AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 27

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0005	14-Jul-2012		

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
AFGHANISTAN DISTRICT SOUTH (AES) US ARMY CORPS OF ENGINEERS APO AE 09355	W5J9LE	**See Item 6**	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. W5J9LE-12-R-0036
	X	9B. DATED (SEE ITEM 11) 24-May-2012
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [ ] is extended, [X] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Kajaki Irrigation Tunnel Works Helmand Province

The purpose of this amendment is to:

-Answer questions to prospective offerors for informational purposes only
-Revise and reissue Section 01 22 00, Paragraphs 1.3.3.1, 1.34, 1.4.1.5 and 1.4.1.8.
-Revise and reissue Section 01 01 40, Paragraph 1.5.4

The POC for this action is Claurice Dingle at claurice.m.dingle@usace.army.mil.

The Proposal due date remains 21 July 2012 at 4:00 PM Kandahar Time.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)	16C. DATE SIGNED 14-Jul-2012

Amendment 0005 – 14 July 2012

Questions and Answers

Kajaki Irrigation Tunnel Works Helmand Province, Afghanistan

1. Section 01 01 40, “Summary of Work”, Part 1.5.3.1, “Valve – Design”, item a states “Rotovalves: The Contractor shall design all features of the tunnel works including design reports, design analyses, and completed plans and specifications. This design work will be based in part on the inspection work completed under separate CLINs.” Where is the requirements of the inspection of the Rotovalves described and under which CLIN should the costs be included?

ANSWER: Amendment 0005 - See Revised Section 012200 Measurement and Payment , Paragraph 1.3.3.1, Valve Design.

2. Section 01 01 50, “Technical Requirements”, Part 1.2.3.4, “Conduit Repair (OPTIONAL)”, states “Contractor shall assume there is erosion and small cracks from cavitations that will require full depth penetration welds.” However, Section 01 22 00, “Measurement and Payment”, Part 1.4.1.5. Repair Conduit - (Optional)” states “The Government assumes the repairs will require partial depth welding for a total of 100 lbs of welding rod”. Please clarify if there is expected to be any full depth penetration welds that should be included in our estimate.

ANSWER: Amendment 0005 – See Revised Section 012200 , Part 1.4.1.5, Repair Conduit – (Optional) .

3. Section 01 22 00, “Measurement and Payment”, Part 1.3.4., Dam Safety Instrumentation (Schedule C)”, states “The Contractor shall design and install all dam safety items including site investigation and reports, two piezometers in the left abutment of the dam”. Section 01 01 40, “Summary of Work”, Part 1.5.4, ‘Instrumentation Design and Construction”, states “The Contractor shall design and install a piezometer on the left abutment of the dam.” Section 01 01 50, “Technical Requirements”, Part 1.4.1.7, ‘Piezometers”, states “Install two piezometers in the left abutment as illustrated in the Base Instrumentation - Plan View, and Instrumentation - Elevation View drawings in Appendix A. Install the same number of open tube piezometers and corresponding sensing zone(s) as shown.” Instrumentation_EL_View.pdf, “Kajaki Dam Instrumentation - Elevation View (Base & Option Items Shown)”, included in Appendix A file folder “Contract_Drawings”, depicts ten (10) piezometers as follows:

- Left Abutment (Base Package) - 2 piezometers with one tip elevations at EL 965
- Right Abutment (Optional Package) - 2 piezometers with two tip elevations at EL.965 and 1000
- Embankment Piezometers - Two lines of three piezometers in each line
  - Transition Zone - Transition Zone piezometer at crest with tip elevations at El. 950 (10m into bedrock), 970, and El. 1010.

- Mid Rock Fill Piezometer - Rock Fill piezometer top at El. 1010 bench with tip elevations at El. 950 (10m into bedrock) and El. 960.
- Lower Rock Fill Piezometer - Piezometer top at El. 970 bench with tip elevation at El. 960.

How many piezometers should we include in our estimate and at what locations?

ANSWER: Amendment 0005 – See Revised Section 010140 Paragraph 1.5.4 Instrumentation Design and Construction and Section 01 22 00, "Measurement and Payment", Part 1.3.4., Dam Safety Instrumentation (Schedule C).

4. Section 01 22 00, "Measurement and Payment", Part 1.4.1.8., "Replace Overhead Service Crane- Tunnel (Optional)", states "Replacement of crane components shall include but is not limited to crane rails, anchors, and structures in the valve room to original capacity.". However, Section 01 01 50, "Technical Requirements", Part 1.2.3.5, "Valve Room Overhead Service Crane and Hoist" states "Contractor shall repair the crane rails, anchors, and structures in the valve room to restore the crane to original capacity." Should our estimate include repair or replacement?

ANSWER: Amendment 0005 – See Revised Section Section 01 22 00, "Measurement and Payment", Part 1.4.1.8. Section 01 01 50, "Technical Requirements", Part 1.2.3.5, "Valve Room Overhead Service Crane and Hoist" is correct as stated.

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01 – GENERAL REQUIREMENTS SECTION

01 01 40

SUMMARY OF WORK

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SECTION 01 01 40 SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

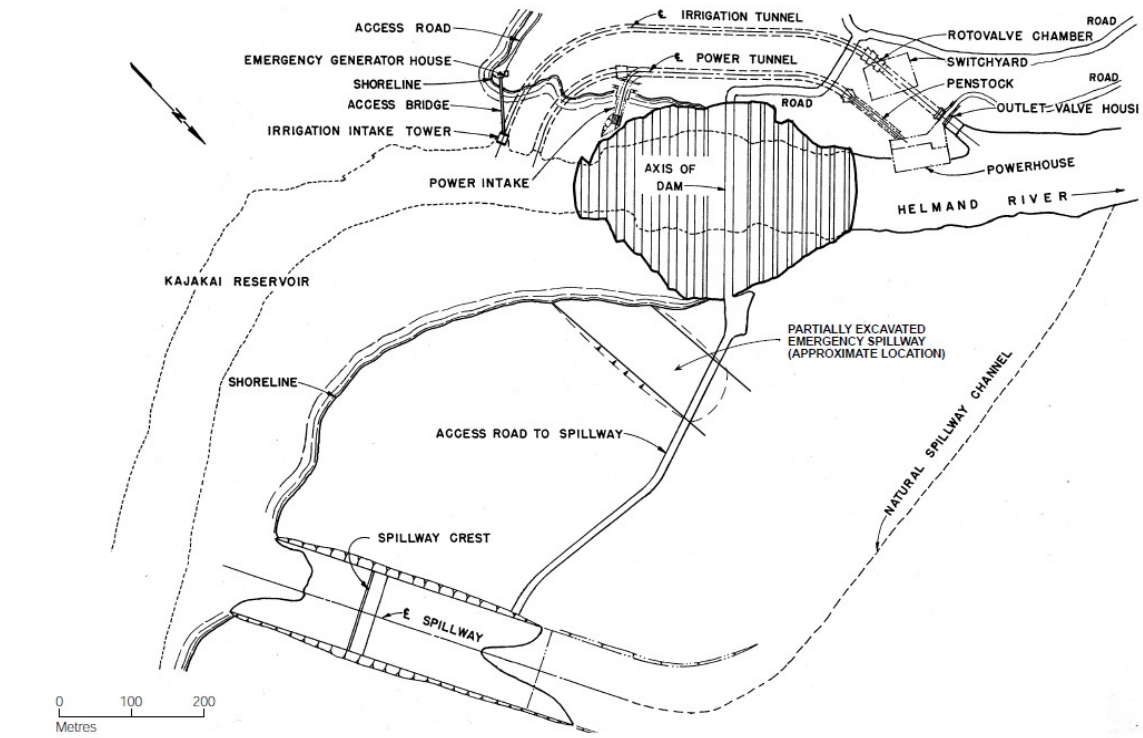
This section provides a summary of the various Contract work elements and their relationship to each other. This section shall be used in conjunction with all the other sections and the drawings to establish the total work requirements.

