



AOB CoDR & Contract Transition Preparation

GNAO-AOB2-PRES-006

April 27th, 2023

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GNAO Management Team



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APPROVED	<i>Approval on file</i> _____ Gaetano Sivo GNAO Principal Investigator	Date:	2023-04-27
APPROVED	<i>Approval on file</i> _____ Stephen Goodsell GNAO Project Director	Date:	2023-04-27



Change Record

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AOB CoDR & Contract Transition Preparation

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and
GNAO Management Team*



Summary



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CoDR & Downselect Process



Relevant Contract and Statement of Work references:

- Contract: *Article 1* and *Article 3*
- End-of-Stage Review: *SOW Section 12.5* page 30-31
- Conceptual Design Stage Review: *SOW Section 14.2* page 35
- Conceptual Design Downselect: *SOW Section 14.3* page 36-37



*SOW Section
12.5
page 31*

(g) Gemini shall select an external review committee chair and shall select the review committee members with the advice of the review committee chair, if so requested. NSF personnel may elect to attend the review.

(h) Each end-of-stage review shall not relieve Contractor of any responsibility for the successful completion of the Work outlined in the AOB Requirements. Similarly, no part of the review, including comments made during the review, can waive any of the AOB Requirements or relieve Contractor of any contractual obligations.

(i) Contractor shall deliver all end-of-stage documentation (see Contract Deliverables listed in Fig 4. in Appendix A) to AURA for distribution to the review committee at least four weeks before the end-of-stage review.

(j) Within 10 working days after the review:

- Contractor shall produce and deliver a Contractor Review Report to the GNAO Project Technical Representative.
- The review committee shall produce and deliver a Committee Review Report to the GNAO Project Technical Representative.

(k) Within 10 working days after receiving the Contractor Review Report and the Committee Review Report, the GNAO Project Technical Representative shall deliver:

- A Post-Review Report to the Contractor.
- A Project Executive Report to the Project Manager, containing a list of recommendations and proposed actions for the project. The GNAO Project Manager shall decide whether the GNAO AOB project can proceed to the next stage or whether to require additional work (including, possibly, an additional review) to correct identified shortcomings.



SOW Section
14.2
page 35-36

14.2 Conceptual Design Stage Review

(a) A month before the end of the Contract Phase A's Conceptual Design Stage, the contractor shall hold and conduct a Conceptual Design Review (CoDR).

(b) Additional entrance and exit criteria for the CoDR are contained within Appendix B (Section 20.2).

(c) The Phase A to Phase B Down-Select process is presented in section 14.3.

(d) The meeting shall be held either by video conferencing or on site (pending covid-19 travel restriction) as per Section 12.5, and shall include the full Contractor team and the full AOB team.

(e) Contractor shall present a conceptual design of the AOB and an envisioned path forward to the final design, build and implementation of the AOB, including the results of the review for:

- the updated AOB requirements, if applicable, as defined in the accompanying AOB Specification document [AD-01].
- all deliverables listed in Appendix A, Fig. 4.

(f) The Contractor shall review their compliance matrix to address all AOB requirements, shall identify any critical risk requirements and present a risk register to include mitigation strategies and schedule. The Compliance Matrix shall not be construed as giving the Contractor permission to deviate from the Specifications; i.e., all Specifications are mandatory and the Compliance Matrix only provides for an efficient means of disclosure of failures to meet the Specifications. The Compliance Matrix shall be accompanied by a report detailing any noncompliance noted, and any other technical or interface issues that will need to be resolved during the Critical Design effort. The report shall also describe the proposed methods of resolving these issues.

(g) Contractor and the GNAO Project Technical Representative shall agree upon a process for resolution of action items and close-out/planning of meetings and reviews to support the engineering design cycle.

(h) Contractor shall present the Contract Phase B Management Plan and Systems Engineering Management Plan for the remainder of the effort necessary to design, fabricate, integrate, test, deliver, and install GNAO on Gemini North, and shall clearly identify personnel, approach to

work, schedule, and major milestones. The meeting shall also serve to converge on expectations for following meetings content, reviews responses, reports content and format. Contractor shall also present an updated Risk Register and Risk Management Plan.

