



WHITE MOUNTAIN APACHE TRIBE

A Sovereign Tribal Nation

(Approving Time Extension and Modification of Expert Consultant Contract with HDR Engineering)

WHEREAS, the Tribal Council previously approved a Professional Services Contract (Contract) with HDR Engineering (HDR) on December 4, 2015, with an expiration date of June 1, 2017, and therefore must be extended to June 1, 2018, in order to perform the consulting duties described in this resolution; and

WHEREAS, HDR has provided valuable and essential expert advice to the Tribe in regards to geological and geotechnical subjects relating to the Miner Flat Dam component of the WMAT Rural Water System under BOR Cooperative Agreement No. R.11AV32054, including, but not limited to, facilitating communication between the Bureau of Reclamation and Gannett Fleming, the design firm for Miner Flat Dam, attending in person and by teleconference, necessary meetings between the WMAT, BOR, Gannett Fleming, the Consultant Review Board, the Tribal Council and other agencies, and by reviewing the geologic and geotechnical conditions at the site for the Miner Flat Dam all of which has been necessary to accomplish the purposes of the WMAT Rural Water System as set forth in the White Mountain Apache Water Rights Quantification Act 2010; and

WHEREAS, the Tribal Council is advised that the proposed technical assistance services set forth in the attached Scope of Work (SOW), and incorporated by reference herein, to be performed by HDR is essential for the Tribe's ultimate goal of obtaining approval by the Secretary of the Interior for construction of the Rural Water System; and

WHEREAS, the Tribal Council is further advised that the source of funding to pay HDR for the SOW to be performed during an extension of the Contract cannot be from the 638 Cooperative Agreement between the BOR and the WMAT for the Engineering, Planning and Design of the Miner Flat Dam Drinking Water System as those funds have been exhausted and therefore tribal funds in the estimated amount of \$400,000 must be set aside for HDR to perform the consulting work described in the attached SOW; and

WHEREAS, the Tribal Council concludes that approval of a Contract Modification to authorize an extension of the Professional Services Contract between the Tribe and HDR and to perform the attached SOW is in the immediate and best interests of the White Mountain Apache Tribe.

BE IT RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby approves an extension and modification of the Professional Services Contract between the Tribe and

Resolution No. 05-2017-124

HDR Engineering until June 1, 2018, in order to perform the Scope of Work attached to this resolution and incorporated by reference herein.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby authorizes and directs the WMAT Attorney General, Special Counsel for Water Rights, and the Director of the Water Resources Department, to prepare and negotiate the terms of a contract extension and modification with HDR Engineering for the purpose of carrying out the directive in this Resolution and for the performance of the attached scope of work.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby authorizes and directs that the sum of \$400,000 in tribal funds be set aside for the purpose of paying HDR Engineering for the Three-Dimensional Modeling and other tasks set forth in the attached scope of work, said payments to HDR Engineering to be administered and accounted for by the Director of the WMAT Water Resources Department.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby authorizes the Tribal Chairman, and, in his absence, the Vice Chairman, to execute a contract extension and modification with HDR Engineering after the form and content thereof is negotiated and agreed to by the WMAT Attorney General, Special Counsel for Water rights and the Director of the Water Resources Department, and to execute any future contract extensions and modifications with HCR Engineering for the purposes set forth in this resolution and the attached Scope of Work.

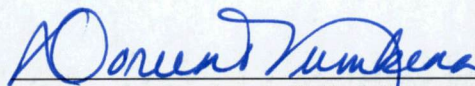
BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby directs that in the event this Resolution directly conflicts with the Tribal Constitution, Tribal Ordinances, or any material facts concerning the issues presented are later found to be false, this Resolution shall be deemed null and void and have no legal effect.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that it hereby directs that in the event that this Resolution conflicts with a prior Resolution or Policy, this Resolution shall supersede and govern over the conflicting subject matter.

BE IT FURTHER RESOLVED by the Tribal Council of the White Mountain Apache Tribe that the Chairman, or in his absence, the Vice-Chairman, is hereby authorized to execute any and all documents necessary to effectuate the intent of this Resolution.