1.1.1 Project Background

Kajaki Dam serves a multi-purpose role in supplying hydropower, irrigation storage and, to a lesser extent flood control. Kajaki Dam is the primary source of sustainable power for the Kandahar City and Lashkar Gah regions. Kajaki Dam is an integral part of a larger irrigation scheme in Helmand and Kandahar Provinces and is regulated by the Helmand Arghandab Valley Authority under Ministry of Energy and Water (MEW). The project location and a plan of the reservoir are shown on Figures 1 and 2 respectively.

Figure 1. Location Map of Kajaki Dam

The dam site is accessible by road from Kandahar, travelling west through Marwand to Girishk, then turning north up the Helmand River Valley on the east side.



Source:
International Engineering Company Inc.
"Final Design Report on Kajakai Dam, Arghandab Dam and Boghra Canal Projects"

Figure 2. General Layout of Kajaki Dam Site.

Kajaki Dam was constructed in the early 1950s. A 33MW Power House project was added in 1975 and two of three turbines were installed and commissioned. However, during the Russian occupation, all work on the spillways stopped and maintenance has since been inconsistent. Many components have become inoperable or their condition is unknown as described below. Work to install Unit 2 in the powerhouse is ongoing under separate contract.

The service and emergency spillways for the dam were never completed. As a result, the reservoir has been operating at a pool elevation that is significantly lower than intended. The emergency spillway has not been excavated below the dam crest, and therefore is entirely unusable. The service spillway was partially completed, with some concrete foundation. When the reservoir reaches this elevation, water flows freely over the partial structure and into the river below the dam. Future work may include the completion of the service and emergency spillways, and raising of the pool elevation. Future work would be performed under a separate contract.

The Kajaki Irrigation Intake Structure system consists of an intake structure in the reservoir with two bulkheads (i.e. concrete STOP-LOG and steel WHEEL-GATE), unlined tunnel, emergency closure valves (a.k.a. ROTO-VALVES), and outlet service valves (a.k.a HOLLOW JET VALVES). The jet valves are the service control for regulation of flow and dissipation of energy, and the roto valves are for emergency closure. The intake structure is shown in Figure 3, Roto Valves and auxiliary equipment are shown in Figure 4, Jet Valves in Figure 5, and the Spillways are shown in Figure 6.

Reservoir water enters the system at the intake tower, which is located at the portal to one of the project diversion tunnels. A concrete bulkhead and a wheeled gate are suspended in slots which may be lowered with a hoist to close openings at the intake portal. Trash racks are located in slots upstream of the intake portals. Water flows through the diversion tunnel to a concrete plug where the water is distributed to the entrance of three large steel pipe lines (conduits). Each conduit is equipped with a Roto Valve just downstream of the concrete plug and a Hollow Jet

valve located at the end of the line. Water is also distributed to a 12-inch diameter penstock with valve feeding the micro-hydro-electric turbine that provides power service to the tunnel works.

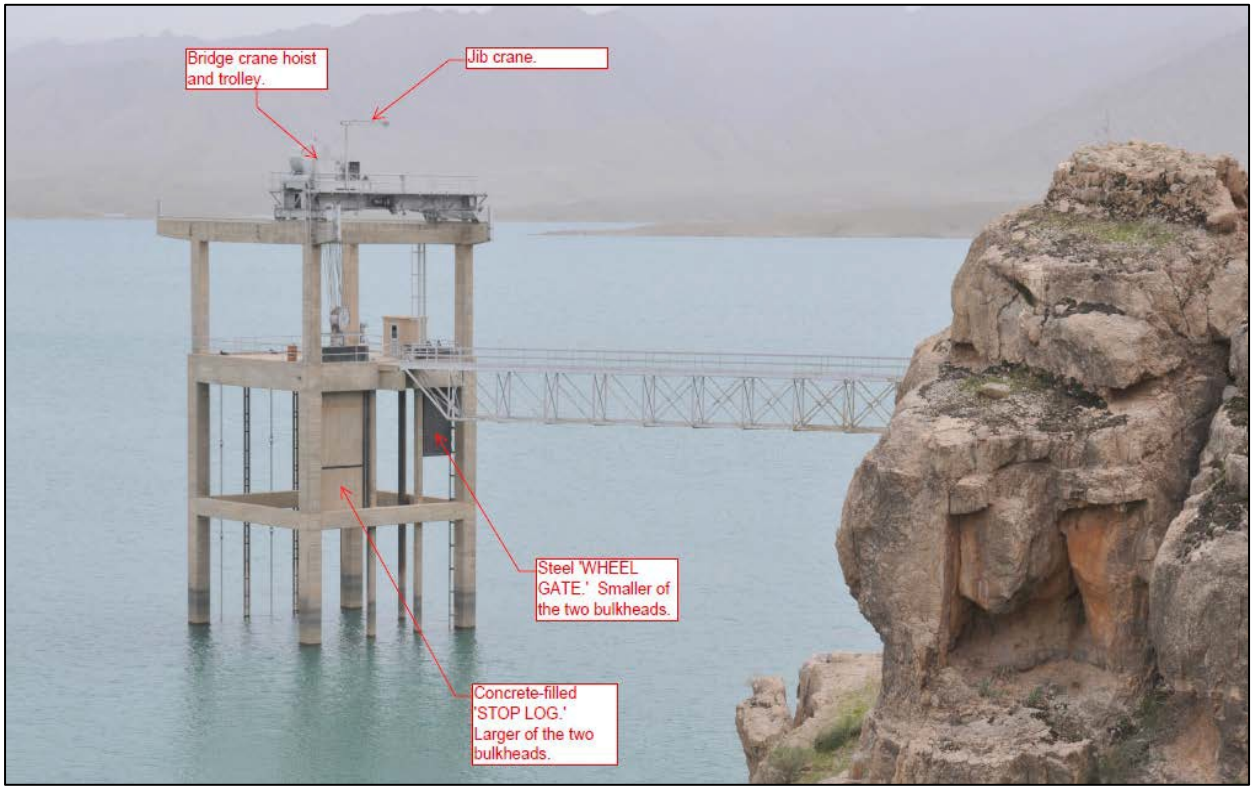


Figure 3. View of Irrigation Intake Structure from shore.

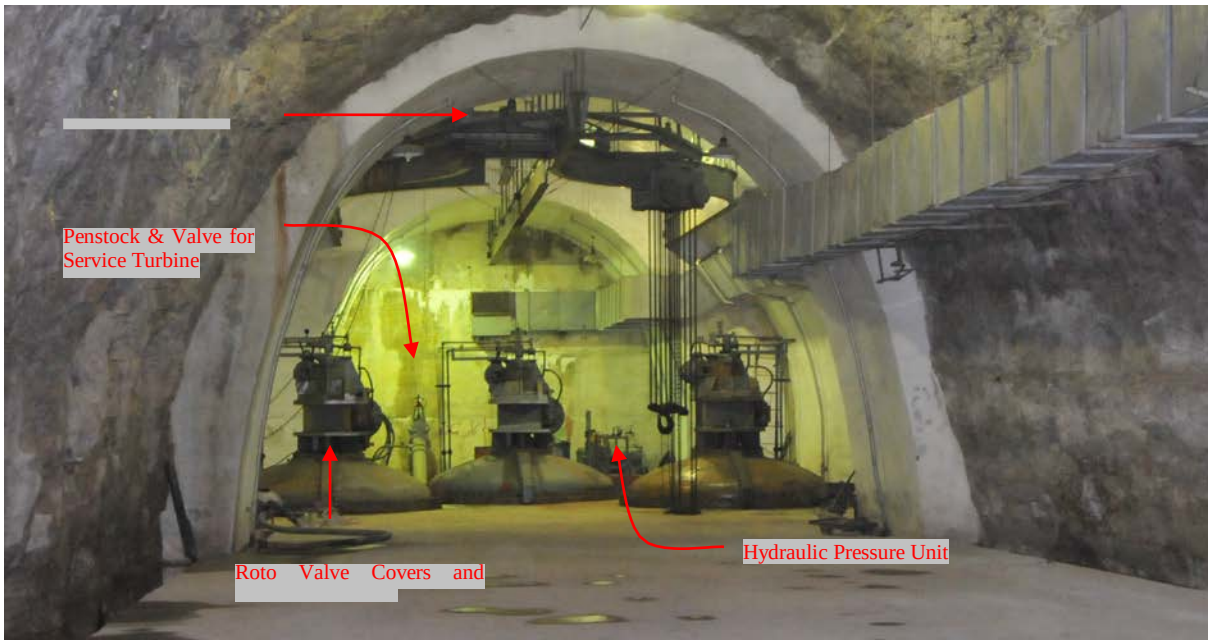


Figure 4. View of roto valves and auxillary equipment.

