

**SCOPE OF WORK FOR  
Co-Knowledge Production Historic Property and Habitat Assessments on Navy Coastal  
Submerged Lands for the Island of Guam  
NUMBER N40192-18-2-8008**

**TABLE OF CONTENTS**

**SECTION  
LETTER**

SECTION	TITLE	PAGE
A	INTRODUCTION	2
B	PURPOSE	2
C	LOCATION	2
D	DESIGNATED REPRESENTATIVES	4
E	PERIOD OF PERFORMANCE	4
F	MATERIAL FOR REVIEW	4
G	GENERAL REQUIREMENTS	4
H	SPECIFIC REQUIREMENTS	8
I	MEETINGS/COORDINATION	9
J	SUBMITTALS & SCHEDULES	9
K	DATA & PUBLICATIONS	13
L	RELEASE OF INFORMATION	14
M	SAFETY	14
N	HOLD HARMLESS	14
O	PAYMENTS	15
P	EXEC COMPENSATIONS& SUBCONTRACT REPORTING	15
ATTACHMENT A	INSURANCE REQUIREMENTS	18
ATTACHMENT B	REPORT FORMAT	20
ATTACHMENT C	WAWF INSTRUCTIONS	22
ATTACHMENT D	NAVFAC STANDARDS FOR GEOGRAPHIC INFORMATION SYSTEM	24
ATTACHMENT E	SPECIFICATIONS FOR GIS LAYERS AND ATTRIBUTES	29

## **A. INTRODUCTION**

The JRM AOR encompasses numerous islands throughout Micronesia. This project will focus on Navy coastal submerged lands around the island of Guam. Section 110 of the National Historic Preservation Act requires JRM to inventory Navy lands for historic properties. Guam possesses a diverse history of maritime activity dating back to more than 3000 years and was the location of intense conflict during World War 2 (WWII). This project also supports Navy efforts to meet requirements of the Endangered Species Act; MSFCA (EFH), EO 13089, CNO Ltr ser. N45D/BU589139 (4 Dec 98), Coral Reef Conservation Act, Aquatic Nuisance Prevention and Control Act, EO 13112, EO 13158, CZMA, CWA, EO 12962, Sikes Act; DoD Inst 4715.03, and OPNAV Inst and Manual 5090. 2017 JRM INRMP (Determine Reef Resilience, Ecosystem Monitoring and Coral Reef Indicators, Animal Telemetry Network).

The objective of this project is to complete a co-knowledge production that provides both (1) coral habitat identification and quantification of structural characteristics using cutting edge technology and (2) locates, identifies, and evaluates underwater cultural heritage sites and in coastal Navy submerged lands. It is anticipated that a phased approach spanning multiple fiscal years may be necessary.

## **B. PURPOSE**

This Cooperative Agreement (hereafter: Agreement) includes the following requirements:

This project will provide an informative co-knowledge production concerning both cultural and natural resources present in Navy submerged lands.

Three baseline questions relative to coral assemblages guide the tasks outlined in this SOW:

- 1) What coral species are located in Navy coastal submerged lands?
- 2) What are the minimum abundance estimates and/or size class estimates for these coral assemblages?
- 3) Are there unknown underwater cultural heritage sites to be accounted for in Navy coastal submerged lands around Guam?

## **C. LOCATION**

The location for the performance of this Agreement is coastal Navy submerged lands around the island of Guam (Figure 1).

