# AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

| 1. CONTRACT ID CODE | PAGE | OF | PAGES |
|---|---|---|---|
| | 1 | | 5 |

| 2. AMENDMENT/MODIFICATION NO. | 3. EFFECTIVE DATE | 4. REQUISITION/PURCHASE REQ. NO. | 5. PROJECT NO. (If applicble) |
|---|---|---|---|
| 0002 | 05/23/08 | | |

| 6. ISSUED BY | CODE | 7. ADMINISTERED BY (If other than Item 6) | CODE |
|---|---|---|---|
| CONTRACTING OFFICER<br>NAVAL RESEARCH LABORATORY<br>ATTN: CODE 3230.TA<br>WASHINGTON, DC 20375-5326 | N00173 | | |

| 8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) | (X) | 9A. AMENDMENT OF SOLICIATION NO. |
|---|---|---|
| | | N00173-08-R-TA04 |
| | | 9B. DATED (SEE ITEM 11)<br>05/09/08 |
| | | 10A. MODIFICATION OF CONTRACT/ORDER NO. |
| | | 10B. DATED (SEE ITEM 11) |
| 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 Offers [ ] is extended, [x] is not extended.

Offers 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 _____ 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 your 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 APPROPIRATION DATA (If required)

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

| CHECK ONE | |
|---|---|
| | 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. |
| x | 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.)

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) | |
|---|---|---|---|
| 15B. CONTRACTOR/OFFEROR<br>(Signature of person authorized to sign) | 15C. DATE SIGNED | 16B. UNITED STATES OF AMERICA<br>(Signature of Contracting Officer) | 16C. DATE SIGNED |

The purpose of this amendment is to answer questions from prospective offerors.

Question 1: To determine the appropriate size and layout of the gimbal assembly, it would be valuable to have more information on the overall dimensions, mass and CG payload. Can you provide us with more details regarding the 5 inch and 20 inch telescope tube assemblies? If the design of these assemblies is not yet finalized, estimates would be sufficient.

Answer 1: The 20 inch telescope is a Ritchey-Chretien telescope from RC Optical (RCOS). It is a standard item offered on their website. The dimensions, weight, etc. are available from the RCOS website; total weight equals 160lbs, carbon truss tube length is 50 inches, diameter is 24.8 inches. There will only be two smaller telescopes provided instead of three. These are also a commercially available item from Orion: Apex 127mm Maksutov-Cassegrain telescope tube; fl equals 1540mm; 14.5 inch tube assembly without mount; 8.6lbs.

Question 2: In the RFP you reference “Inductosyn” resolvers. Is the use of Inductosyns a requirement, or will other encoder technologies be considered?

Answer 2: Other encoder technologies will be considered as long as they can be demonstrated to meet the required resolution.

Question 3: In the RFP under the subject of “configuration:” there is a comment of the weight being “~500 pounds”. Will you entertain masses significantly higher than the 500 lbs? Is there an application requirement such as mobile or airborne that is a driver for a low mass solution?

Answer 3: There is no driver for a low mass solution. The gimbal will be in a fixed location on top of a building. Larger mass drivers will certainly be considered.

Question 4: The delivery schedule specified in the RFP is 180 days. The lead time for some of the long lead items involved in this effort can be as much as 16 to 20 weeks. A lower cost timeline to meet stated requirements is optimized at 10-12 months. Can offerer provide dual time line and associated cost?

Answer 4: The delivery schedule can be extended out to a maximum of 12 months. Dual time lines with different associated costs will also be considered.

Question 5: Can our bid be submitted electronically? The RFP states by mail or fax, but has no mention that electronic submission is acceptable.

Answer 5: Electronic submission of proposals is acceptable.

Question 6: Is the conduit GFE and is it large enough to pass the cables with connectors through it?

Answer 6: The conduit is GFE and will be large enough to pass the cables with connectors already attached. The control electronics will be located in a laboratory (climate controlled) underneath the dome on the 3rd floor of building 75. The cables will pass through a very large conduit from this room, through a roof penetration, and into the clamshell dome where the gimbal will be located.