(i) Contractor shall document their presentation along with unresolved questions and issues. Contractor shall submit agendas and provide all supporting presentation materials at least 5 business days in advance of the CoDR.

(j) As per Section 12.5 (j) and (k), Contractor shall submit a Contractor Review Report to the GNAO Project Technical Representative, including a summary of the CoDR discussions and a list of action items. The Contractor shall include their responses to items raised by the GNAO Project Technical Representative and the GNAO team in this summary.



SOW Section
14.3
page 36-37

14.3 Conceptual Design Stage Down-select Process

(a) Gemini shall provide Contractor with a set of selection criteria at or shortly after the Conceptual Design Stage Kickoff meeting.

(b) Gemini shall select the review committee chair and review committee members and send Contractor a list of their names by no later than eight weeks before the conceptual design review. Contractor shall have 10 days to notify the GNAO Project Technical Representative of any conflicts of interest it has to any review committee member.

(c) A common target date for the competing teams to have finished their scheduled work and submitted their Conceptual Design Review documentation shall be agreed upon by Gemini and the competing Contractors.

(d) Contractor shall deliver the Conceptual Design Stage documents to Gemini at least four weeks before the CoDR.

(e) Contractors shall not be allowed to see the competing teams' CoDR documentation. This material shall only be available to the review committee and Gemini.

(f) The CoDR shall be held at the Gemini Base Facility, Hilo, and last two days.

(g) The review committee shall use the selection criteria provided pursuant to item (c) above to evaluate the Conceptual Design Documents.

(h) The results of the CoDR process shall not relieve the Contractor of any responsibility for the successful completion of the Work in conformity with the AOB Statement of Work. Similarly, the committee report, including comments made during the review, cannot waive any of the GNAO AOB Requirements or relieve Contractor of any obligations under this Contract.

(i) As per Section 12.5 (j) and (k), the review committee chair shall submit a written committee report to Gemini giving the committee's recommendations on how to proceed with the project.

(j) After receiving the committee recommendations, Gemini may meet with the Contractor, either in person or via videoconference, to discuss and seek clarifications regarding the CoD Documentation before making a final selection.

(k) Gemini shall make a final selection based on the review committee recommendations and any clarifications provided during follow-up meetings with Contractor. In consultation with its governance, AURA shall make the final decision on how Gemini will proceed.

(l) AURA reserves the right to cancel this GNAO AOB contract after the Conceptual Design Stage at its sole discretion.



SOW Section 12.5

Review Committee:

- Corinne Boyer
- Simone Esposito
- Tim Morris (chair)
- Jim Oschmann
- Steve Smee
- Gelys Trancho

Review Facilitators:

- Celia Blain
- Claudio Gaspar
- Stephen Goodsell
- Gaetano Sivo
- Manuel Lazo

All AOB teams have been consulted to confirm they did not identify potential Cols with any of the proposed Review Committee members.

Each Review Committee member will be asked to sign a Col and NDA form before delivery of the CoDR documentation and participation to the review.

Potential Observers:

Jen Lotz (Gemini Director), Scott Dahm (Gemini Associate Director), Martin Still (NSF), Chris Davis (NSF), Brittany Ochs (GNAO CAS Contract Officer), Steve Howell (Gemini Board of Directors), Martin Tschimmel, Kim Tomasino-Reed, Brian Chinn.



