AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES	
	1	19

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0003	20-Jul-2009		

6. ISSUED BY CODE W917PM	7. ADMINISTERED BY (If other than item 6) CODE
AFGHANISTAN ENGINEER DISTRICT US ARMY CORPS OF ENGINEERS KABUL APO AE 09356	**See Item 6**

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. W917PM-09-R-0084
	X	9B. DATED (SEE ITEM 11) 24-Jun-2009
		10A. MOD. OF CONTRACT/ORDER NO.
CODE FACILITY CODE		10B. DATED (SEE ITEM 13)

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 [X] is extended, [ ] 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.)

The purpose of this amendment for the CIED Road Kapisa Supply Route (South) Kapisa Province, Afghanistan is hereby amended as follows:

1. Replace Section 01015 Technical Requirements with the attached REVISED Section 01015.
2. Replace Section 01010 Scope of Work with the attached REVISED Section 01010.
3. The new proposal due date is extended to 29 July 09 at 1700 hrs.

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 19-Jul-2009

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:
SECTION 01010 (REVISED)

SECTION 01010

SCOPE OF WORK

PART 1 - GENERAL:

The scope of this project includes the survey, design, and construction of a 7m wide asphalt carriageway with 1.5m gravel shoulders for the CEID Road Kapisa Supply Route (South) in Kapisa Province of Afghanistan. The asphalt surface shall be 120mm minimum including 300mm subbase, 150 mm Base Course, from near Gido China (69.684213 E, 34.686675N) to Tageb (69.64592 E, 34.85627 N) in the Kapisa Province of Afghanistan. The road alignment, from beginning to end point, is approximately 21 km. The contractor shall commence his work activities from the northern section of the road alignment to the southern end point.

Prior to starting the work, the contractor shall submit to AED - Kabul, for verification, the actual starting and ending coordinates, gathered in the field by the contractor. The contractor will be notified within seven (7) business days of receipt of said coordinates if AED concurs with them as the field-verified starting and ending coordinates.

The contractor shall develop the proposed roadway alignment and survey generally based upon existing roadway alignment, adjusting the alignment and profile to meet applicable design standards. No construction activity shall be allowed until the proposed roadway alignment and profile have been approved by the COR.

The work within this contract shall also meet and be constructed in accordance with the Ministry of Rural Rehabilitation and Development (MRRD) “Standard Drawings” Ministry of Public Works (MPW), and “Islamic Republic of Afghanistan Ministry of Public Works Interim Road and Highway Standards” dated 21 March 2005 or latest edition, and safety and security standards and other references as stated in Section 01015 “Technical Requirement”. In the event of discrepancies between the contract documents and the MRRD / MPW Standards, the requirements of this contract take precedence.

1.1. 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 Contracting Officer Representative (COR) at all times.

1.2. COMMUNITY RELATIONS PLAN: Contractor is required to submit and implement a Community Relations Plan (CRP). Prior to completion and submittal of the CRP, the Contractor shall initially meet and coordinate the CRP with local tribes and villages. No field activities shall be started until the CRP is approved by the Contracting Officer’s Representative (COR). The CRP shall include but not be limited to the following:

1.2.A. Name of the Contractor’s community relations point-of-contact (POC). The Contractor must submit proof regarding the CRP POC’s knowledge of village customs, ethnicity, etc. and experience in meeting, coordinating and negotiating with local and provincial officials.

1.2.B. Identify all communities along the route within 5 kilometers of the new road alignment.

1.2.C. Hold initial meetings with local and provincial officials and the local PRT Commander to discuss the project and the CRP.

2.C.1. Hold an initial organizational kick-off meeting with each village.

2.C.2. Hold regularly scheduled monthly meetings with the communities. Ensure that there is representation from all major tribal elements.

2.C.3. Determine the number of available skilled and unskilled workers in the region and how they can be utilized for the project.

2.C.4. Identify local businesses in the region that can be utilized for the project.

2.C.5. Solicit comments and concerns about the project.

2.C.6. Provide meeting minutes to the COR:

2.C.6.a. Include names and phone numbers of community leaders in attendance.

2.C.6.b. Issues that were discussed, proposed solutions to issues, and an assessment and commentary of the community's support of the project.

2.C.6.c. Meeting minutes shall be provided to the COR within seven (7) days after the meeting is held.

1.2.D. Contractor's plan to actively and continuously solicit community support for the project to maintain community buy-in for the project.

1.2.E. Contractor's plan to monitor project results and impacts to the communities.

1.2.F. Contractor's plan to update and revise the CRP, as necessary due to changes in local leadership, community comment, change in project alignment or plans, or reaction to changes in security conditions.

1.2.G. LOCAL EMPLOYMENT: Contractor is strongly encouraged to employ a workforce consisting of not less than 80% Afghan citizens, ideally not less than 50% of which shall reside within a 20-kilometer radius of the proposed worksite.