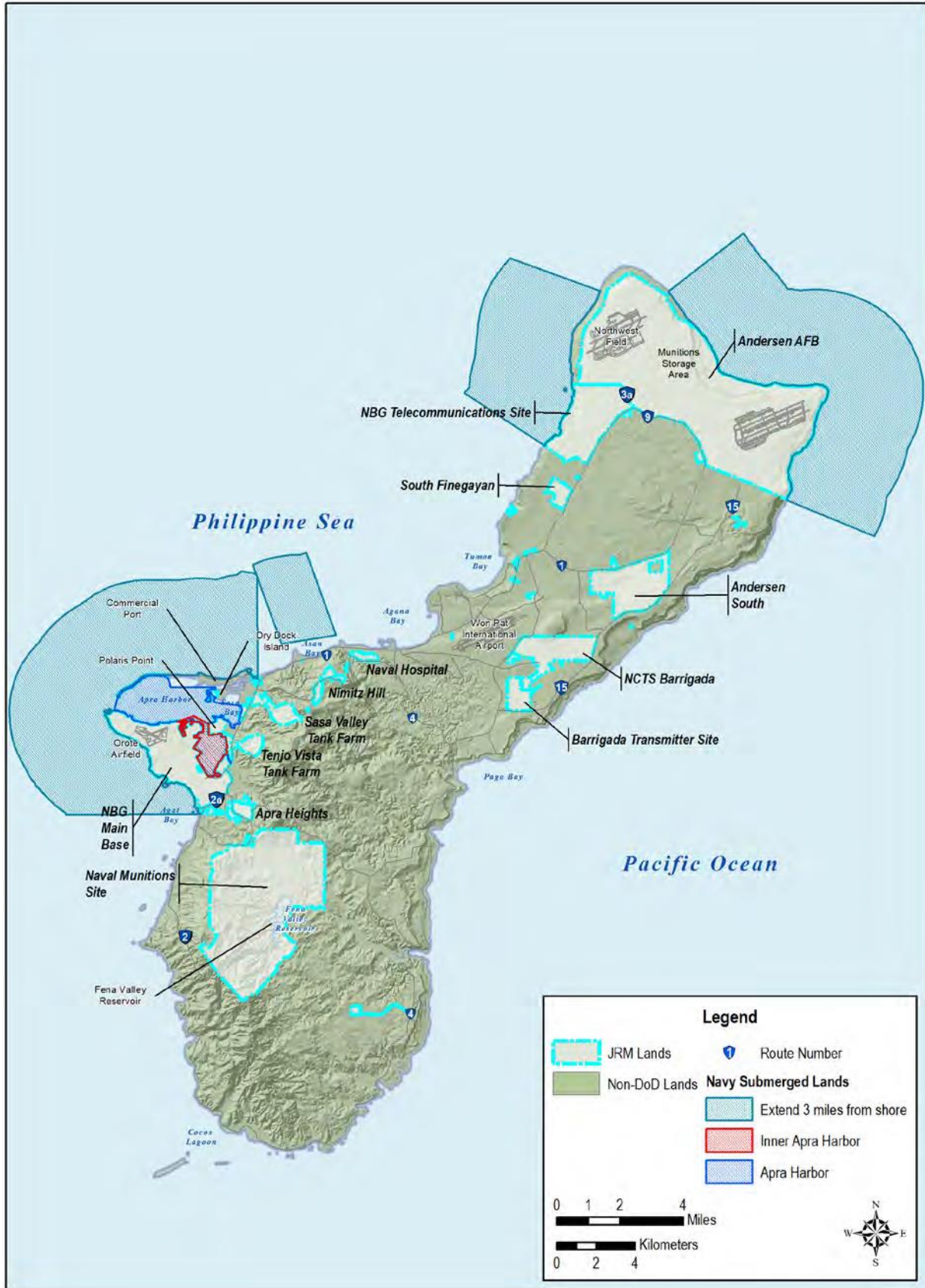


Figure 1: Navy submerged lands around the island of Guam

#### **D. DESIGNATED REPRESENTATIVES**

1. The Grants Officer is Eugene Diaz, Acquisition Director, Naval Facilities Engineering Command, Marianas, PSC 455, Box 195, FPO AP GU 96540-2937, email: [Eugene.Diaz@fe.navy.mil](mailto:Eugene.Diaz@fe.navy.mil).
2. The Cooperative Agreement Contract Specialist is Thelman Mark Fontenot, Acquisition Director, Naval Facilities Engineering Command, Marianas, PSC 455, Box 195, FPO AP GU 96540-2937, email: [thelman.fontenot@fe.navy.mil](mailto:thelman.fontenot@fe.navy.mil).
3. The Cooperative Agreement Technical Representative (CATR) is officially designated by the Grants Officer, and is responsible for monitoring the Recipient's performance, in accordance with the terms and conditions of the Agreement.
  - a. The CATR shall be the first point of contact of the Recipient of the Agreement concerning issues/concerns regarding any of the requirements and specifications of this agreement, including base access and project site issues. The CATR for this agreement shall be Mr. William Shawn Arnold, Archaeologist, NAVFAC Marianas Guam, Joint Region Marianas Environmental; PSC 455, Box 195, FPO AP 96540-2937; Telephone: (671) 349-1104; Email: [william.arnold@fe.navy.mil](mailto:william.arnold@fe.navy.mil).
  - b. The Assistant CATR shall be the point of contact of the Recipient of the Agreement concerning issues/concerns regarding any of the requirements and specifications of this agreement, including base access and project site issues in relation to endangered species. The CATR for this agreement shall be Mr. Andres Joshua Reyes, Natural Resources Marine Specialist, NAVFAC Marianas Guam, Joint Region Marianas Environmental; PSC 455, Box 195, FPO AP 96540-2937; Telephone: (671) 333-1104; Email: [andres.reyes@fe.navy.mil](mailto:andres.reyes@fe.navy.mil).