CoDR – Event table for TNO



Event	Date/Deadline/Status/Notes	Contract/Sow Ref.
CoDR Review Committee Selection	10 April 2023 - Completed	SoW 14.3b
Contractor Conflict of Interest Declaration	24 April 2023 - Completed	SoW 14.3b
Phase A Deliverables Due	May 9 (midnight Hilo time)	SoW 14.3d
Review Committee RIX due for TNO team RIX posted on TNO Team Drive RIX answers provided by TNO	May 24 (midnight Hilo time) May 25 May 30	
CoDR Agenda + Presentation Due	May 30 (midnight Hilo time)	SoW 14.2i
Conceptual Design Review	June 5: Review Committee only June 6: TNO (summit tour June 7) June 9: Review Committee only	Article 1, 3., SoW 14.2a
Review Committee and AOB teams Reports Due	June 20: TNO (midnight Hilo time) June 23: Review Committee	SoW 12.5j
End of Phase A Contract	Currently: June 30 2023 End date to be extended to September 30th 2023 through a No-Cost Extension contract amendment.	Article 3.4
Post-Review Report & Project Executive Report Due	7 July 2023	SoW 12.5k

Note: the dates of the 3 teams' CoDR were based on both the contract signed date and the contract start date.



CoDR – Event table for ABB



Event	Date/Deadline/Status/Notes	Contract/Sow Ref.
CoDR Review Committee Selection	10 April 2023 - Completed	SoW 14.3b
Contractor Conflict of Interest Declaration	24 April 2023 - Completed	SoW 14.3b
Phase A Deliverables Due	May 10 (midnight Hilo time)	SoW 14.3d
Review Committee RIX due for ABB team RIX posted on ABB Team Drive RIX answers provided by ABB	May 25 (midnight Hilo time) May 26 May 31	
CoDR Agenda + Presentation Due	May 31 (midnight Hilo time)	SoW 14.2i
Conceptual Design Review	June 5: Review Committee only June 7: ABB (summit tour June 8) June 9: Review Committee only	Article 1, 3. SoW 14.2a
Review Committee and AOB teams Reports Due	June 21: ABB (midnight Hilo time) June 23: Review Committee	SoW 12.5j
End of Phase A Contract	Currently : June 30 2023 End date to be extended to September 30th 2023 through a No-Cost Extension contract amendment.	Article 3.4
Post-Review Report & Project Executive Report Due	7 July 2023	SoW 12.5k

Note: the dates of the 3 teams' CoDR were based on both the contract signed date and the contract start date.



CoDR – Event table for Astralis



Event	Date/Deadline/Status/Notes	Contract/Sow Ref.
CoDR Review Committee Selection	10 April 2023 - Completed	SoW 14.3b
Contractor Conflict of Interest Declaration	24 April 2023 - Completed	SoW 14.3b
Phase A Deliverables Due	May 11 (midnight Hilo time)	SoW 14.3d
Review Committee RIX due for Astralis team RIX posted on Astralis Team Drive RIX answers provided by Astralis	May 26 (midnight Hilo time) May 27 June 1	
CoDR Agenda + Presentation Due	June 1 (midnight Hilo time)	SoW 14.2i
Conceptual Design Review	June 5: Review Committee only June 8: Astralis (summit tour June 9) June 9: Review Committee only	Article 1, 3. SoW 14.2a
Review Committee and AOB teams Reports Due	June 22: Astralis (midnight Hilo time) June 23: Review Committee	SoW 12.5j
End of Phase A Contract	Currently: June 30 2023 End date to be extended to September 30th 2023 through a No-Cost Extension contract amendment.	Article 3.4
Post-Review Report & Project Executive Report Due	7 July 2023	SoW 12.5k

Note: the dates of the 3 teams' CoDR were based on both the contract signed date and the contract start date.



- A dedicated Google Team Drive will be created for each team.
- The teams will be asked to upload materials to their drive (Documentation Set, Presentations, etc)
- Gemini will share the format of the RIX spreadsheet before the Phase A documentation delivery deadline.
- Gemini will upload a copy of a completed RIX spreadsheet. Please see dates per team in Slides 11 to 13.
- The completed RIX spreadsheet will contain a combinations of entries from the Review Committee and from Gemini - questions will be vetted by the GNAO Management Team.
- Any unanswered RIXs should be covered in the presentations.