1.3. CQM TRAINING REQUIREMENT: Before project design and construction begin, the Contractor's Quality Control Manager is required to have completed the U.S. Army Corps of Engineers CQM course, or equivalent. The Commercial Technical Training Center (CTTC), operated by the United Rehabilitation Bureau in Jalalabad, Afghanistan, provides a course that satisfies the requirement. Courses are offered at regular intervals. For enrollment and course information contact CTTC at the following:

1.3.A. Dr Pervez Mojadidi
Project Manager, United Rehabilitation Bureau
Email: adpzmuj@yahoo.com
Phone: (93) 0700-613-133, 0786489933

1.3.B. Said Wali Shinwari
Director, United Rehabilitation Bureau
Email: urb1992@yahoo.com
Phone: (93) 0700-287-626, 0797520380

1.3.C. Specification 01451, entitled "Contractor Quality Control", Paragraph 3.5.D. requires approval of the Contractor's CQC Plan. That approval is contingent upon the successful completion of this course by the Contractor's Quality Control Manager.

PART 2 - UNEXPLODED ORDNANCE (UXO)

2.1. UXO REMOVAL AND CLEARANCE: The contractor is responsible for the clearance or removal of mines and unexploded ordnance (UXO) from the site during construction.

2.1.A. 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 UN Mine Action Centre for Afghanistan (UNMACA).

2.1.B. If a UXO/mine is encountered during project construction, UXO/mine disposal shall be handled in accordance with Section 01015, Technical Requirements.

PART 3 - SUMMARY OF WORK: The contractor shall design and construct roads in accordance to the Afghanistan "Standard Drawings Revision -1" by the Ministry of Rural Rehabilitation and Development (MRRD) and the Ministry of Public Works (MPW). The design phase of the project shall consist of 4 design submittal stages as defined in SECTION 00150.

3.1. CONTRACTOR REQUIREMENTS: The Contractor shall accomplish required work at the aforementioned site within the contract and shall be in accordance with the requirements stated in Section 01015: TECHNICAL REQUIREMENTS and others sections herein. Refer to Section 01015 for further direction. Contractor shall report to the Contracting Office Representative (COR) progress of the project in weekly progress reports that include, but are not limited to, required submittals, work being performed, quantity of blasting and excavation, current location of ongoing construction, photographs, climate data, equipment on site, safety issues, security issues, number of workers and type of work being performed.

3.1.A. Roads and Pavements: Road design and construction shall be in accordance with the MRRD and MPW Standards, latest edition, and based upon criteria included in Section 01015. In the event of discrepancies between the contract documents and the MRRD / MPW Standards, the requirements of this contract take precedence. Contractor is responsible for all required soil testing and surveying for pavement, structures, surface road design. The design requires a comprehensive topographic survey.

3.1.B. Construction: Construction specifications shall be submitted to the USACE for approval and shall be in accordance with technical references in this contract. The Contractor shall submit, prior to the commencement of construction, a plan for maintaining traffic flow during road construction.

3.1.C. SECURITY: The Contractor is solely responsible to provide every aspect of security protection during all field activities and construction to safeguard, protect and defend his employees' lives, equipment and the worksite from insurgent (terrorist) activities; i.e., armed attacks, improvised explosive devices (IED), etc.. Prior to the commencement of any field activities, the Contractor shall submit, a Security Protection Plan, which, at the minimum, shall include:

- Purpose.
- Scope.
- Responsibilities. Security Manager; Team Leader(s); Guard Forces; Drivers;
- Chain-of-Command/Communications.
- Manpower. Makeup and number of employed security/guard personnel; resumes of key personnel;
- Security Functions. Ingress/Egress; Perimeter Patrol; Intrusions; Emergency Response; Protection Duties;
- Weapons and Ammunition. Safe storage; inventory; control; registration;
- Serious Incident Report(s) (SIR) Filing Procedures.

- Reporting to AED and Coalition Forces
- Addendum Procedures.
- A Plan for coordination and conduct of Shuras, coordination/meetings with Coalition Forces, etc. throughout the contract duration.

Prior to completion and submittal of the Security Protection Plan, the Contractor shall initially meet and coordinate with local tribes, villages, Corps of Engineers Resident and Area Offices, local Provisional Reconstruction Team and all outer levels of security and forces along the project route, including the Afghan National Police and Afghan National Army. Proof (meeting minutes, etc.) of such initial coordination shall be submitted with the Security Protection Plan. The Contractor shall appoint a point-of-contact who shall be responsible for continued security coordination with the affected tribes, villages and security levels and for daily reporting to the AED Contracting Officer's Representative (COR). The Contractor shall provide coordinates of construction base camps, quarries, and current worksites to AED and outer security points-of-contact, and shall continually update and provide addendums to the Security Protection Plan as personnel and work locations change during survey, inspection or construction activities.

The Contractor shall provide the names, photos, and tazkira number for all security personnel and those with access to weapons, ammunition, and/or explosives to AED and shall provide documentation that all security personnel, weapons, etc., have been properly registered per local and/or national Afghan law. The Contractor shall be responsible for daily communication with all outer security levels to assure that they are aware of the Contractor's current work and base camp locations, jobsite personnel and plans for movement to future sites along the project route. The Contractor shall at all times have immediate access to cellular and satellite phones and maintain an accurate and current list of medical and security personnel that can be contacted in the event that workers, equipment or base camps are attacked or individuals injured. The AED COR will provide names/numbers of US Government points-of-contact.

1.C.1. Serious Incident Reporting Requirement: Any significant criminal or terrorist-related event which occurs at the worksite or related to the Contractor's performance under this contract must be immediately reported by the Contractor to the COR. Reportable events include, but are not limited to death threats, murder, kidnapping, assault, vehicle theft, destruction of worksites, theft of materials or equipment, mining of work locations, etc. Failure to report significant criminal or terrorist-related events will be documented and may be considered grounds for termination. The Contractor agrees to cooperate with Coalition Forces in identifying and prosecuting persons involved in criminal/terrorist related events involving Contractor or its employees, at the worksite or related to its performance under this contract.

