

**Task Agreement Number P15AC00921/UUTCP-02**  
**Under**  
**Cooperative Agreement P14AC00921**  
**Between**  
**The United States Department of the Interior**  
**National Park Service**  
**And**  
**The University of Utah**  
**DUNS No: 009095365**  
**201 Presidents Circle**  
**Salt Lake City, UT 84112**

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**CFDA: 15.945**

**Project Title: Vibration Risk Testing at Rainbow Bridge National Monument**

**Amount of Federal Funds Obligated: \$9,878.25**

**Total Amount of Task Agreement Award: \$9,878.25**

**Period of Performance: 03/01/2015 – 03/01/2016**

**ARTICLE I – BACKGROUND AND OBJECTIVES**

Cooperative Agreement Number P14AC00921 was entered into by and between the Department of the Interior, National Park Service, (NPS), and The University of Utah for the purpose of providing support for a vibration risk study of Rainbow Bridge. Unless otherwise specified herein, the terms and conditions as stated in the Cooperative Agreement will apply to this Task Agreement.

For performance under this task agreement, the regulations set forth in 2 CFR, Part 200, supersedes OMB Circulars A-21 (2 CFR 220), A-87 (2 CFR 225), A-110, and A-122 (2 CFR 230); Circulars A-89, A-102, and A-133; and the guidance in Circular A-50 on Single Audit Act follow-up. The recipient shall adhere to 2 CFR, Part 200 in its entirety in addition to any terms and conditions of the master agreement not superseded by 2 CFR 200, as well as the terms and conditions set forth in this agreement. In the event of a conflict between the original terms of the master agreement and 2 CFR, Part 200, relating to this task agreement, 2 CFR, Part 200 shall take precedence.

**Vibration Risk Testing at Rainbow Bridge National Monument**

This study will gather data on the effects of aircraft (helicopters) on the Rainbow Bridge NM natural bridge, geologic feature damage thresholds, and recommended avoidance distances for aircraft. The data will be useful for both NPS planning and geology research at The University of Utah.

## **ARTICLE II – LEGAL AUTHORITY**

FA Legal Authority for this TA (Note: Must be included in the Master CA)

## **ARTICLE III – STATEMENT OF WORK**

### **Public Purpose Statements:**

- The project assists in the creation, promotion, facilitation, and/or improvement of the public's understanding of natural and cultural, resources in national park units.
- The scientific community and/or researchers external to NPS gains by new knowledge provided through this research and related results dissemination of natural, cultural and/or historical resource information.

Rainbow Bridge National Monument (RABR) is a sacred religious site, with tremendous significance to numerous Indian tribes, as well as a unique geographic feature with national significance as one of the world's largest known natural bridges. In order to protect the Rainbow Bridge from potential damage due to human-caused vibration sources such as air tour aircraft or helicopters, it is important to understand the susceptibility and sensitivity of the structure, including the effects of vibration sources and other geologic hazards.

The suggested cooperator below has been identified based on experience conducting vibration studies on natural arches at Arches National Park and leading a geologic hazards research group at the University of Utah. Based on this experience, the cooperator will provide the National Park Service (NPS) with a high quality research design and report in order to inform a Voluntary Agreement on Air Tours at RABR. This report should contain possible data on the effects of aircraft vibration on the RABR natural bridge, possible damage thresholds, and recommended avoidance distances for aircraft should science support it. This project will require significant cooperation between the NPS and the identified researchers and will be conducted in two phases. Phase I consists of permit approval, literature review, data collection and reporting. Phase II, if approved by the NPS staff, consists of additional data gathering that might include helicopter contracting. Project responsibilities and specifications are detailed below.

- A. Dr. Jeffery Moore at The University of Utah agrees to:
1. Review any existing geological reports, structural data, or maps for Rainbow Bridge and literature on damage thresholds of similar natural features to support research design and final report recommendations.
  2. Develop research design and submit to GLCA staff.
  3. Submit a research permit application.
  4. If approved by the park for Phase II, complete helicopter contracting.