- As per the SOW, *Section 12* and *14.2*, each team is responsible to define the Agenda of their CoDR.
- Additionally, each team should prepare their agenda with the following constraints:
 - o Morning Review Committee closed session: 8:00 am - 8:20am (HST)
 - o Meeting start : 8:20 am
 - o Meeting end: 5:00 pm
 - o Afternoon Review Committee closed session: 5:00 pm - 5:30 pm
 - o Allow for 1h lunch break
 - o Allow for 20 min morning and afternoon coffee breaks
 - o Review should have time reserved to address/discuss unanswered RIXes.
 - o Review should reserve some time for additional questions and/or discussion.



CoDR – Week organization



- Gemini will cater for light refreshments before the start of the meeting. Teams can plan to arrive 30 min before the beginning of the day for coffee, pastries and fruits.
- Gemini will cater for lunch and the 2 coffee breaks during the day.
- Lunch will be served on the lanai at the Hilo Base Facility. Team should provide dietary restrictions in advance.
- Gemini will not provide, or join teams, for dinner.
- CoDR will be held at Gemini Hilo Base Facility, in the HBF-X Conference room.
- Zoom connection will be available for remote attendees.
- An additional separate office/meeting room space will be made available for the contractors use during their CoDR day.
- Access to Gemini building require a card. Upon arrival, the AOB teams should sign in at the reception and get a visitor card for the day. All cards must be returned at the end of the day before departure.
- **Visitors will have to sign additional liability waivers.** They will be sent by email ahead of the review.



- Tours of the summit are being organized for each team. For a given team, their summit tour will be scheduled on the day following their CoDR.
- For each team, Gemini will provide one of Gemini's vehicle, a driver and a tour guide. Three members of the contractor team will be able to go in the car. If the contractor team want to send more people on their tour, they must handle transportation of the additional team members to the summit.
- Note: Most rental companies in Hilo **do not allow car/truck rental to be driven to the summit.**
- A known exception is **Sunbelt Rental**. They currently have 2 pickup trucks available for that week. Cost is 225\$/day/car (www.sunbeltrentals.com / phone: 808 969 1478). **National Car Rental** might also allow vehicles to be driven to the summit. Teams should inquire directly with National for more detail.
- Above Hale Pohaku, the Mauna Kea access road is a **dirt road**. Teams should have a person with dirt-track experience available to drive their rental vehicle. Gemini will not provide a driver for the additional rental cars.
- The tour should last ~6-8h (including driving time, mandatory 30-min stop at HP on the way up, safety briefing, tour and lunch).
- Detail of the tours' departing time will be provided during the CoDR week. Gemini will organise lunch the day of the tour.

* Pending on Gemini's "Return to Operations" schedule.



After the CoDR:

SOW Section 12.5 page 31

(j) Within 10 working days after the review:

- Contractor shall produce and deliver a Contractor Review Report to the GNAO Project Technical Representative.
- The review committee shall produce and deliver a Committee Review Report to the GNAO Project Technical Representative.



Reports due date:

June 20: TNO

June 21: ABB

June 22: Astralis

June 23: Committee

The Contractor's reports should contain: (see also SOW *Section 14.2 (j) page 36*)

- A summary of the CoDR discussions.
- The answers to all outstanding questions asked to the contractors at the review.
- The answers to any unanswered RIX entries and entries flagged as "Closed with Action".
- The answers to all questions prepared at the Review Committee closed session on June 9th
→ all additional questions to the contractor teams will be transmitted by email on June 12th.
- A list of action items, if any, to resolve before the end of June 2023.

The Review Committee report should contain a set of recommendations based on:

- Technical and programmatic viability.
- Assessment against the provided evaluation criteria.



After the CoDR:

SOW Section 12.5 page 31

(k) Within 10 working days after receiving the Contractor Review Report and the Committee Review Report, the GNAO Project Technical Representative shall deliver:

- A Post-Review Report to the Contractor.
- A Project Executive Report to the Project Manager, containing a list of recommendations and proposed actions for the project. The GNAO Project Manager shall decide whether the GNAO AOB project can proceed to the next stage or whether to require additional work (including, possibly, an additional review) to correct identified shortcomings.