Jet Valve (1of 3)

Valve Actuator

Outlet structure with pipe to local water supply thrust into flowing jet valve

Figure 5. Jet valve

Service Spillway

Emergency Spillway

Figure 6. Service and Emergency Spillways

The existing Intake Structure Hoist is not functioning and does not have the rated capacity to lift the concrete bulkhead. Construction documentation indicates that the capacity was insufficient and today's design standards are more stringent (See Government Review in Appendix D). Rehabilitation of the intake structure hoist as well as an alternate method of watering the tunnel is required. This summary of work covers items intended to rehabilitate the irrigation intake structure.

The existing instrumentation for dam safety has fallen into disrepair or ceased functioning. The existing piezometers have failed in spite of recent attempts to rehabilitate them. This summary of work covers the installation of new dam safety instrumentation. No attempt to rehabilitate the existing piezometers shall be made.

As previously stated, the gates on the service spillway and the earth plug on the emergency spillway have not been completed. The future completion of the spillways is likely to include alternate designs due to changes in the

intended pool elevation, design standards on service gates, and alternate technologies on fuse gate design. This summary of work covers subsurface investigations to support future designs only. Design and construction work on the spillways would be performed under a separate contract.

1.1.2 Coordination

The Contractor may be required to coordinate the efforts required under this contract with at least one other contractor at the site. Coordination may include such tasks as the exchange of information with other contractors such as design data, drawings, calculations, and technical information. Additionally, it may be necessary for the contractor to conduct meetings, hold teleconferences, and prepare the submittal of additional information to the Contracting Officer (KO) that demonstrates the coordination and integration of new work with existing and future work of other contractors. All coordination shall be in agreement with the KO and approved prior to the commencement of any work.

1.1.3 English Language Requirement

All information shall be presented in English. The Contractor shall have a minimum of one English-speaking representative to communicate with the KO or the Contracting Officer's Representative (COR) at all times when work is in progress.

1.1.4 CQM Training Requirement

The Contractor shall provide quality control for all design and construction activities as specified in Section 01 45 00 Contractor Quality Control. This includes a designated Quality Control (QC) manager, certification course for the QC Manager, and submittal of the Contractor Quality Control (CQC) Plan and Design Quality Control (DQC) Plan.

1.2 SUBMITTALS

Submittals and a Submittal Register are required as specified in Section 01 33 15 SUBMITTAL PROCEDURES.

1.3 UNEXPLODED ORDINANCE (UXO)/MINES

The Contractor **IS NOT** responsible for the clearance or removal of mines and unexploded ordnance (UXO) from the site prior to the commencement of construction. The existing site has had numerous construction projects including underground utilities and foundations etc., and has been occupied and under security for an extended period of time. This site is therefore classified as "LOW PROBABILITY" for existence of UXO/Mines, but the contractor shall be aware that this site does not have demining certificates.

If a UXO/mine is encountered during project construction, the Contractor shall immediately stop work in the affected area, mark the area of the UXO/Mine and immediately notify the Contracting Officer, COR or the Government Construction Representative.

It is the responsibility of the Contractor to be aware of the risk of encountering UXO/mines and to take all actions necessary to assure a safe work area to perform the requirements of this contract. The Contractor assumes the risk of any and all personal injury, property damage or other liability arising out of or resulting from any Contractor action taken hereunder. The Contractor and its subcontractors may not handle, work with, move, transport, render safe, or disarm any UXO/mine, unless they have appropriate accreditations from the United Nations Mine Action Center (UNMAC).

NOTE 1: For UXO/mine information, the following points of contact from the UN Mine Action Center of Afghanistan are provided:

Mohammad Sediq, Chief of Operations,
mohammad.sediq@macca.org.af
+93 (0)705 966 400 and +93 (0) 700 295 207
Mr. Mullah Jan
MACCA Senior Operations Manager
Mullah.jan@macca.org.af
+93 (0) 700 295 207

UXO Safety/ Mine clearance COR, USACE
tas.uxo-deminingsafety@usace.army.mil

Jeffrey Helmick USACE OESS/COR Mine Clearance AES
jeffrey.a.helmick2@usace.army.mil
Roshan: 079-403-1452

Comm: 540-723-6129

1.4 WORK COVERED BY CONTRACT DOCUMENTS

The work covered by this contract involves both mandatory items as well as optional items identified in the stated items below. Payment for the work items is covered in Section 01 22 00, "Measurement and Payment".

1.5 MANDATORY WORK

Mandatory work includes generally occurring work items, Intake Structure, Tunnel Works, and Spillways Exploration, and Dam Safety Instrumentation to be completed in accordance with provisions of this contract and paid for under the Bid Schedule CLINS listed in Section 00010 of this contract.

The general sequence of work is described in detail in Table 1 - General Sequencing for Design and Build by Phase in Section 01 33 16 Design Build After Award. Most of the items related to the Intake Tower must be completed prior to completing most of the items in the Tunnel works due to limitations on the tunnel operations, however the Dam Safey work and the Spillway Exploration work may be executed with more flexibility.

1.5.1 General Work Items

1.5.1.1 Mobilization/Demobilization

The work shall be located at the Kajaki Dam site and is located on the Helmand River approximately 90 kilometers northwest of Kandahar City, Afghanistan (32.323N, 65.119E). Based on recent construction activities near the subject site, the Contractor shall assume access to the site by air transport for all items except heavy equipment (e.g., trucks and drill rigs) and supplies (e.g., jet valves). The anticipated release point will likely be Bastion Air field. Contractor will be required to coordinate with USACE and Marine Expeditionary Forces for security status and traffic-ability of roads. There is no commitment of military assistance at this time.

Mobilization and Demobilization shall consist of all labor, equipment, supplies and facilities required to stage all equipment and facilities needed for construction of this project. All mobilization and staging areas shall be located within the limit of work or shall be coordinated with the Contracting Officer. See Contract Clauses for further information.

The Contractor shall install and maintain temporary access points, roads, temporary parking, construction lay-down areas, and foot paths that are appropriately graded for drainage and capable of withstanding the anticipated construction traffic.

Portable latrines: During construction, the Contractor shall furnish, install, and maintain portable latrine units in locations as required. Portable latrines shall be a mix of western and eastern style units. Mix shall be determined by Contracting Officer.

Portable lavatories: During construction, the Contractor shall furnish, install, and maintain handwash units in locations as required. Handwash units shall each include four (4) wash units. Each wash unit shall consist of a basin, foot controlled wash water dispenser, hand soap dispenser, and towel dispenser.

No separate allowance for contract management, tracking, reporting, subcontract management, quality control, safety, environmental controls, independent testing, operating and maintenance manuals, nor as-builts will be made under a separate CLIN within this contract.