5. Lead the first phase of on-site instrument setup and data collection by April 1<sup>st</sup>, 2015. Provide Nanometrics Trillium Compact 20s and any other hardware needed for on-site measurements.
6. Create a model to help evaluate vibration disturbances from a variety of aircraft types and to consider cumulative impacts.
7. Analyze data to produce final report to be submitted to Glen Canyon National Recreation Area /Rainbow Bridge National Monument (GLCA) including:
  - a. Data summary and discussion
  - b. Recommendations:
    - i. If damages from aircraft vibrations are measured and legitimate thresholds developed , recommend avoidance distances for aircraft to avoid structural damage to Rainbow Bridge
    - ii. Future studies
    - iii. Long term monitoring
  - c. A basic summary of relative hazards from natural and unnatural vibration sources
8. Provide electronic copies of all raw and processed data to GLCA staff

B. NPS agrees to provide:

Personnel-

1. Advise on study design – GLCA and IMR Acoustics Specialist
2. Approve study design - GLCA
3. Review final report – GLCA and IMR Physical Scientist
4. Tribal communication – GLCA cultural resources staff
5. On-site safety plan and climbing assistance (if possible)– GLCA Resource Management and Visitor and Resource Protection staff
6. Photogrammetry and creation of a 3-D model of Rainbow Bridge – Geologic Resources Division Photogrammetry Specialist

Instrumentation- Seismic Accelerometers are available for vibration monitoring through IMR including:

1. 2 PCB 393B12 Accelerometers and data acquisition hardware.
2. Calibration and maintenance performed by IMR Acoustics Specialist.
3. Basic processing of data done by IMR Acoustics Specialist; data will be provided to the cooperator for incorporation into report and any further analysis that may be required.

Travel- Boat transportation to Rainbow Bridge will be provided to all assisting personnel.

Access- Safety plan and route finding to the top of Rainbow Bridge will be the responsibility of GLCA staff.

**ARTICLE IV – TERM OF AGREEMENT**

This Task Agreement will become effective on the date of final signature and extend through November 1, 2015.

**ARTICLE V – KEY OFFICIALS**

A. Key officials are essential to ensure maximum coordination and communication between the parties and the work being performed. They are:

1. **For the NPS:**

Agreement Technical Representative:

Lonnie Pilkington  
Natural Resource Program Manager  
Glen Canyon National Recreation Area  
National Park Service  
691 Scenic View Drive, PO Box 1507  
Page, AZ 86040  
Office 928-608-6269  
Cell 970-556-3113  
lonnie\_pilkington@nps.gov

Awarding Officer:

Kelvin Delaney  
Supervisory Contracting Officer  
National Park Service  
Phone: 303 969 2796  
kelvin\_delaney@nps.gov

Project Contacts:

Sarah Doyle  
Physical Scientist  
Glen Canyon National Recreation Area  
National Park Service  
691 Scenic View Drive, PO Box 1507  
Page, AZ 86040  
Phone: 928-608-6275  
sarah\_doyle@nps.gov

John Spence, Ph.D.

Chief Scientist and Terrestrial Natural Resources Branch Chief  
Science & Resource Management  
Glen Canyon National Recreation Area  
National Park Service  
691 Scenic View Drive, PO Box 1507  
Page, AZ 86040  
Phone: 928-608-6267  
FAX: 928-608-6259  
john\_spence@nps.gov

2. **For The University of Utah:**

Principal Investigator:

Jeffrey Moore, PhD  
Assistant Professor  
Geology and Geophysics  
University of Utah  
201 Presidents Circle  
Salt Lake City, UT 84112  
Phone: 801-585-0491  
jeff.moore@utah.edu

Administrative Contact:

Jesse C. Pugh  
Sponsored Projects Officer  
Office of Sponsored Projects  
University of Utah  
1471 East Federal Way  
Salt Lake City, UT 84102-1821  
Phone: 801-5813008  
Fax: 801-581-3007  
jesse.pugh@osp.utah.edu

**B. Communications** – The University of Utah will address any communication regarding this Agreement to the Awarding Officer with a copy also sent to the ATR. Communications that relate solely to routine operational matters described in the current work plan may be sent only to the ATR

**C. Changes in Key Officials** - Neither the NPS nor The University of Utah may make any permanent change in a key official without written notice to the other party reasonably in advance of the proposed change. The notice will include a

justification with sufficient detail to permit evaluation of the impact of such a change on the scope of work specified within this Agreement. Any permanent change in key officials will be made only by modification to this Agreement.