Reports due date:
July 7 2023



- The Project Executive Report will be based on the internal and external evaluations of the proposed conceptual designs, the technical and programmatic aspects of the phase B proposals and the advancement of the Phase B contract negotiations (as per the selection criteria presented at the KOM).
- Once the GNAO Project Manager reviews the Project Executive Report, the GNAO PM and GNAO Project Director will submit the report to the Gemini Director.
- Based on recommendations contained within the Committee Review Report, the Project Executive Report and the maturity of the Phase B contract amendments, the Gemini Director will select one of the three teams to continue to Phase B, pending approval from the Gemini Board, the AURA Board and the National Science Foundation.



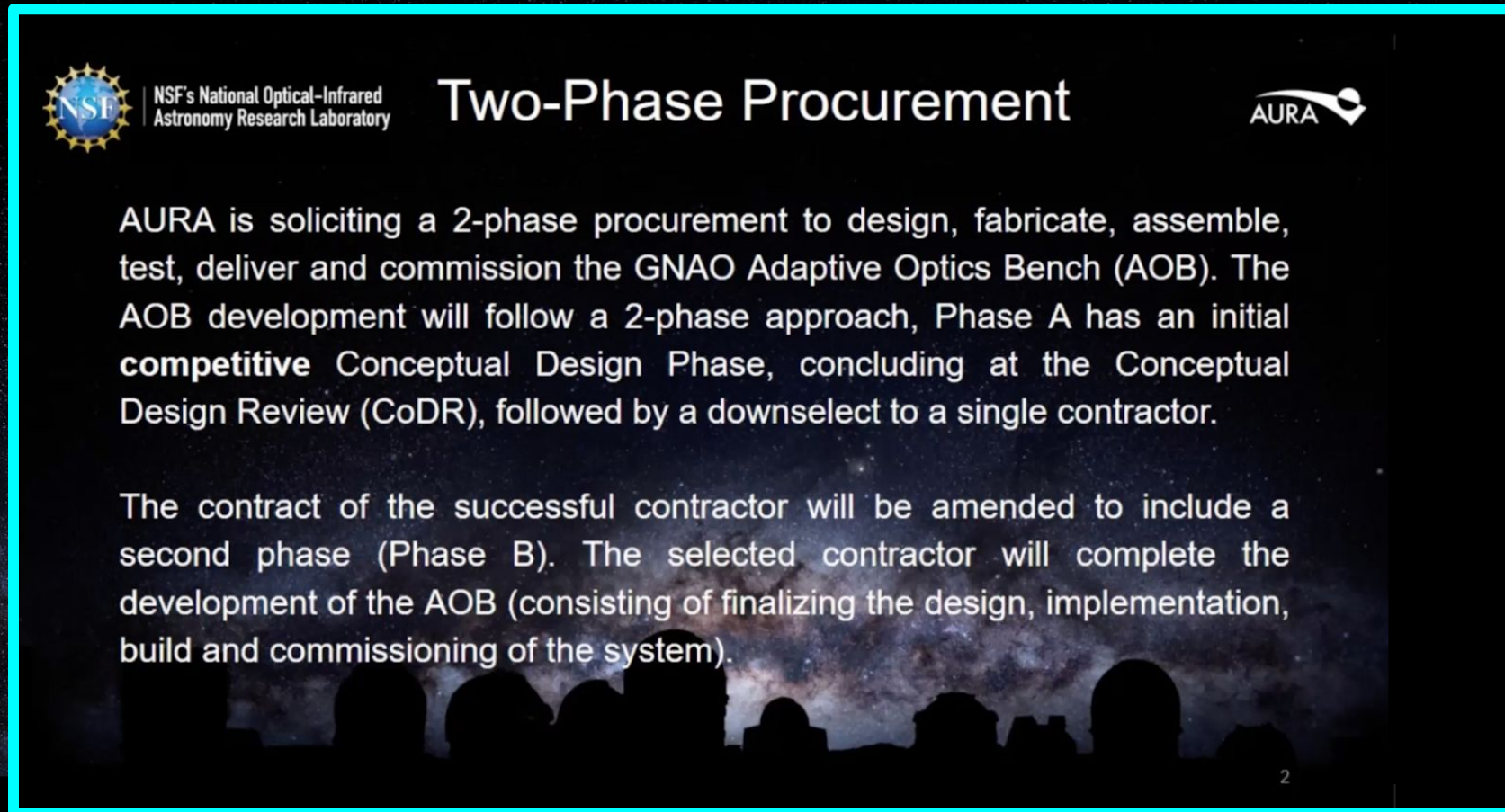
- Currently, all 3 teams' contracts **end on June 30th, 2023**.
- An expired contract cannot be amended. Thus, to ensure that all 3 teams can potentially have their contract amended after June 30th, 2023, AURA has sent a No-Cost Extension Contract Amendment to the 3 teams for signature.
- These contract amendments will extend the duration of the Phase A contract to a new “End of Contract” date of **September 30th 2023**.




