCHEDULE:**

The Direct Labor Rate Schedule herein shall be valid for a twelve-month period, beginning July 1, 2019. The hourly billing rate schedule and other direct costs chargeable to the project may be modified as agreed by Agency and Contractor after said period of time. The parties shall agree to such modifications in writing as an Amendment to the Agreement.



Professional and Technical Staff	Rate/Hour
----------------------------------	-----------

Principal Engineer.....	\$250.00
Senior Technical Lead .....	\$220.00
Project Manager .....	\$210.00
Senior Engineer .....	\$180.00
Project Engineer/Geologist .....	\$150.00
Senior Staff Engineer.....	\$135.00
Staff Engineer .....	\$120.00
Support GIS .....	\$140.00
Support CAD.....	\$120.00
Support Administrative.....	\$100.00

#### **INVOICES:**

Invoices may be submitted monthly. Invoices shall include the direct labor costs by individual and task, showing the individual's hours charged, hourly rate and total amount charged to each task. Other direct charges shall be added to the sum of the direct labor costs by task. Other direct charges shall be accounted for in each invoice by submittal of receipts for such costs and description of their necessity. Percent of task completion shall be included on each invoice.

#### **NOTIFICATION:**

When, during performance of the work, Contractor incurs 75 percent of the total task cost allotted to a task, Contractor shall so notify the Agency to that effect. If Consultant has reason to believe that the costs which it expects to incur to finish the task, when added to the costs previously incurred, will exceed the total task cost, Contractor shall so notify the Agency to that effect. The notice shall state: (1) the estimated amount of additional funds required to complete the task; (2) justification for the need for additional funds; and (3) the estimated date Contractor expects its total costs incurred to meet the total task cost.

# BUDGET DETAIL - Nacimientto Dam Flow Control Energy Dissipating Low-Level Outlet Design

	Senior Reviewer PIC	Sr. Engineer	Staff Engineer	CAD	Admin	Total Labor Hours	AECOM Labor Costs	Other Direct Costs	Total Costs
Task 1	Rate:	\$250.00	\$210.00	\$120.00	\$100.00				
Task 2	Data Review & Site Visit	8	20	20		48	\$ 8,600	\$ 200	\$ 8,800
Task 3.1	Prelim Design	4	60	60	40	164	\$ 25,600		\$ 25,600
Task 3.2	Draft Final Design	4	60	60	40	164	\$ 25,600		\$ 25,600
Task 4	Final Design	4	40	60	40	144	\$ 21,400	\$ 100	\$ 21,500
Task 5	Engineering During Const.	8	80	40		128	\$ 23,600	\$ 1,000	\$ 24,600
	PM (8 mos.)	40			32	72	\$ 13,200		\$ 13,200
Total Hours		68	260	240	120	720			
Total Labor Costs		\$17,000	\$54,600	\$28,800	\$14,400		\$ 118,000	\$ 1,300	\$119,300