1.5.1.2 Security

Security is critical to construction in Afghanistan, especially on roads and remote areas away from Coalition Force bases. The Contractor must have an appropriate amount of security/protection to match the threat in the project area, outside of the perimeter fence, and along the supply routes. A detailed security plan in accordance with Section 01 40 00 SECURITY shall be approved by the Government before construction notice to proceed.

The Contractor shall be responsible for physical security of all materials, supplies, and equipment of every description, including property which may be Government-furnished or owned, for all areas occupied jointly by the Contractor and the Government, as well as for all work performed.

1.5.1.3 DBA Insurance

DBA insurance shall be provided in accordance with the guidance specified in the solicitation.

1.5.1.4 Performance and Payment Bonds

The Contractor shall provide performance and payment bonds in the proper amounts described in Contract Clause 52.228-15 entitled "Performance and Payment Bonds – Construction," stated in Section 0700 of the Contract Clauses.

1.5.1.5 Warranty Inspections

The Contractor shall perform warranty inspections on all work as described in Section 01 77 00 Closeout Procedures.

1.5.2 Intake Structure

The Contractor shall design and construct (or install) the work specified from the approved 'cleared for construction' plans and specifications in accordance with the stated standards and quality requirements therein. The standards and general requirements to be used for design are defined in Section 00 55 50 Design Concept Documents, and Section 01 01 50 Technical Requirements. The plans and specifications will be in accordance with Section 01 33 15 Submittal Procedures.

1.5.2.1 Intake Structure Modifications and Dam Safety Instrumentation

The Contractor shall design all features of the project as described in this Invitation to Bid according to the requirements of the documents including all mechanical, electrical and structural aspects of the following items:

a. **Bridge Crane:** Rehabilitation of the crane to include a structural analysis to increase the load rating, and replacement of the existing hoist and trolley to meet new load requirements

b. **Stop Log and Wheel Gates:** Repair corroded steel surface, and replace seals and wire ropes.

c. **Jib Crane:** Replace the existing jib crane with a new jib crane

d. **Lifting Beam:** Rehabilitate the existing lifting beam.

e. **Bulkhead Dogs:** Rehabilitate or repair the bulkhead dogs.

f. **Alternate Method of Watering the Tunnel:** Design and install an alternate method of watering the tunnel.

Designs shall include detailed inspections, design reports, design analysis, calculations, and completed plans and specifications. Designs shall also include an updated Commissioning Plan submitted at each design submittal as described in Section 01 64 00 START UP TESTING AND COMMISSIONING.

1.5.2.2 Diesel Generator for Intake Structure

The Contractor shall design all electrical features for the required stand by generator at the intake tower. The Contractor shall provide a complete operational diesel generator to meet power requirements for operation and maintenance of the intake structure water control components in the event of power outages.

The Contractor shall construct and/or install the work specified from the approved 'issue for construction' plans and specifications in accordance with the stated standards and quality requirements therein. The standards and requirements to be used for final designs are defined in 00 55 50 Design Concept Documents and 001 01 50.00 Technical Requirements The approved for construction issued plans and specifications will be in accordance with Section 01 33 15 Submittal Procedures as stated in this contract.

1.5.3 Tunnel Works

The Contractor shall design and construct (or install) the work specified from the approved 'cleared for construction' plans and specifications in accordance with the stated standards and quality requirements therein. The standards and general requirements to be used for design are defined in Section 00 55 50 Design Concept Documents, and Section 01 01 50 Technical Requirements. The plans and specifications will be in accordance with Section 01 33 15 Submittal Procedures.

1.5.3.1 Valve – Design

The Contractor shall design all features of the project including all mechanical and electrical aspects of the following items:

a. **Rotovalves:** The Contractor shall design all features of the tunnel works including design reports, design analyses, and completed plans and specifications. This design work will be based in part on the inspection work completed under separate CLINs. The major design features includes refurbishment of all three of the existing roto valves including repair or replacement of all elements of the hydraulic controls and pressure units.

b. **Jet Valves:** The Contractor shall design all features for the demolition and installation of new jet valves including new actuators. Work shall include design of a new bulk head to accommodate the new jet valves and allow for dewatering of the chamber.

c. **Electrical controls for Rotovalves and Jet Valves:** The Contractor shall design all features of the demolition and installation of new existing electrical systems for control of the new and refurbished valves.

d. **Sump Pumps.** The Contractor shall design all features associated with the sumps in the valve house (i.e., sanitary waste pumps, and sump in valve pit).

e. **Flap Gate**: Contractor shall locate and replacing a flap gate on sump discharge line that exits near the bottom of one of the jet valve.

f. **HVAC Repair:** Contractor shall replace the electric motors and repair the HVAC systems for the tunnel works.

g. **Dewatering Plan:** Contractor shall prepare a plan to dewater the conduit for jet valve repair (b), and dewater the tunnel for performing work on other mandatory and optional items i.e., valve replacement on the penstock for the service turbine, evaluation of the upstream conduit, evaluation of the downstream chamber, and evaluation of the unlined tunnel.

Designs shall include detailed inspections, design reports, design analysis, calculations, and completed plans and specifications. Designs shall also include an updated Commissioning Plan submitted at each design submittal as described in Section 01 64 00 START UP TESTING AND COMMISSIONING.

The Contractor shall construct and/or install the work specified from the approved 'issue for construction' plans and specifications in accordance with the stated standards and quality requirements therein. The standards and requirements to be used for final designs are defined in 00 55 50 Design Concept Documents, 001 01 50.00 Technical Requirements, and approved for construction issued plans and specifications will be in accordance with Section 01 33 15 Submittal Procedures as stated in this contract.

1.5.3.2 Conduit, Chamber and Apron - Evaluate and Report

The Contractor shall perform an inspection of the three conduits extending from the jet valve outlet to the head of the concrete tunnel plug. The Contractor shall coordinate with intake tower operations to dewater the tunnel as appropriate. Dewatering of the penstock will be performed under a separate mandatory item (See paragraph Valve – Construction). The inspection shall also include an underwater inspection of the Apron. The contractor shall also provide a mechanical and structural engineering evaluation and report on the condition of the inspected items, and make recommendations for repair as specified herein. Optional items under this contract exist for the repair of the conduits, however the final repair designs will depend on the evaluation and report.

1.5.3.3 Overhead Service Crane and Hoist – Evaluate and Report

The Contractor shall inspect the over head service crane and hoist used for lifting the roto valve components. The inspection shall therefore be coordinated with the repair of the roto valves. The contractor shall also provide an engineering evaluation and report on structural and mechanical aspects of the crane, track and chain fall hoist.

1.5.3.4 Local Water Supply Design

The Contractor shall perform an inspection of the existing local water supply line and provide an engineering evaluation and report on the mechanical aspects of modifying the connection. The intent is to provide a service connection that does not interfere with the operation of the tunnel works. Optional items under this contract exist for the repair of the water supply system , however the final repair designs will depend on the evaluation and report.

The report shall also include a plan to provided uninterrupted water supply during other mandatory work (See Paragraph on Valve-Construction)

1.5.3.5 Valve Construction

The Contractor shall repair or replace all mechanical, and electrical aspects covered under the paragraph on Valve Design, including the rotovalves, jet valves, electrical systems and sump pumps, and chamber bulkhead. Construction includes dewatering of the conduits and chamber. Contractor shall also provide uninterrupted public water supply to the exiting connection at the jet valves. The Contractor shall provide an engineering evaluation of the existing conditions of all components and provide recommendations for future service and/or replacement.

1.5.3.6 Replace Valve House Hydro-electric Generating Unit

Contractor shall perform all activities required to replace the existing hydro-electric unit with a new unit including all auxiliary equipment and new electrical systems. Work also includes replacing in-kind the 12-inch valve located upstream near the tunnel plug. Dewatering of the penstock will be performed under a separate mandatory item (See paragraph Valve – Construction).