PART 4 - PERFORMANCE PERIOD: All work required under this contract shall be completed within 495 calendar days from Notice to Proceed.

PART 5 - LIQUIDATED DAMAGES: Liquidated damages in the amount of $2,300 for every calendar day of delay shall be assessed and charged to the Contractor.

PART 6 - WARRANTY: Contractor shall warranty all asphalt pavement, culverts, bridges and other drainage structures for a period of one year after final acceptance of the project. The contractor shall warranty all other work for a period of one year after the final acceptance of the project. Warranty work shall include grading, repairing and upgrading eroded areas, structures and drainages as necessary to bring the road back to 100% serviceability.

PART 7 - REFERENCES: Refer to Section 01015 for required references.

-- End of Section --

SECTION 01015 TECH REQUIREMENT

SECTION 01015

TECHNICAL REQUIREMENTS

PART 1 - GENERAL:

1.1. CONTRACTOR DESIGN OBLIGATION: The Contractor's design and construction must comply with technical requirements contained herein. The Contractor shall provide design and construction using the best blend of cost, construction efficiency, system durability, ease of maintenance and environmental compatibility.

1.2. CONTRACTOR OBLIGATION: These design and product requirements are minimum requirements. The Contractor is encouraged to propose alternate design or products (equipment and material) that are more commonly used in the region, will be equally or more cost effective or allow for more timely completion, but furnish the same system durability, ease of maintenance and environmental compatibility. The Contractor will be required to submit information as requested by the Contracting Officer to make a comparison of the proposed alternate. All variations must be approved by the Contracting Officer.

1.3. SAFETY:

1.3.A. UNEXPLODED ORDNANCE (UXO) AND MINES:

3.A.1. UXO/Mine Discovery During Project Construction:

The Contractor shall be aware of the risks of encountering UXO and take all actions necessary to assure a safe work area to perform the requirements of this contract. It is the Contractor's responsibility to de-mine and obtain certificates of UXO clearance prior to bringing workers and or equipment on to the project site.

If during construction, the Contractor becomes aware of or encounters UXO or potential UXO, the Contractor shall immediately stop work at the site of encounter, move equipment and personnel to a safe location, notify the Contracting Officer's Representative (COR), and then mitigate any delays to scheduled or unscheduled contract work. Once the Contractor has informed the COR of the presence of UXO, the Contractor shall immediately proceed to safely remove the item in accordance with their Security Protection Plan. Only UXO-trained personnel shall deactivate and remove UXO.

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. Scrap metal shall be the property of the Host Government. The scrap metal on site shall be moved to an area away from the site perimeter as directed by the COR and left for the Host Government to remove and/or salvage.

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

Mohammad Sediq, Chief of Operations
UN Mine Action Centre for Afghanistan (UNMACA)
Email: sediq@unmaca.org
Cell: +93 070 295207
0093 (0) 799 248 934

Hansie Heymans, Chief Information Officer
UN Mine Action Centre for Afghanistan (UNMACA)
Email: hansie@unmaca.org
hansie@unops.org
Cell: +93 070 294286

3.A.2. EXPLOSIVES SAFETY:

3.A.3. General Safety Considerations: General safety considerations applicable to personnel, both essential and non-essential, at project sites where UXO may be encountered include:

3.A.3.a. Do not carry fire or spark-producing devices.

3.A.3.b. Do not conduct explosive or explosive-related operations without approved procedures and proper supervision and UXO safety support.

3.A.3.c. Do not become careless by reason of familiarity with UXO or the reported probability level of UXO contamination.

3.A.3.d. Do not conduct explosive or potentially explosive operations during inclement weather.

3.A.3.e. Avoid contact with UXOs. Only UXO-trained personnel shall handle the proper deactivation and disposal of UXO. 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 MAC.

3.A.3.f. Employ the "buddy system" at all times.

3.A.4. Activity Hazard Analysis (AHA) Briefings:

3.A.4.a. Activity Hazard Analysis's shall be prepared in accordance with the United States Corps of Engineers Safety (USACE) and Health Requirements Manual, EM 385-1-1.

3.A.4.b. Hazard analyses will be prepared and briefed by personnel that are knowledgeable in UXO and explosives safety standards and requirements.

3.A.4.b.i. These personnel should understand the specific operational requirement and hazard analysis methodologies. A hazard analysis will be performed for each activity to determine the significance of any potential explosive-related hazards.

3.A.4.b.ii. Explosive residues may be discovered or exposed during UXO operations in the form of powder or various granular and powder based pellets.

3.A.4.b.iii. The contaminants can enter the body through the skin or by ingestion if proper personal hygiene practices are not followed.

3.A.4.b.iv. Explosive fillers, such as white phosphorus, are dangerously reactive in air and a fire hazard.

3.A.4.b.v. Acute exposure can result in serious injury to the skin, eyes, and mucous membranes.

3.A.5. Safety requirements (or alternatives) that will either eliminate the identified hazards, mitigate or control them to reduce the associated risks to an acceptable level will be developed. The adequacy of the operational and support procedures that will be implemented to eliminate, control, or abate identified hazards or risks will then be evaluated and a second risk assessment completed to verify that a satisfactory safety level has been achieved.