#### **ARTICLE VI – AWARD AND PAYMENT**

- A. **Financial Assistance:** NPS will provide funding to The University of Utah in an amount not to exceed \$9,878.25 for the work described in Article III and in accordance with the approved budget (Attachment A). Any award beyond the current fiscal year is subject to availability of funds.
- B. The University of Utah shall request payment in accordance with the following:
1. **Method of Payment.** Payment will be made by advance and/or reimbursement through the Department of Treasury's ASAP system.
  2. **Requesting Advances.** Requests for advances must be submitted via the ASAP system. Requests may be submitted as frequently as required to meet the needs of the FA Recipient to disburse funds for the Federal share of project costs. If feasible, each request should be timed so that payment is received on the same day that the funds are dispersed for direct project costs and/or the proportionate share of any allowable indirect costs. If same-day transfers are not feasible, advance payments must be as close to actual disbursements as administratively feasible.
  3. **Requesting Reimbursement.** Requests for reimbursements must be submitted via the ASAP system. Requests for reimbursement should coincide with normal billing patterns. Each request must be limited to the amount of disbursements made for the Federal share of direct project costs and the proportionate share of allowable indirect costs incurred during that billing period.
  4. **Adjusting payment requests for available cash.** Funds that are available from repayments to, and interest earned on, a revolving fund, program income, rebates, refunds, contract settlements, audit recoveries, credits, discounts, and interest earned on any of those funds must be disbursed before requesting additional cash payments.
  5. **Bank Accounts.** All payments are made through electronic funds transfer to the bank account identified in the U.S Treasury ASAP system by the FA Recipient.

6. **Supporting Documents and Agency Approval of Payments.** Additional supporting documentation and prior Agency (NPS) approval of payments may be required when/if a FA Recipient is determined to be “high risk” or has performance issues. If prior Agency payment approval is in effect for an award, the ASAP system will notify the FA Recipient when they submit a request for payment. The Recipient must then notify the NPS Awarding Officer identified on the Assistance Agreement that a payment request has been submitted. The NPS Awarding Officer may request additional information from the Recipient to support the payment request prior to approving the release of funds, as deemed necessary. The FA Recipient is required to comply with these requests. Supporting documents may include invoices, copies of contracts, vendor quotes, and other expenditure explanations that justify the reimbursement requests.

#### **ARTICLE VII – REPORTS AND/OR DELIVERABLES**

- A. Specific projects or activities within this agreement will be tracked and reported by the submission of a SF-425 Federal Financial Report (FFR) and the submission of a Performance Report. A final SF-425 and Performance Report shall be submitted at the completion of the Agreement. The following reporting period end date shall be used for interim reports: 5/30/15. For final the SF-425 and Performance Report, the reporting period end date shall be the end date of the agreement. Interim reports shall be submitted no later than 30 days after the end of each reporting period. Annual and final reports shall be submitted no later than 90 days after the end period date. All reports shall be submitted via email to the NPS Awarding Officer with a copy to the NPS Agreements Technical Representative via email.
- B. Electronic copies of all raw and processed data and a final report will be submitted to GLCA that includes:
  - a. A data summary and discussion
  - b. Recommendations for avoidance distances for aircraft
  - c. A basic summary of relative hazards from natural and unnatural vibration sources

#### **ARTICLE VIII – MODIFICATION AND TERMINATION**

This Task Agreement may be modified at any time, prior to the expiration date, by the mutual concurrence of The University of Utah and the NPS. Modifications will be in writing, approved and signed by the NPS Awarding Officer and the The University of Utah signatory official.

#### **ARTICLE IX – GENERAL PROVISIONS**

1. OMB Circulars and Other Regulations. The following Federal regulations are incorporated by reference into this Agreement (full text can be found at <http://www.ecfr.gov>):

a) Administrative Requirements:

*2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, in its entirety;*

b) Determination of Allowable Costs:

*2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart E;*

and

c) Audit Requirements:

*2 CFR, Part 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, Subpart F.*

#### **ARTICLE X – ATTACHMENTS**

The following documents are attached and made a part of this Task Agreement:

- A. Detailed Budget
- B. SF-424s

#### **ARTICLE XI - SIGNATURES**

**IN WITNESS WHEREOF**, the parties hereto have executed this Task Agreement on the date(s) set forth below.

**FOR** The University of Utah

\_\_\_\_\_  
Name  
Title

\_\_\_\_\_  
Date

**FOR THE NATIONAL PARK SERVICE**

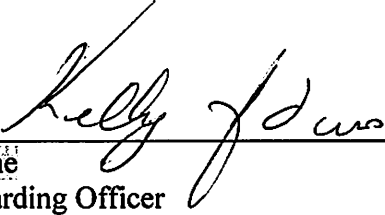


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March 3, 2015

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Name  
Awarding Officer

3-16-15

Date