1.5.4 Instrumentation Design and Construction

The Contractor shall design and install 2 piezometers on the left abutment of the dam. Contractor shall also design and install other dam safety instrumentation including survey monuments and pillars, staff gages, along with surveying equipment to provide settlement and deflection readings for the dam. The standards and general requirements to be used for design and installation are defined in Section 00 55 50 Design Concept Documents, and Section 01 01 50 Technical Requirements.

****All reference to the "Right Abutment (Optional Package)" and "Embankment Piezometers" on the Contract drawings should be ignored and because they are not a part of the RFP.****

1.6 OPTIONAL ITEMS

The Contractor shall provide all the required services for options below. The Contractor shall design and build or install the work specified from the approved 'cleared for construction' plans and specifications in accordance with the stated standards and quality requirements therein. The standards and requirements to be used for final designs on the option items are defined in 00 55 50 Design Concept Documents, 001 01 50.00 Technical Requirements. Similar to the mandatory items, the construction issued plans and specifications will be in accordance with Section 01 33 15 Submittal Procedures as stated in this contract.

Many of the options depend on the outcome of some inspections and evaluations performed under mandatory and optional CLINs. In situations where the nature and quantity of the items to be provide is unknowable, the government assumptions for bidding purposes have been provided in Section 01 01 50 Technical Requirements and/or Section 01 20 00 Measurement and Payment. If exercised, the Contractor shall provide the following items:

a. **Unlined Tunnel**: Evaluate and Report. The Contractor shall perform all structural and geological elements of an inspection of the unlined tunnel from the head of the concrete tunnel plug to the closed bulkhead at the intake structure. Inspection data shall include video and photographic records of areas of concern and provide a general record of the overall condition of the unlined tunnel interior. The Contractor shall coordinate with intake tower operations to dewater the tunnel as appropriate. The contractor shall also provide an engineering evaluation and report on the condition of the geotechnical and structural aspects of the unlined tunnel as specified herein.

b. ***Inspection of Trash Racks and Guides****: The Contractor shall perform an underwater inspection of the trash racks and guides to evaluate their condition. The Contractor shall provide a report with recommendations for repair.*

c. **Replacement of Trash Racks**: The Contractor shall fabricate and install new trash racks, and perform any other associated site work.

d. **Repair of Trash Rack Guides**: The Contractor shall repair of the trash rack guides according to original design, and other subsurface work associated with repair. The existing trash rack will be put back

intoservice. The condition of the guides is unknowable until an inspection has been performed under a separate optional CLIN. Assumptions on the condition of the guides and the type of repair are provided herein.

e. **Conduit Repair**: The Contractor shall repair the any portion of the three steel conduits in the tunnel works. The condition of the conduits is unknowable until the tunnel has been dewatered and the evaluation work has been completed under previous mandatory CLIN. Assumptions on the type of repair are provided herein.

f. **Chamber Repair**: Contractor shall repair any one of the three chambers downstream of the jet valves. The condition of the chamber is unknowable until the evaluation work has been completed under a separate mandatory CLIN. The work includes placement of bulkheads and dewatering of the chamber. The quantities and nature of the repairs are estimated based on government review of historic documents, and a general understanding of cavitations outside of jet valves.

g. **Apron Repair**: Contractor shall repair the apron downstream of the jet valves including all associated work for dewatering the area. Assumptions on the tail race water elevations are included in Appendix D of this bid. The condition of the apron is unknowable until the evaluation work has been completed under previous CLIN. The work includes placement of a small cofferdam for dewatering purposes. The quantities and nature of the repairs are estimated based on government review of historic documents, and a general understanding of cavitations outside of jet valves. The assumed tailwater elevations are provided in Appendix D.

h. **Repair Overhead Service Crain - Tunnel**: Contractor shall the repair paint systems or coatings, replace corroded components, and repair deficient or damaged structural members or welds. The condition of the overhead service crane is unknowable until the evaluation work has been completed under previous CLIN. Therefore, the exact nature and quantity of the repairs is unknowable. The quantities and nature of the repairs are estimated based on government review of historic documents, and a general understanding of the mechanical devices.

i. **Replace Overhead Service Crane - Tunnel**: Contractor shall replace the rails, anchors, and structures in the valve room to restore the crane to original capacity.

j. **Powerhouse Diesel Generator**: The Contractor shall design all electrical features for the required stand by generator for the power house. The Contractor shall perform all activities required to provide and install a new diesel generator, including a detailed site inspection, design report, and completed plans and specifications.

k. **Modify Local Water Supply**: Contractor shall provide a replacement for the water supply to the downstream camp and village as specified. Modification may include a tap into the existing line that feeds the hydro-electric generating unit. The specifications provided assume that this connection is the most effective method, however other methods may prove more effective pending other evaluations and design work executed under separate mandatory CLINs.

l. **Spillway Exploration:** The Contractor shall perform a geologic investigation of the emergency and service spillways. The investigation work shall include performing electrical resistivity surveys and foundation drilling and testing of the emergency spillway area. The work shall include a visual surface investigation of the service spillway including the exposed fault. The standards and general requirements to be used for exploration are defined in Section 00 55 50 Design Concept Documents, and Section 01 01 50 Technical Requirements. The work includes specified pre-construction submittals and the results of the subsurface investigations and data collection shall be included in a detailed report and provided as a submittal in accordance with Section 01 33 15 Submittal Procedures for Design Build Projects.

1.7 CONTRACT DRAWINGS

The drawings that accompany these specifications are a part thereof. The contract drawings include but are not limited to the dam safety instrumentation. Electronic copies of the contract drawings will be provided to the

contractor. A schedule of all available design drawings is attached in Appendix A. Several useful record drawings have been lost to history and not recovered for this project. Contractor will be required to prepare informational drawings where the existing set is incomplete but necessary to the project.

Contractor shall check furnished drawings and notify the Government of any discrepancies. Further, Contractor shall verify field conditions and informational drawings provided.

Reference publications will not be furnished unless already provide with the appendices herein.

1.8 PHOTOS AND RECENT INSPECTIONS

Select photos of the project are included in Appendix A. Electronic copies of the photos will be provided to the contractor. A report on the results of a recent underwater inspection of the irrigation intake trash racks and the apron outside the jet valves is also included.

1.9 DESIGN GUIDANCE

A list of applicable guidelines is provided in Appendix B.

1.10 HISTORICAL DOCUMENTS

A copy of the relevant historical documents is attached as Appendix C which includes including the following:

a. Final Design Report on *Kajaki Dam, Arghandab Dam, and Boghra Canal Projects (1953)*
b. *Operating Instructions – 84" Hollow Jet Valves for Morrison Knudsen Afghanistan, Inc. Kajaki Project, Afghanistan(1953)*
c. *Operation and Maintenance Instructions for S. Morgan Smith Company Orders (i) 84" diameter Roto Valves, and (ii) Oil Pressure Unit(1953)*
d. Catalogue sheet for 84 inch diameter roto valves
e. *Inspection of Mechanical Features – Helmand Valley Development Project – Afghanistan. U.S. Bureau of Reclamation. (1964)*

1.11 BASIS OF DESIGN

A copy of the relevant documents prepared by the government for defining the scope of work in this invitation to bid is attached as Appendix D which includes the following:

a. *USACE Value Engineering Alternative for the Irrigation Intake Structure (2011)*
b. *Government Review of existing and historical conditions for mechanical features (2011)*
c. *Government Review of Spillways for subsurface Investigation (2011)*
d. *Government Topographic Survey Report (2005)*

1.12 OCCUPANCY OF PREMISES

Building(s) will be occupied during performance of work under this Contract. Occupancy notifications will be posted in a prominent location in the work area.

Before work is started, the Contractor shall arrange with the Contracting Officer a sequence of procedure, means of access, space for storage of materials and equipment, and use of approaches, corridors, and stairways. The sequencing should correlate directly to the Area Use Plan specified in Section 01 06 00 Special Clauses (p 1.5).