- Once the Gemini Director select a team, AURA will notify the team and, if needed, enter a period of negotiation. Once any required negotiations are completed, changes to the Phase B amendment will be drafted and agreed in principle.
- If an amendment cannot be agreed in a timely manner, Gemini may decide to approach and pursue an alternative team.
- A document package including the contract amended will be submitted to the Gemini Board, the AURA Board and the NSF for approval.
→ Based on experience, it could take up to 8 weeks to obtains all required approvals. This potential lag has motivated the request to implement the No-Cost Extension amendments mentioned in the previous slide.
- Once all approvals have been received, the Phase B contract amendment will be signed and fully executed.
- AURA will notify the 2 teams that have not been selected. The contracts for these 2 teams will expire on September 30th 2023, as per the updated 'Final Delivery [End of Project]' date entered in the No-Cost Extension amendments.




As a reminder, the following slide was presented by Daniel Calabrese during the Bidder's Conference (held on October 28th 2021) regarding the two-phase procurement process:

A slide titled 'Two-Phase Procurement' with a cyan border. It contains the NSF and AURA logos, and two paragraphs of text. The background of the slide shows a silhouette of astronomical observatories against a starry sky with the Milky Way.

 NSF's National Optical-Infrared
Astronomy Research Laboratory

Two-Phase Procurement

 AURA

AURA is soliciting a 2-phase procurement to design, fabricate, assemble, test, deliver and commission the GNAO Adaptive Optics Bench (AOB). The AOB development will follow a 2-phase approach, Phase A has an initial **competitive** Conceptual Design Phase, concluding at the Conceptual Design Review (CoDR), followed by a downselect to a single contractor.

The contract of the successful contractor will be amended to include a second phase (Phase B). The selected contractor will complete the development of the AOB (consisting of finalizing the design, implementation, build and commissioning of the system).

2



Important Reminders (1/5)



Document deliverables for CoDR: (see [SOW Section 7](#) and [Appendix A Figure 4](#))

- The Conceptual Design Document (CoDD), accompanied by any relevant engineering files, will cover the AOB Conceptual Design deliverable.
- Additionally, the following 5 documents will constitute the updated Phase B proposal:
 - Project Management Plan (PMP),
 - Systems Engineering Management Plan (SEMP),
 - Requirements Document (RD),
 - Requirements Compliance Matrix (RCM),
 - CoDS End Stage Report.
- The updated Phase B proposal also includes any changes to the contract for Phase B. All needs to be evaluated.