1.3.B. NOTIFICATION OF NONCOMPLIANCE: The COR will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the COR may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time or for excess costs or damages.

1.4. LIMITATION OF WORKING SPACE: The Contractor shall confine his operations strictly within the boundaries of the work site. Workmen will not be permitted to trespass on adjoining property. Any operations or use of space outside the boundaries of the site shall be by arrangement with all interested parties. It must be emphasized the Contractor must take all practical steps to prevent his

workmen from entering adjoining property and in the event of trespass occurring the Contractor will be held responsible.

1.5. TEMPORARY STRUCTURES: The Contractor shall erect suitable temporary fencing, lighting, and necessary structures to safeguard his equipment, materials and plant against damage, theft, for the protection of the general public and from insurgency attacks. The Contractor shall adequately maintain the same throughout the course of the contract.

1.6. SUBCONTRACTORS: Compliance with the provisions of this project by subcontractors will be the responsibility of the contractor.

1.7. LIST OF CODES AND TECHNICAL CRITERIA: The following codes and technical criteria and those referenced therein shall be required for this project. ***References within each reference below shall be required and adhered to.*** This list is not exhaustive and is not necessarily complete.

- **Ministry of Rural Rehabilitation and Development (MRRD) and Ministry of Public Works (MPW) Standards, latest edition**
- AASHTO – American Association of State Highway and Transportation Officials
- AASHTO – A Policy on Geometric Design of Highways and Streets, latest edition.
- AASHTO – Manual on Uniform Traffic Control Devices, latest edition.
- AASHTO – Model Drainage Manual
- ASTM - American Society for Testing and Materials
- International Mine Action Standards, latest edition; see http://www.mineactionstandards.org for copy of standards.
- UFC 3-230-17FA Design: Drainage for Areas Other than Airfields
- UFC 3-230-18FA Design: General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas
- UFC 3-250-01FA Design: Pavement Design for Roads, Streets, Walks and Open Storage Areas
- UFC 3-250-09FA Design: Aggregate Surfaced Roads and Airfields Areas
- UFC 3-270-01 Asphalt Maintenance and Repair
- UFC 3-320-05FA Design: Structural Design Criteria for Structures Other than Buildings
- EM 1110-3-136 Drainage and Erosion Control - Mobilization Construction

The publications to be taken into consideration shall be those of the most recent editions. Standards, other than those mentioned above, may be accepted if the standards chosen are internationally recognized and meet the minimum requirements of the specified standards. The Contractor shall be prepared to submit proof of this if requested by the COR.

PART 2 - ENVIRONMENTAL PROTECTION:

2.1. APPLICABLE REGULATIONS: The Contractor shall comply with all Host Nation laws, rules, regulations or standards concerning environmental pollution control and abatement with regard to discharge of liquid waste into natural streams or manmade channels. The contractor shall review host nation and U.S. Government environmental regulations with the COR prior to design and discharge of any liquid wastes into natural streams or manmade channels.

2.2. NOTIFICATION: The COR will notify the Contractor, in writing, of any observed non-compliance with the foregoing provisions. The Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the COR may issue an order stopping part or all of the work until satisfactory corrective action has been taken. No extension of time or damages will be awarded to the Contractor unless it was later determined that the Contractor was in compliance.

2.3. SPILLAGES: Measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides and construction materials from polluting the

construction site and surrounding area.

2.4. DISPOSAL: Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., shall be taken to a dumpsite off site and subject to the approval of the Contracting Officer.

PART 3 - ROAD DESIGN DEVELOPMENT:

3.1. GENERAL: Contractor is responsible for verifying information and quantities before bidding this project and shall design and construct the new road as specified in this RFP. The attachments indicate the location of the beginning and ending point for the roadway. Information provided in the attachments is for informational purposes only. The roadway alignment shown is for illustrative purposes only. The Contractor is responsible for locating the proposed roadway alignment between the beginning and ending point. Contractor is responsible for verifying information and quantities before bidding this project and shall design and construct the new road as specified in this RFP. The project includes but is not limited to furnishing all materials, equipment and labor for constructing roads, temporary detours, storm water drainage ditches, bridges, culverts, erosion control structures, and retaining structures, as applicable, and connecting to the existing road networks. Traffic control is required to safely navigate traffic around the construction areas shall be the responsibility of the Contractor.

3.2. ROADS: The work within this contract shall also meet and be constructed in accordance with the Ministry of Rural Rehabilitation and Development (MRRD) and Ministry of Public Works (MPW) “Road and Highway Standards,” safety and security standards and other references as stated in Section 01015 “Technical Requirement”. In the event of discrepancies between the contract documents and the MRRD / MPW Standards, the requirements of this contract take precedence.

3.3. CURRENT CONDITIONS: The width of the current road varies, the road section needs rebuilt, and structures need replaced.

3.4. END STATE: The base contract final improved state for the road shall consist of a 7 meter wide carriageway with 1.5 meter wide gravel shoulders. The surface for the carriageway shall be 120mm asphalt pavement. The subbase and base course shall be 300mm and 150mm, respectively. The road shall be designed and constructed to support a minimum 12,000 kg load per single axle. The road shall be realigned as needed to provide minimum curve radii and to limit grades to the maximum allowed by the design guidance. The roadway shall be constructed with good drainage and erosion protection. High erosion areas, such as shallow drainage crossings and wadi crossings, shall be armored with a hard surfaced crossing such as an at-grade concrete crossing structure. Erosion structures shall be constructed in slide and flood areas to prevent road blockage and wash-out; this includes the construction of check dams and groynes upstream and downstream of low water crossings (aka fords, aka causeways). Dry stacking for retaining walls, bridges and associated structures will not be allowed.