1.13 EXISTING WORK

In addition to Section 00700, Contract Clause 52.236-9, "Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements", the Contractor shall not remove or alter existing work in such a manner that injures or damages any portion of the existing work to remain.

Upon completion of the work, the Contractor shall repair or replace portions of existing work, which have been damaged by Contractor's operations, to preconstruction conditions at the expense of the Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

– END OF SECTION –

MEASUREMENT AND PAYMENT

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SECTION 01 22 00
MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1. GENERAL INFORMATION

The price and payment shall constitute full compensation for all work relating to each contract line item number (CLIN) as herein specified, as shown, or as otherwise approved. The contract price and payment will also constitute completion of the item, unless such work is otherwise specifically mentioned for separate payment under another item. In the event any work is required by the specification sections or by the drawings and not specifically mentioned in the measurement and payment paragraphs, separate or direct payment shall not be made, and all costs thereof are incidental to, and included in, the prices and payment for all items listed in the Bid Schedule (also referred to as a price proposal schedule).

There are four (4) bid schedules for this project. The 4 schedules are:

SCHEDULE A: INTAKE STRUCTURE
SCHEDULE B: TUNNEL WORKS
SCHEDULE C: DAM SAFETY INSTRUMENTATION
SCHEDULE D: SPILLWAY INVESTIGATION

1.2. MEASUREMENT

1.2.1. **Lump Sum Price Payment Items**

Payment items for the work of this contract for which contract payments shall be made lump sum are listed in the BID SCHEDULE and described below. General items including mobilization/demobilization, security, Reimbursement for Actual Performance and Payment Bond, and DBA Insurance. The lump sum price and payment made for each subsequent base item listed shall constitute full compensation for the specific details that are stated in each item to include furnishing all plant, labor, materials, and equipment, and performing any associated or incidental Contractor quality control, environmental protection, meeting safety requirements, tests, analyses, computer files and reports, submittals and for performing all work required for which separate payment is not otherwise specified herein. The costs for mobilization/demobilization, and security are incidental to the option items.

1.2.2. **Optional Items**

The Government may require the performance of the line item(s) identified in the Bid Schedule as an "(OPTIONAL)" item. The Government may exercise the optional items by written notice to the Contractor as specified in the solicitation.

1.2.3. **Schedule of CLINS**

A schedule of individual CLIN #s is provided below.

	SCHEDULE A
0001	**INTAKE STRUCTURE**
0001AA	Mobilization/Demobilization
0001AB	Security
0001AC	Design Intake Structure Modifications
0001AD	Build Intake Structure Modifications
0001AE	Diesel Generator for Intake Structure
0001AF	DBA INSURANCE
0001AG	REIMBURSEMENT FOR ACTUAL PERFORMANCE AND PAYMENT BONDS
0002	INSPECTION OF TRASH RACKS AND GUIDES **(OPTIONAL)**
0002AA	Inspection of Trash Rack and Guides
0002AB	DBA for SUBCLIN 0002AA
0003	REPLACE TRASH RACKS **(OPTIONAL)**
0003AA	Replace Trash Racks
0003AB	DBA for SUBCLIN 0003AA
0004	REPAIR TRASH RACK GUIDES **(OPTIONAL)**
0004AA	Repair trash rackguides
0004AB	DBA for SUBCLIN 0004AA

	SCHEDULE B
0005	**TUNNEL WORKS**
0005AA	Mobilization/Demobilization
0005AB	Security
0005AC	Valve Design
0005AD	Conduit, Chamber and Apron - Evaluate and Report

0005AE	Overhead Service Crane and Hoist – Evaluate and Report
0005AF	Local Water Supply – Evaluate and Report
0005AG	Valve Construction
0005AH	Replace Valve House hydro-electric Generating Unit
0005AJ	DBA INSURANCE
0005AK	REIMBURSEMENT FOR ACTUAL PERFORMANCE AND PAYMENT BONDS
0006	**UNLINED TUNNEL (OPTIONAL)**
0006AA	Unlined Tunnel – Evaluate and Report
0006AB	DBA for SUBCLIN 0006AA
0007	**REPAIR CONDUIT (OPTIONAL)**
0007AA	Repair Conduit
0007AB	DBA for SUBCLIN 0006AA
0008	**REPAIR CHAMBER (OPTIONAL)**
0008AA	Repair chamber
0008AB	DBA for SUBCLIN 0007AA
0009	**REPAIR APRON (OPTIONAL)**
0009AA	Repair apron
0009AB	DBA for SUBCLIN 0008AA
00010	**REPAIR OH SERVICE CRANE (OPTIONAL)**
00010AA	Repair OH Service Crane
00010AB	DBA for SUBCLIN 0009AA
0011	**PROVIDE AND INSTALL DIESEL GENERATOR AT POWER HOUSE (OPTIONAL)**
0011AA	Provide and Install Diesel Generator at Power House
0011AB	DBA for SUBCLIN 0010AA
0012	**MODIFY LOCAL WATER SUPPLY CONNECTION (OPTIONAL)**
0012AA	Modify Local Water Supply Connection
0012AB	DBA for SUBCLIN 0011AA

	SCHEDULE C
0013	**DAM SAFETY INSTRUMENTATION**
0013AA	Mobilization/Demobilization
0013AB	Security
0013AC	Design and Install Dam Safety Instrumentation
0013AD	DBA INSURANCE
0013AE	REIMBURSEMENT FOR ACTUAL PERFORMANCE AND PAYMENT BONDS

	SCHEDULE D
0014	**SPILLWAY INVESTIGATION**
0014AA	Mobilization/Demobilization
0014AB	Security
0014AC	Subsurface Investigation and Report
0014AD	DBA INSURANCE
0014AF	REIMBURSEMENT FOR ACTUAL PERFORMANCE AND PAYMENT BONDS

1.3. PAYMENT

1.3.1. General

Contractor shall perform all base activities as described in the Section 01 01 40 Summary of Work, and Section 01 01 50 Technical Requirements and throughout the Solicitation. Work is listed under various CLINs in the Section 00010 Bid Schedule as stated below.

1.3.1.1. Mobilization and Demobilization

Moving of all equipment and final demobilization will be measured for payment as a lump sum pay item (LS). Payment will be for work described in the summary of work and related provisions found throughout the Invitation. Price and payment shall be full compensation for all work required to transport all necessary plant, equipment, instrumentation, supplies, and personnel materials to and from the project as specified. This bid item also contains all costs associated with a documented comprehensive quality control plan submittal. The Mobilization and Demobilization item shall have a unit of measure of lump sum and paid for under bid items 0001AA, 0005AA, 0013AA and 0014AA of Section 00010 Bid Schedule. Mobilization and demobilization costs for optional items for SCHEDULES A and B are not included.

1.3.1.2. Security

Security is critical to construction in Afghanistan, especially on roads and remote areas away from Coalition Force bases. The Contractor must have an appropriate amount of security/protection to match the threat in the project area, outside of the perimeter fence, and along the supply routes. The Contractor shall be responsible for physical security of all materials, supplies, and equipment of every description, including property which may be Government-furnished or owned, for all areas occupied jointly by the Contractor and the Government, as well as for all work performed. The Security item shall have a unit of measure lump sum (LS) and paid for under bid items 0001AB, 0005AB, 0013AB and 0014AB of Section 00010 Bid Schedule. Security costs for optional items in SCHEDULES A and B are not included.

1.3.1.3. Reimbursement for Actual Performance and Payment Bond

The Reimbursement for Actual Performance and Payment Bond item shall have a unit of measure lump sum (LS) and paid for under bid items 0001AG, 0005AL, 0013AE and 0014AF of Section 00010 Bid Schedule. Note that each CLIN is a Not to Exceed (NTE) amount.