Phase	Document ID	Document Filename	Stage				
			CoD	PD	CD	IIV&V	TTO
DESIGN	XXXX-AOB-PMP	Project Management Plan (PMP)	√ CC	√	√	√	√
	XXXX-AOB-SEMP	System Engineering Management Plan (SEMP)	√ CC	√	√	√	√
	XXXX-AOB-SMP	Safety Management Plan (SMP)		√ D	√ CC	√	√
	XXXX-AOB-RD	Requirements Document (RD)	√ D	√ D	√ CC	√	√
	XXXX-AOB-RCM	Requirements Compliance Matrix (RCM)	√ D	√ CC	√	√	√
	XXXX-AOB-FMEA	Failure Modes and Effects Analysis Document (FMEA)	√ D	√ CC	√ D	√ CC	√
	XXXX-AOB-CoDD	Conceptual Design Document (CoDD)	√ CC				
	XXXX-AOB-EoS-CoD	CoDS End Stage Report	√ CC				

Appendix A
Figure 4 extract



Important Reminders (2/5)



To clarify, **we are not expecting to receive an updated version of your Phase A proposal.**

→ The Phase B proposal will consist of the documents shown on Slide 24 (see also *SOW Section 14.2 (e), (f) and (h) and SOW Fig 4 in Section 19 Appendix A*), changes to the contract (including the statement of work) and any additional information that the teams feel is important to communicate for evaluation.

→ If the information doesn't fit into one of the stated documents, then we will accept additional documentation.



Important Reminders (3/5)



Fly Act America: (see *Contract Appendix 2, Section 4*)

As per the Contract, teams should follow guidance related to the **Fly America Act** to book their flights to come to Hilo for the CoDR.

American airline companies should be used to come to Hawaii.

Depending on your country of origin, the following additional companies can also be used:

- France: Air France
- The Netherlands: KLM
- Australia: Qantas

Important Reminders - Downselect Criteria ^(4/5)

SoW 14.3a

Phase A
-
Programmatic Performance

Phase A
-
Technical Performance

Phase B
-
Programmatic Plan

Phase B
-
Technical Plan

Phase B
-
Contract Maturity

→ Down selection criteria were provided at the Kick Off Meeting

Important Reminders - Downselect Criteria ^(5/5)

SoW 14.3a

Phase A Programmatic Performance

Programmatic evaluation based on Phase A performance considering the phase A statement of work and Phase A proposal. Performance factors: project interactions, reporting, the SRR and CoDR (materials and presentations).

Programmatic areas of consideration include:

- Scope
- Cost
- Schedule
- Communication
- Risk
- Resources
- Quality
- Stakeholders

Phase A Technical Performance

Technical evaluation based on Phase A performance considering the phase A statement of work and Phase A proposal. Performance factors project interactions, reporting, the SRR and CoDR (materials and presentation). Technical areas of consideration include:

- Proposed Conceptual Design
- Systems Engineering
- SOW & specs understanding
- Requirements derivation & mngt
- Internal/Ext. Interfaces definition
- Documentation quality
- Configuration mngt
- Trade-off & studies

Phase B Programmatic Plan

Programmatic evaluation based on Phase B plans considering the Phase B statement of work. Including information contained within the Project Management Plan. Programmatic areas of consideration include:

- Scope
- Cost
- Schedule
- Communication
- Risk
- Resources
- Quality
- Stakeholders
- Procurement

Phase B Technical Plan

Technical evaluation based on Phase B plans considering the Phase B statement of work. Including information contained within the Systems Engineering Management Plan and the planned evolution of design.

Technical areas of consideration include:

- Technical solution
- SE methodologies
- Requirement mngt
- Quality mngt
- Configuration mngt
- Interface mngt
- Integration plan
- Facilities

Phase B Contract Maturity

Contract maturity evaluation based on agreement and pre-approval of Contract and Statement Work contract amendments required for Phase B.

Proposal overall acceptability will be based on the contract terms being acceptable by AURA.

→ **The level of advancement of contract negotiation for Phase B will be heavily considered in selection.**

→ The AOB work package is on the **critical path** of the GNAO project. As a result, having a smooth and **rapid transition between Phase A and Phase B is critical for the project**

→ Contractors competing in Phase A are asked to work with CAS during Phase A in order to finalize Phase B's contract negotiation by the CoDR.