Percentage by Weight Passing
Square Mesh Laboratory Sieves

	Size Numbers		
Sieves	1	2	3
50.0 mm	100	-	-
37.5 mm	70-100	100	-
25.0 mm	45-80	60-100	100
12.5 mm	30-60	30-65	40-70
4.75 mm	20-50	20-50	20-50
2.0 mm	15-40	15-40	15-40
425 micrometers	5-25	5-25	5-25
75 micrometers	0-10	0-10	0-10

Roadway base course shall meet the requirements of gradation No. 2 for all proposed gravel surfaced roadways.

3.5. GENERAL DESIGN REQUIREMENTS:

3.5.A. Road alignment and profile shall be determined by Contractor. The Contractor shall design the roadway with good drainage and erosion protection. Contractor shall straighten road alignment as much as possible. Drainage ditching is required on both sides of the road and ditches shall terminate in areas where water can drain away from road structure. Hydrology of the region shall be used to determine drainage ditch and structure sizes. All intersecting roads, paths, driveways and culvert crossing are required to have a smooth transition to the new road alignment.

3.5.B. In mountainous areas: 1) The road width may be reduced to 6m with 0.5m shoulders (7M wide total) upon the approval of the Contracting Officer. 2) The road shall have vehicle bypass turnouts at a minimum of every 750m regardless of road width. 3) At the bypass turnout locations, the roadway width will be 9m wide. 4) The length of the turnouts will be 25m with 15m tapers (see Attachment B).

3.5.C. The road crosses streams and other drainage areas. Portions of the road that follow a river bed or wadi shall be re-aligned and constructed out of the river bed or wadi at an elevation greater than the anticipated 25-year water level. Bridges, culverts, gabion crossings, concrete wadi crossings or other related structures shall be constructed as required over rivers, creeks, causeways and wadis that contain water and deep drainages that fill with water during storm events. Existing drainage structures shall be replaced; exceptions may be allowed on a case by case basis if sufficient evidence is provided by the contractor by a competent engineer that shows by calculations that the culvert is properly sized hydraulically and is structurally capable of handling the design load and dead load of all required road layers for a minimum period of 25 years. The granting of exceptions are at the sole discretion of the contracting officer.

3.5.D. Mountainous sections of road, which have steeper and longer grades, may require significant blasting, excavation, drainage and slope protection.

3.5.E. The road shall be built up above existing grade for storm water protection where necessary. Poor subgrade material shall be removed and replaced with clean, compactable, gravel. Portions of the road that follow a river bed or wadi shall be re-aligned and constructed at an elevation greater than the anticipated 25 year water level.

3.5.F. Speed humps shall be designed and installed approaching highly populated areas where the local population and businesses are located immediately adjacent to the road. Speed humps shall

also be installed on the approach to police and ANA check points. Speed humps on paved roads shall be marked with high visibility traffic paint. Speed hump locations shall be shown on the plans.

3.6. SURVEY: Survey plans shall be in SI (metric) units of measurements.

3.6.A. HORIZONTAL AND VERTICAL CONTROL: Universal Transverse Mercator Grid Zone 42, World Geodetic System (WGS84) and the elevation should be height above ellipsoid (WGS84) and sea level (EGM96). If there has been gravitational surveys performed nearby, these shall be noted. A survey database file for all features should show both ellipsoid height and Geoid height and WGS84 latitude/longitude as well as UTM coordinates. WGS84 data shall be corrected to WGS84 (G1150) datum reference. GPS benchmarks shall be documented at ITRF2000 coordinates referenced to epoch 1997. Basic project control surveys will be performed using precise differential carrier-phase tracking Navstar GPS measurement procedures.

The Contractor shall submit raw GPS survey files in the RINEX format. The GPS files shall be submitted using the following naming convention for RINEX files: (ssssdddf.yyt)

ssss:	4-character station name designator
ddd:	day of the year of first record
f:	file sequence number within day
0:	file contains all the existing data of the current day
yy:	year
t:	file type:
O:	Observation file
N:	Navigation file
M:	Meteorological data file
G:	GLONASS Navigation file
H:	Geostationary GPS payload nav mess file

All of the control points established at the site shall be plotted at the appropriate coordinate point and shall be identified by name or number, and adjusted elevations. The location of the project site, as determined by the surveyor shall be submitted in writing to the Contracting Officer. The site location shall be identified by temporary markers, approved by the Contracting Officer before proceeding with the surveying work.

3.6.B. TOPOGRAPHY REQUIREMENTS:

6.B.1. A sufficient quantity of horizontal and vertical control shall be established to provide a detailed topographic survey at 1:500 scale with 1.0 meter contour intervals. Intermediate elevations shall be provided as necessary to show breaks in grade and changes in terrain.

6.B.2. The contours shall accurately express the relief detail and topographic shapes. In addition, 90 percent of the elevations or profiles interpolated from the contours shall be correct to within one-half of the contour interval and spot elevations shall be correct within plus or minus 20 millimeters.