1.3.1.4. DBA Insurance

The DBA Insurance item shall have a unit of measure of lump sum (LS) and paid for under bid items 0001AF, 0005AK, 0013AD and 0014AD of Section 00010 Bid Schedule. DBA Insurance is also associated with each optional CLIN is SCHEDULE A and B but is not listed here separately.

1.3.2. **INTAKE STRUCTURE (SCHEDULE A)**

Contractor shall perform all required activities for the intake structure as described in the Section 01 01 40 Summary of Work, and Section 01 01 50 Technical Requirements and throughout the Solicitation. Work is listed under SCHEDULE A of the Section 00010 Bid Schedule. For all design items, Contractor shall provide an updated Commissioning Plan submitted as described in Section 016400 Start Up Testing and Commissioning. For all construction items, Contractor shall include all training activities according to Section 01 66 40 Training, and perform all commissioning activities according to Section 01 64 00 Start Up Testing and Commissioning. Work is listed under SCHEDULE A of the Section 00010 Bid Schedule.

1.3.2.1. Design Intake Structure Modifications

The Contractor shall design all features of the intake structure including detailed site inspections, design reports, design analyses, and completed plans and specifications. Design also includes an alternate method of watering the tunnel and an updated Commissioning Plan submitted as described in Section 016400 Start Up Testing and Commissioning. Field activities and testing described in that section will be included in the Intake Structure CLIN. The design work shall have a unit measure of lump sum and paid for under bid items 0001AC of Section 00010 Bid Schedule.

1.3.2.2. Build Intake Structure Modifications

Contractor shall perform all construction activities required to rehabilitate the intake tower. The described scope will be measured for payment as a lump sum pay item (LS). Payment will be made at the lump sum price for Bid Item No. 0001AD of Section 00010 Bid Schedule.

1.3.2.3. Diesel Generator for Intake Structure

Contractor shall provide and install a diesel generator for the intake structure including all electrical work required for power delivery to the intake tower. Contractor shall include work for coordination with the intake structure Construction and downstream operations. The described scope will be measured for payment as a lump sum pay item (LS). Payment will be made at the lump sum price for Bid Item No.0001AE of Section 00010 Bid Schedule.

1.3.3. **TUNNEL WORKS (SCHEDULE B)**

Contractor shall perform all mandatory activities for the intake structure as described in the Section 01 01 40 Summary of Work, and Section 01 01 50 Technical Requirements and throughout the Invitation to Bid. Work is listed under SCHEDULE B of the Section 00010 Bid Schedule. For all design items, Contractor shall provide an updated Commissioning Plan submitted as described in Section 016400 Start Up Testing and Commissioning. For all construction items, Contractor shall include all training activities according to Section 01 66 40 Training, and perform all commissioning activities according to Section 01 64 00 Start Up Testing and Commissioning. Work is listed under **SCHEDULE B** of the Section 00010 Bid Schedule.

1.3.3.1. Valve Design

Contractor shall be paid for all specified aspects of the valve designs including the refurbishment of controls for all three existing roto valves, demolition and replacement of jet valves, and all auxillary equipment such as the hydraulic and electric controls and the electrical systems. Work also includes the design of one new bulk head for the chamber surrounding the jet valves. Work also includes repair of existing service HVAC system in the tunnel. Work also includes replacement of the flap gate that discharges from the sump line to the bottom of the jet valve chamber. Work also includes preparing a Dewatering Plan. Work shall include all inspection costs that may be incurred and necessary for design of the roto valves, jet valves, electrical controls, sumps and pumps, flap gate, HVAC repair, and dewatering plans. The design work shall have a unit measure of lump sum (LS) and paid for under bid items 0005AC of Section 00010 Bid Schedule. Field activities and testing will be included in the Tunnel Works CLIN.

1.3.3.2. Conduit, Chamber and Apron – Evaluate and Report

The contractor shall perform the specified inspections of the steel conduits downstream of the tunnel plug (about 150 meters), and chambers (3) and apron (1) downstream of the existing jet valves. The inspection activities shall be coordinated with rehabilitation work for the intake tower and all other tunnel works described herein. Dewatering of the Conduit and Chamber features will be completed under separate CLIN (Valve – Construction). The contractor shall provide an underwater video inspection of the Apron and be used to inform option on Apron Repair (separate CLIN). The Contractor shall provide the specified engineering evaluation and report with recommendations. Dewatering plans for the Conduit and Chamber are covered under Valve Design (separate CLIN). Dewatering operations are covered under Valve Construction (separate CLIN). The work shall have a unit measure of lump sum (LS) and paid for under bid items 0005AD of Section 00010 Bid Schedule. Based on the report recommendations, the COR may exercise their right to execute options (or negotiated contract modification) for repair as appropriate under separate CLINs.

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1.3.3.3. Overhead Service Crane – Evaluate and Report

The Contractor shall inspect the over head service crane and hoist used for lifting the roto valve components. The inspections shall be used for an engineering evaluation and report to inform the CORs right to execute options for repair or replacement. The inspection activities shall be coordinated with rehabilitation of the roto valves. The work shall have a unit measure of lump sum (LS) and paid for under bid items 0005AF of Section 00010 Bid Schedule.

1.3.3.4. Local Water Supply – Evaluate and Report

The Contractor shall inspect the existing water supply located at the outlet of the jet valves. The inspections shall be used for an engineering evaluation and report to inform the CORs right to execute options for repair or replacement. The report shall include a plan to provided uninterrupted water supply during work on other mandatory CLIN (See Valve-Construction). The inspection activities shall be coordinated with rehabilitation of the rotovalves. The work shall have a unit measure of lump sum (LS) and paid for under bid items 0005AG of Section 00010 Bid Schedule.

1.3.3.5. Valve Construction

Contractor shall perform all activities required to construct the items designed under Valve Design. This includes repairing all three of the roto valves and auxillary equipment, electrical systems, and replacing the hydraulic drive units. This includes replacing all three flow regulating valves and auxillary controls. Work shall also include providing and installing the new auxillary equipment and new electrical systems. Work shall also include the fabrication of a new bulkhead for dewatering the chambers surrounding the jet valves. Work shall also include one full cycle of dewatering the tunnel and conduits and placement of bulkhead in the chamber according to the Dewatering Plan. Work for dewatering shall include operation of the intake tower. Contractor shall also locate and

replace the flap gate for small diameter discharge line that exits near the jet valves. Contractor shall also replace the electric motor and perform repairs on the HVAC system for the tunnel works. Contractor shall include work for coordination with upstream operations and inspections. Work shall also include providing uninterrupted water supply to the public line thrust into the jet valve. Work shall also include replacing all sump pumps in the valve house. The described scope will be measured for payment as a lump sum pay item (LS). Payment will be made at the lump sum price for Bid Item No. 0005AH of Section 00010 Bid Schedule.

1.3.3.6. Replace Valve House Hydro-electric Generating Unit

Contractor shall perform all activities required to replace the existing hydro-electric unit with a new unit including all auxillary equipment and new electrical systems. Work also includes replacing in-kind the 12-ich valve controlling the penstock upstream of the service turbine. Contractor shall include work for coordination with upstream operations and inspections. Dewatering of the penstock will be completed under separate CLIN (Valve – Construction). Contractor shall also coordinate with the work performed on the local water supply if executed by the COR. The described scope will be measured for payment as a lump sum pay item (LS). Payment will be made at the lump sum price for Bid Item No. 0005AJ of Section 00010 Bid Schedule.