Question 7: The 50mm Coude' optics will have a major axis of greater than 71 mm. Should the Coude' mount accommodate circular optics with a diameter of greater than 71mm?

Answer 7: Yes, the Coude' mounts should accommodate a circular optic as large as the major axis, unless this will cause an increase in cost of the Coude' path. If this leads to an increase in cost of the Coude' path, then NRL will back off on the requirement to accommodation of a circular optic of 50mm diameter.

Question 8: The boresight accuracy of 100urad requires boresight adjustments on at least 3 of the optics (all except the transmit optics). Will the GFE telescopes be provided with these boresight adjustment capabilities?

Answer 8: No, there will only be 2 GFE telescopes and the boresight adjustment mechanism is not GFE. The mount on the gimbal will need to have adjustment for this. The transmit optics will not be supplied to the gimbal manufacturer. The transmit optics will be installed by NRL after delivery at a later date.

Question 9: In order to accommodate the significant cable wrap without interference to the Coude' path, it is requested the Coude' path be injected on the azimuth axis?

Answer 9: It is acceptable for the Coude' path to be injected on the azimuth axis.

Question 10: Is it possible to demodulate above/below to replace the coaxial cables with fiber optic cables?

Answer 10: Two of the 50 ohm signal cables can be replaced with fibers. Two of the 75 ohm cables can be replaced with fibers. 75 ohm and 50 ohm coax cable with very small diameter and very pliable is commercially available.

If the number of cables in the internal cable assembly is too much, a relaxation of the requirement is possible. The first cable to eliminate would be one of the 25 wire cables with mil-spec connectors.

Please advise NRL on what you can do and if you would like to relax this requirement.

Question 11: To minimize gimbal weight and maximize stiffness, it is requested the mounting pad be designed as a reinforced barbette to provide the LOS necessary for

the gimbal, minimizing the height and weight of the azimuth housing. Is this acceptable?

Answer 11: This is acceptable as long as it does not interfere with the requirement for a riser. The gimbal will be installed on the roof of building 75 at CBD inside a clamshell type dome. It is required that the telescope in the gimbal be able to look at a certain down angle. The exact height of the riser will be determined to raise the telescope high enough to look over the edge of the fully opened clamshell dome.

Question 12: It is understood the 1 urad specification on the resolvers represents resolution and not accuracy. Is that correct?

Answer 12: That is correct…1 urad resolution.

Question 13: Is the environmental requirement of -30 degrees C for the gimbal only or does it also apply to the gimbal controls?

Answer 13: This temperature requirement is for the gimbal only. The control electronics will be located in a temperature controlled laboratory below the dome.

Question 14: To what resolution does the data for mount modeling have to be collected?

Answer 14: We would like the resolution of the measurements made on the bearing wobble and the non-orthogonality to be 25 microradians or better. We would like a minimum of 20 points per each rms measurement per axis and a minimum of 10 rms measurements made on at least two different days. All raw data should be supplied to NRL to use in modeling.

Question 15: Can NRL supply ICD's/Specifications/Data sheets for the EO sensors? Does the combined weight of the sensors equal 700 lb? Does NRL plan to supply these sensors for mechanical integration and testing by APS?

Answer 15: The EO sensors will be changed often depending on the current experiment plan. The EO sensors that NRL plans to attach have a combined weight that is much less than 700 lbs. The combined weight of the sensors will always be less than 50 lbs.

The manufacturer should supply 2 inexpensive Silicon based cameras (to be mounted on the 2 GFE telescopes) with sufficent pixel resolution to display the 100 urad boresight pointing alignment during acceptance testing. There should be a sufficient number of pixels so that a 100 urad angle covers greater than 2 pixels. The cameras should be left attached to the GFE telescopes and delivered with the gimbal.

Question 16: Meeting the maximum payload capacity of 700 lb will impact weight and cost of the gimbal system, in order to meet the 90 deg/sec2 acceleration requirement. Can this requirement be relaxed or is it firm?

Answer 16: Either or both of these requirements can be relaxed. The payload capacity and/or acceleration should be supplied to NRL before submitting the bid; however, moderate relaxations of these will be accepted.