6.B.3. Spot elevations affecting design of facilities shall be provided. Specifically, break points or control points in grades of terrain such as tops of hills, bottoms of ditches and gullies, high bank elevations, top and toe of retaining walls, flowline and headwalls of existing culverts, etc.

6.B.4. All surface and sub-surface structures features within the area to be surveyed shall be shown and identified on the topographic maps. In addition, these features shall be located by sufficient distance ties and labeled on the topographic sheets to permit accurate scaling and identification.

3.6.C. SURVEY DOCUMENTS: Survey plans shall be in SI (metric) units of measurements. Survey documents shall include, **at a minimum,** the following:

6.C.1. Topographic survey:

6.C.1.a. Complete topographic survey of existing road alignment out 15m on both sides of the road centerline, extending 100m from both ends of the proposed project.

6.C.1.b. Survey drawings shall show contours, elevations and road stationing as well as all facilities, utilities, buildings, trees, drainages and other features located in survey area

6.C.1.c. Contours shall be drawn and labeled at 0.5m intervals

6.C.1.d. Centerline profile drawings shall also be provided

6.C.1.e. Cross sections of rivers will be provided at 25M & 50m left and right of the proposed bridge alignment.

6.C.2. Cross sections:

6.C.2.a. Cross sections shall be generated at 50m intervals throughout the project.

6.C.2.b. Additional cross sections shall be provided through any existing and proposed drainage structures. These cross sections shall be obtained through the flowline of the drainage system and note the angle from the road centerline noted.

6.C.3. Profile drawings of existing alignment.

6.C.4. Overall site key map that depicts project design area with respect to the project.

6.C.5. Structure Evaluation Reports:

6.C.5.a. Structure number and Description: Include the length, width, height, materials, etc. and a photo.

6.C.5.b. Recommendation: Replace, Rehabilitate, or Remain in place as is.

6.C.5.c. Report Calculations: Overall structure evaluation. If the recommendation is other than replacement, calculations shall be provided and show that the culvert is properly sized hydraulically and is structurally capable of handling the design load and dead load of all required road layers.

3.7. DESIGN: Roads shall be constructed with a minimum cross-slope or crown of 2.5% with drainage ditches along the sides to allow good drainage and road structure protection. Bridges, culverts, gabion crossings, at-grade concrete wadi crossings or other related structures shall be constructed as required over rivers and wadis that contain water and deep drainages that fill with water during rainy season. Road sections that cross wide drainages, flood areas or wadis shall be designed and constructed with additional water and erosion control measures to allow the road to be passable during rain and flood conditions. High erosion areas, such as shallow drainage crossings and wadis, shall be armored with a hard surfaced crossing such as a reinforced concrete crossing slab. To meet the requirement of this portion of the project, the following items must be completed as a portion of the submittal:

3.7.A. DESIGN LAYOUT:

7.A.1. Design layout drawings with stationing, road curves, drainage ditches, road transitions, drainage structures (size and location), erosion structures, crossing structures, new road alignment, etc, shall be produced. Plan and profile views of project segments shall be shown on the same plan sheet.

7.A.2. Dimensions and locations of all existing and proposed features and structures shall be shown.

7.A.3. Design drawings shall show contours and stationing as well as all facilities, utilities, buildings, drainages and any other features located in the road project area.

7.A.4. Centerline stationing shall be set at intervals of 50m.

3.7.B. VERTICAL ALIGNMENT:

7.B.1. The plans shall show the vertical alignment for the finished road with the existing grade along this alignment.

7.B.2. The road shall be built up above existing grade for storm water protection. In agricultural areas, the finished road surface shall be a minimum of 450 mm above the adjoining fields to reduce the potential of damage when irrigating fields.

7.B.3. The normal road grade shall be less than 8%. The maximum road grade shall be 10%, any grade above 8% shall not be sustained for more than 100m.

7.B.4. The vertical profile shall be labeled with the following at a minimum:

Tangents	Percent of slope - Shall not exceed 10%, normal maximum grade 8%
Curves	Vertical Point of Intersection Station (VPI-S) - At an even meter stations
	Vertical Point of Intersection Elevation (VPI-E)
	Algebraic Difference (AD)
	Rate of Curvature (K) – Shall meet AASHTO minimums
	Curve Length (L) - In even meter increments
	Begin Vertical Curve Station (BVC-S)
	Bevin Vertical Curve Elevation (BVC-E)
	End Vertical Curve Station (EVC-S)
	End Vertical Curve Elevation (EVC-E)
	Crest (high point) or Sag (low point) station & elevation.

3.7.C. HORIZONTAL ALIGNMENT:

7.C.1. Curves shall be eliminated or widened and the alignment of the road straightened as much as possible. The plans shall show the horizontal alignment for the finished road, to include the edge of the proposed road surface and the proposed edge of shoulder. Should existing infrastructure prevent the construction of the road to its full width as determined by the COR, the narrowed section of the proposed surface shall be labeled showing the recommended width. Should the narrowed portion of the road exceed 750m, turn outs shall be provided every 500m.

7.C.2. Switchbacks (If Required):

7.C.2.a. Shall be designed with the largest radius possible, but not less than 20 m.

7.C.2.b. Shall have a wider road section to allow vehicles to maneuver easily around the corners.

7.C.2.c. Shall have a reduced grade than the approaching road.

7.C.3. Speed humps shall be shown approaching highly populated areas where the local population and businesses are located immediately adjacent to the road. Speed humps shall also be installed on the approach to police and ANA check points.