1.3.4. **DAM SAFETY INSTRUMENTATION (SCHEDULE C)**

Contractor shall perform all required activities for the dam safety instrumentation as described in the Section 01 01 40 Summary of Work, and Section 01 01 50 Technical Requirements and throughout the Invitation to Bid. Work is listed under SCHEDULE C of the Section 00010 Bid Schedule. The Contractor shall design and install all dam safety items including site investigation and reports, two piezometers in the left abutment of the dam, water level meters, staff gauges, survey pillars and survey equipment, and project identification (i.e., signage). The depth capability for the water level meter shall be for the deepest possible piezometer in the mandatory. ~~and optional items.~~ The contractor shall also record the initial readings as specified. This work item also generally includes the commissioning, initial readings, and training of project personnel as specified. The work will be measured for payment as a lump sum pay item (LS) and will be paid for under bid item 0013AC.

1.3.5. **SPILLWAY INVESTIGATION (SCHEDULE D)**

Contractor shall perform all mandatory activities for the exploration of the spillways as described in the Section 01 01 0 Summary of Work, and Section 01 01 50 Technical Requirements and throughout the Solicitation. Work is listed under SCHEDULE D of the Section 00010 Bid Schedule. Contractor shall perform all work required for spillway investigations, including electrical resistivity surveys, foundation drilling and testing of rock cores from the Emergency Spillway, surface investigation and geologic mapping of the Service and Emergency Spillways, production of the Spillways Report, and all incidental activities required to complete the work. The work will be measured for payment as a lump sum pay item (LS) and will be paid for under bid item **0014AC**.

1.4. OPTION ITEMS

If exercised , the Contractor shall perform all required activities for the various optional items as described in the Section 01 01 40 Summary of Work, and Section 01 01 50 Technical Requirements and throughout the Solicitation. The optional work will be paid for the primary items lump sums (LS) or as an individual item (EA). The additional sub-items for DBA insurance associated with each primary item will be paid as lump sum (LS).

1.4.1.1. Inspection of Trash Racks and Guides (Optional)

All Contractor activities required for the inspection of trash racks and guides including subsurface video will be measured as a lump sum pay item (LS). Payment will be made for all items under SCHEDULE A, CLIN **0002AA** of Section 00010 Bid Schedule.

1.4.1.2. Replacement of Trash Racks (Optional)

All Contractor activities required for fabrication and installation, and other site work associated with replacing the irrigation intake structure trash racks will be measured as a lump sum pay item (LS). Payment will be made for all items under SCHEDULE A, CLIN **0003AA** of Section 00010 Bid Schedule.

1.4.1.3. Repair of Trash Rack Guides (Optional)

All Contractor activities required for repair of the trash rack guides according to original design, and other subsurface work associated with repair will be measured as a lump sum pay item (LS). The details of the requested repair are described in Section 010150 Technical Requirements. The condition of the conduits is unknowable until the trash racks have been inspected under a separate optional CLIN. Payment will be made for all items under SCHEDULE A, CLIN **0004AA** of Section 00010 Bid Schedule.

1.4.1.4. Unlined Tunnel – Evaluate and Report (Optional)

The Contractor shall perform an inspection of the unlined tunnel from the head of the concrete tunnel plug to the closed bulkhead at the intake structure (about 720 meters). The inspection activities shall be coordinated with rehabilitation work for the intake tower and all tunnel works. Dewatering plans for the unlined tunnel are covered under Valve Design (separate CLIN). Dewatering operations are covered under Valve Construction (separate CLIN). The work shall have a unit measure of lump sum (LS) and paid for under SCHEDULE B, bid item **0006AA** of Section 00010 Bid Schedule. This contract does not contain options for executing repairs to the unlined tunnel. If the decision is made to execute repairs, it will be done by contract modification.

1.4.1.5. Repair Conduit - (Optional)

Repair of conduit upstream or downstream of the emergency closure valves and associated work will be measured for payment for each segment of conduit as Lumps Sum (LS). The details of the requested repair are described in Section 010150 Technical Requirements. The condition of the conduits is unknowable until the tunnel has been dewatered and the evaluation work has been completed under mandatory CLIN (Valve – Construction). The repairs shall be executed concurrent will rehabilitation of the roto valves and replacement of the jet valves. The quantities and nature of the repairs are estimated based on government review of historic documents, and a general understanding of cavitations in conduits. The actual requirements for repair shall be outlined in the evaluation and report prepared by the contractor. Differences between the assumed repairs and the recommended repairs post evaluation will be dealt with by contract modification. ~~The Government assumes the repairs will require partial depth welding for a total of 100 lbs of welding rod including all associated scaffolding, and ventilation activities.~~ The Government assumes the repairs will require full depth welding for cracks at joints and partial depth welding for repair of cavitations for a total weight of welding rod equal to 100 lbs. Therefore, the pay item is for 100 lbs of welding distributed across one or all of the conduits. Payment will be made for all items under SCHEDULE B, CLIN **0007AA** of Section 00010 Bid Schedule.

1.4.1.6. Chamber Repair - (Optional)

Repair of chamber downstream of the jet valves and associated work will be measured for payment for each chamber as individual pay items (EA). The details of the requested repair are described in Section 010150 Technical Requirements. The condition of the chamber is unknowable until the evaluation work has been completed a separate mandatory CLIN. Dewatering of the Chamber will be completed under separate CLIN (Valve – Construction). The quantities and nature of the repairs are estimated based on government review of historic documents, and a general understanding of cavitations outside of jet valves. The actual requirements for repair shall be outlined in the evaluation and report prepared by the contractor. Differences between the assumed repairs and the recommended repairs post evaluation will be dealt with through contract modification. Payment will be made for all items under SCHEDULE B, CLIN **0008AA** of Section 00010 Bid Schedule.

1.4.1.7. Apron Repair - (Optional)

Repair of apron downstream of the jet valves and associated work will be measured as a lump sum pay item (LS). The details of the requested repair are described in Section 010150 Technical Requirements. The condition of the apron is unknowable until the evaluation work has been completed a separate mandatory CLIN. The work includes

placement of a small cofferdam to dewater the apron. The quantities and nature of the repairs are estimated based on government review of historic documents, and a general understanding of cavitations outside of jet valves. The actual requirements for repair shall be outlined in the evaluation and report prepared by the contractor. Differences between the assumed repairs and the recommended repairs post evaluation will be dealt with through contract modification. Payment will be made for all items under SCHEDULE B, **0009AA** of Section 00010 Bid Schedule.

1.4.1.8. ~~Replace Overhead Service Crane Tunnel (Optional)~~ Repair Overhead Service Crane-Tunnel (Optional)

~~Replacement~~ Repair of the overhead service crane will be paid as lumps sum (LS). ~~Replacement of crane components shall include but is not limited to crane rails, anchors, and structures in the valve room to original capacity.~~ Details for replacement are included in Section 01 01 50 Technical Requirements. Payment will be made for all items under SCHEDULE B, CLIN **0010AA** of Section 00010 Bid Schedule.

1.4.1.9. Powerhouse Diesel Generator (Optional)

All Contractor activities required to provide and install a new diesel generator, including a detailed site inspection, design report, and completed plans and specifications, will be measured for payment as a lump sum pay item (LS). Details for the powerhouse diesel generator are include in Section 01 01 50 Technical Requirements. Payment will be made for all items under SCHEDULE B, CLIN **0011AA** of Section 00010 Bid Schedule.

1.4.1.10. Modify Local Water Supply (Optional)

Provide a replacement for the water supply to the downstream camp and village as specified. Modification will include a tap into the existing 12-inch line that feeds the hydro-electric generating unit. The specifications provided assume that this connection is the most effective method however, other methods may prove more effective pending other evaluations and design work executed under other CLINs. Payment will be made all items under SCHEDULE B, **0012AA** of Section 00010 Bid Schedule.

1.5. TRAINING AND COMMISSIONING

All training and commissioning shall be paid for under the bid item in which the training and commissioning is associated. The final 10% of all Construction/Rehabilitation/Repair/Replace CLINs will not be paid until Testing and Commissioning has been performed and the Government has accepted the various reports that process entails. The proper execution of Commissioning and Training will be considered in any contractor performance rating.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-END OF SECTION-