The foregoing resolution was on MAY 10, 2017 duly adopted by a vote of SIX for, ZERO against, and ZERO abstentions by the Tribal Council of the White Mountain Apache Tribe, pursuant to authority vested in it under the enumerated powers listed in Article IV, Section 1 of the WMAT Constitution, so ratified on September 30, 1993, and federally recognized pursuant to Section 16 of the Indian Reorganization Act of June 18, 1934 (48 Stat. 984).

 5-18-17
Ronnie Lupe, Tribal Chairman Date

 5-18-2017
Doreen T. Numkena, Tribal Secretary Date

HDR SCOPE OF WORK

3-D Seepage Model

The Consultant shall complete a preliminary assessment of the three-dimensional (3-D) effects of seepage through the foundation and left abutment of Miner Flat Dam including potential effects on foundation and abutment stability. An early decision on the scope of the modeling (unconstrained and/or constrained) shall be made in collaboration with WMAT. In addition, the assessment shall be completed based on two separate modeling scenarios: 1) the Gannett Fleming (GF) geologic model without foundation and abutment faulting, and 2) the WMAT geologic model that includes potential foundation and abutment faults. The preliminary modeling shall be performed using software approved by WMAT. The 3-D seepage models shall be used by the Consultant for up to 13 scoping level analyses (study cases). The results of the preliminary modeling will be used to inform decision-making for future site characterization activities, desired model refinements and updates, additional analyses (study cases), and other factors that may be necessary to adequately estimate seepage quantities and provide input to appropriate design provisions for the dam and foundation. Considerations for development of the preliminary 3D models shall include:

- Seepage Rates through Geologic Structures and Strata
- Effect of Faults on Pressure and Seepage
- Ranges of Permeability for Each Hydrostratigraphic Unit (including 6B and Fractured Basalts)
- Ranges of Permeability for Each Possible Discrete Feature (Faults, Joints, "Lava Tubes"), & Heterogeneity
- Connectivity (Geometry) of Possible Discrete Features (6B, Faults, Paleoalluvium, "Lava Tubes")
- Evidence for Geometry and Location of Flow Barrier Faults
- Evidence for Geometry and Location of Faults of Significant Permeability and connectivity
- Evidence for Geometry and Location of 6b Layer.
- Ranges of Possible Piping Rates (Erosion of poorly cemented sandstone overlying the 6b unit into voids leading to unacceptable reservoir losses and/or dam settlement and subsequent cracking)
- Ranges for Possible Gypsum Dissolution (Rapid solutioning of the 6b layer leading to unacceptable reservoir losses and/or dam settlement and subsequent cracking)
- Evidence For/Against Existence and Geometry of "Lava Tubes"
- as directed by WMAT, the level of seepage that may not be available at the diversion point to the WMAT RWS on the North Fork of the White River.

The Consultant shall collaborate with WMAT consultants, including Mike Kaczmarek and Gannett Fleming, in the development and verification of the 3-D geologic and seepage models and may utilize its own consultants from Los Alamos Laboratory in New Mexico.

The Consultant shall prepare a report of findings of the 3-D seepage modeling, scoping level analyses and support for future analyses or design data needs in advance of a one-week

workshop in Denver at a date directed by WMAT, and, thereafter, the Consultant shall respond to comments on the report of findings and attend the one-week workshop in Denver with the Bureau of Reclamation, CRB, WMAT consultants and WMAT to summarize the report, response to comments from the workshop team and fully defend the conclusions.

The Consultant is authorized to spend up to \$250,000, and upon reaching the \$100,000 level of expenditure shall provide a budget to complete the necessary activities, including any new scope of work necessary to complete the 3-D seepage modeling and related activities.

Simulated Reservoir Operations

The Consultant shall provide peer review of the draft, preliminary report by WMAT Consultant, Thomas Watson, entitled "Simulated Operation of Miner Flat Dam for 30 Combinations of Rural Water System Demand, Height of Dam and Uncontrolled Seepage" using Consultant's employee Steve Dundorf and shall provide comments on any deficiencies in the report or the spreadsheet upon which the report is based.

The consultant is also authorized to spend up to \$15,000, and upon reaching the \$10,000 level of expenditure shall provide a budget to complete the activity, if necessary, including any new scope of work necessary to conclude a sound and complete analysis of reservoir operations affected by seepage.