7.C.4. The horizontal alignment shall be labeled with the following as a minimum:

Tangents	Bearing and distance on each segment
Curves	Point of Curve (PC) station
	Point of Tangent (PT) station
	Point of Intersection (PI)
	PI Station
	Deflection Angle

Tangent (T)

Length (L)

Deflection Angle (Delta)

Degree of Curve (Dc) – Shall not exceed 10 unless on a switchback, if in excess of 10, the minimum outer turning radius shall be 13m.

Radius (R)

Begin of Curve (BC)

End Curve (EC)

7.C.5. Bridges, Culverts, and Drainage structures:

7.C.5.a. In addition to the data on all of the existing structures, proposed bridges, culverts and drainage/irrigation structures shall be shown. Structures shall be shown in both the plan and the profile view of the plans and will include notes on the proposed sizes.

7.C.5.b. The contractor shall provide all necessary hydrological data, drainage calculations, drainage design and grading to insure adequate drainage so that no areas will be flooded due to a rainfall of a 10-year frequency. Drainage of the area should be compatible with the existing terrain. A site grading plan shall be designed that provides positive drainage and minimizes the requirement for major structures in a cost effective manner.

7.C.5.c. Drainage structures, including bridges, culverts, and low water crossings shall be constructed where required. Culverts smaller than 1m by 1m shall not be built; low water crossings (aka fords, aka causeways) shall be built instead of according to MRRD standards. All existing culverts smaller than 1m by 1m shall be replaced with low water crossings; exceptions will be considered by the contracting officer on a case by case basis . All culverts shall be equipped with counter improvised explosive device (CIED) protection (see 01015 Attachment A). The type of protection at particular locations is defined below. The CIED protection shall be installed on both ends of new and existing culverts. The device in 01015 Attachment A is the basic design for a 1.2m by 1.2m box culvert. Culverts shall have their CIED protection designed/sized accordingly. The protection shall be adapted to fit other types of structures installed by the contractor. All culvert and low water crossing locations shall be reported by station and grid coordinates on all submissions.

7.C.5.c.i. Areas of high water flow which may be subject to rock wash shall have the "Trash Rack - Rocky Roads Version" culvert protection device installed on the upstream end of all existing and new culverts.

7.C.5.c.ii. Areas of high water flow that are not subject to rock wash shall have the “Trash Rack” style culvert protection device installed on the upstream end of all existing and new culverts.

7.C.5.c.iii. The downstream end of all existing and new culverts and upstream end in low flow areas shall have the “Salerno Box” culvert protection device installed.

7.C.5.d. Erosion structures shall be constructed in slide and flood areas to prevent road blockage and wash-out. New culverts shall not be less than 1m square if possible. A minimum of 300mm of compacted road sub-structure shall be placed on top of the culverts. The roadway profile shall have a smooth transition over the concrete culvert and the aggregate surface width and thickness shall be maintained throughout the crossing.

7.C.5.e. Mountainous sections of road have steeper and longer grades and may require significant drainage and slope protection. High roadside embankments shall be cut and sloped back for stability (see attached excavation safety requirement).

7.C.5.f. The design and construction of bridges shall Not include concrete parapet guard rail. Clear bridge width shall be at least 7m carriageway. However, a 30 cm concrete barrier curb will be required along the edge of all bridge structures.

7.C.6. SITE GRADING:

7.C.6.a. Embankments, at approaches to curves and wadi crossings, shall be cut and sloped to allow good sight distance. Blind corners shall be corrected so oncoming traffic can be seen and to allow for better sight distance for approaching traffic with a minimum sight distance of 50m or as stated within the MRDD and MPW standards, whichever is greater.

7.C.6.b. Built up road sections (with rock or structures) shall be structurally sound to meet seismic requirements.

7.C.6.c. All site plans and master plans shall be drawn in the following projection and datum for incorporation into the U.S. Army Corps of Engineers GIS system: WGS 1984 UTM Zone 42 N

7.C.7. PLANS: Design shall be performed and design documents signed by a registered professional engineer. Calculations shall be in SI (metric) units of measurements. In addition to the survey documents, the design documents shall include, **at a minimum,** the following:

7.C.7.a. Design layout:

7.C.7.a.i. Design layout drawings with stationing, road curves, drainage ditches, designed slopes adjacent to road, cut and fill areas, road transitions, drainage structures (size and location), erosion structures, crossing structures and new road alignment

7.C.7.a.ii. Dimensions and locations of all designed features and structures shall be shown

7.C.7.a.iii. Design drawings shall show contours and stationing as well as all facilities, utilities, buildings, drainages and any other features located in the road project area

7.C.7.a.iv. Contours shall be drawn at 1.0m intervals

7.C.7.a.v. Centerline stationing shall be set at intervals of no less than 50m

7.C.7.b. Cross sections:

7.C.7.b.i. Cross section drawings at each station and additional cross sections as needed to show specific road and drainage features

7.C.7.b.ii. Cross sections shall provide design slope angles for road bed and road drainage and design slopes for areas adjacent to the road alignment

7.C.7.b.iii. Cross sections of the existing flow lines will be provided at 25m and 50m left and right at all existing and proposed culvert and bridge locations.

7.C.7.b.iv. Cross section drawings shall show the location and height of retaining walls.

7.C.7.c. Profile drawings of designed centerline alignment with the existing grade at this centerline.

7.C.7.d. Overall site key map that depicts project design area with respect to road system

7.C.7.e. Legends and notes

7.C.7.f. Drawing showing a typical cross-section:

7.C.7.f.i. Show pavement thickness, sub-base thickness, and ditching criteria

7.C.7.f.ii. Show cross slope

7.C.7.f.iii. show roadway widths

7.C.7.f.iv. Show the back angles, the slope that must be constructed from the road, based on the material type.

7.C.7.f.v. Show slopes tying into existing grade.

7.C.7.g. Detail drawings:

7.C.7.g.i. Detail drawings for all structures, erosion control, drainage ditching and any

other facilities incorporated into the design. Slopes shall be designed to be stable or shall be designed with retaining structures. Details of erosion structures and bridge structures shall include engineered foundations for anchoring and materials such as cement type and mix.

7.C.7.h. Structure design:

7.C.7.h.i. All components of the structures shall be designed and constructed to support, safely, all loads without exceeding the allowable stress for the materials of construction in the structural members and connections.

7.C.7.i. Geotechnical information:

7.C.7.i.i. Design analysis with geotechnical information, identification of in-situ material, selection of road construction materials, type, analysis of structures and other road features

7.C.7.i.ii. Design analysis shall include local hydrology calculations used to determine adequacy or upgrade of existing culverts and drainages, location of new drainage structures

7.C.7.i.iii. Types of drainage structures to be used and size calculations to provide adequate capacity shall be include

7.C.7.j. Material specifications:

7.C.7.j.i. Complete specifications for materials, techniques and equipment to be used in constructing the road, including mortar mixes, road gravels, aggregates, etc.

3.7.D. STRUCTURAL: The contractor shall provide designs, specifications, and analysis showing the reinforcement, concrete and bituminous asphalt placement and compaction test of soil.

7.D.1. GENERAL: The project may include erosion control structures, water diversion structures, box culverts, water crossing pavements, retaining walls or bridge structures.

7.D.2. BRIDGE AND CULVERT INSPECTIONS: All existing bridges shall be inspected for structural soundness, to ensure that each one can meet the required 12,000 kg loading. Upon completion of the bridge inspections, the Contractor shall determine if the bridge needs to be replaced, rehabilitated, or is adequate and provide their findings, along with the required technical analysis, as part of the 65%, 95% and 100% submittals. The Contractor's report shall include pictures, findings, analysis and recommendations that will clearly depict the condition of the bridge and actions needed, if any.

7.D.3. DEAD AND LIVE LOADS: Dead loads consist of the weight of all materials of construction incorporated in the structures. Live loads used for design shall be in accordance with the American Society of Civil Engineers, ASCE STANDARD or AASHTO whichever is more stringent, and Minimum Design Loads for Buildings and Other Structures, ASCE 7, edition as referenced herein.

7.D.4. WIND LOADS: Wind loads shall be calculated in accordance with ASCE 7 using a "3-second gust" wind speed of 125 km/hr. All facilities shall be classified as a minimum of Category II in accordance with Table 1-1 in ASCE 7, referenced herein.

7.D.5. SEISMIC: Structures and all parts thereof shall be designed for Seismic Zone 4. The computation of seismic loads shall be based on using Spectral Ordinates S_s =0.65g & S_1 = 0.25g.

7.D.6. STRUCTURAL STEEL: Structural steel shall be designed and constructed in accordance with the provisions of American Institute of Steel Construction (AISC). Design of cold-formed steel structural members shall be in accordance with the provisions of American Iron and Steel Institute (AISI) and Specifications for Design of Cold-Formed Steel Structural Members.

3.7.E. GEOTECHNICAL: Existing geotechnical information is not available for the road sites

included in the project. Any site-specific geotechnical data required to develop foundations, materials, earthwork, and other geotechnical related design and construction activities for this project shall be the Contractor's responsibility. The Contractor shall develop all pertinent geotechnical design and construction parameters by appropriate field and laboratory investigations and analyses.

3.7.F. CONSTRUCTION: Construction requirements include the following as a **minimum**:

7.F.1. Equipment shall be in good working order and shall be operated safely at all times.

7.F.2. Crusher material shall be hard rock. Shale, sandstone, mudstone and soft rock shall not be used for crushed material product.

7.F.3. Cement and mortar mixes shall be mixed proportionally as designed with a cement mixer. If cement is hand mixed, it shall be measured carefully and kept segregated from the adjacent ground area to prevent contamination.

7.F.4. All rock structures shall be mortared completely between each rock. Mortar shall not be allowed to dry out during the construction process.

7.F.5. Dry-stacked rock construction is not acceptable or allowed. All erosion control walls and structural elements constructed with rock shall be fully mortared. Loose rip rap without mortar may be used only for river embankment stabilization.

7.F.6. Mortar shall be a mix, by volume, of 1 part cement to 3 parts of damp, loose mortar sand. Enough water shall be added to make the mortar a workable consistency that is not too dry. Dried out mortar shall be discarded and shall not be re-used.

7.F.7. Road embankments adjacent to rivers shall be armored to prevent erosion.

-- END OF SECTION

SECTION 00010 - SOLICITATION CONTRACT FORM

The required response date/time has changed from 24-Jul-2009 05:00 PM to 29-Jul-2009 05:00 PM.

(End of Summary of Changes)