#### **E. PERIOD OF PERFORMANCE**

The period of performance will depend upon the individual proposals received, but the Government anticipates an initial period of performance for the Agreement to be eighteen (18) months starting from the date of award. Subject to the Anti-Deficiency Act (31 U.S.C. § 1341), additional funding may be available for 2 (12-month) option periods.

#### **F. MATERIAL FOR REVIEW**

Recipient and/or his/her representative(s) will have access to the following materials through the CATR. The recipient shall pay for or replace any items borrowed that are damaged, stolen or lost:

- External hard drive of relevant information

#### **G. GENERAL REQUIREMENTS**

1. The Recipient shall provide all transportation, meals, and lodging for himself/herself and his/her personnel and all equipment necessary to complete the work.

2. The Recipient shall manage the total work effort and assure fully adequate and timely completion of services required under this Agreement.

All work conducted under this Agreement shall conform to the requirements of the SOW. The Recipient shall assign an appropriate number of PIs for this Agreement, who shall be responsible for overseeing on a day-to-day basis necessary activities of the project. The PI's oversight of the project includes monitoring and controlling project costs, assigning personnel consistent with the Agreements requirements, understanding and assuring compliance with applicable Federal, DoD, and DON natural resource and environmental policies and regulations and their state counterparts, and other applicable or relevant and appropriate requirements, shall be the first in line of control in ensuring that information/data obtained for the project are of high quality and accuracy, and shall be responsible in keeping quality control and assurance inspections activities and record keeping of these inspections.

Due to the complexity of the work, the Recipient shall provide the following key personnel with the following minimum qualifications:

- A. Principle Investigator (PI) marine science: The PI shall meet the following requirements:
  - Possess at least a Doctorate (PhD) degree specializing in oceanography, marine biology, ecology, or a related field
  - At least two (2) years of PI or Project Manager (PM) professional work experience in the field of identification and quantification of structural characterization
  - At least two (2) years of experience working in the Pacific region and a familiarity with marine identification in the Mariana Islands
  
- B. Principle Investigator (PI) maritime archaeology: The PI shall meet the following requirements:
  - Possess at least a Doctorate (PhD) degree specializing in archaeology specializing in maritime, marine, or nautical archaeology
  - At least two (2) years of PI or Project Manager (PM) professional work experience in the field of maritime archaeology or other related field with at least two years of experience in conducting and reporting on archaeological remote sensing surveys and management of maritime archaeology projects and outreach related projects, preferably with WWII research experience
  - At least two (2) years of experience working in the Pacific region and a familiarity with the maritime history Mariana Islands
  - At least 2 years' experience conducting National Register of Historic Places evaluations for underwater cultural heritage sites.
  
- C. Marine Biological Field Technicians/Lab Technicians: In working with the PI, these individuals shall: provide field and laboratory support services; conduct structural characterizations; conduct scientific review of literatures; assist in the preparation of field and lab activities, logistics and field/lab equipment; manage the project's files, including field/lab notes and database; assist in the preparation of materials for project meetings; and other duties as assigned.
  - Bachelor of Science or Bachelor of Arts degree in oceanography, biology, ecology, or a related field

- These individuals shall have at least one (1) year of experience working on characterization projects, and possess a familiarity with coral identification in the Mariana Islands
- At least one year of experience conducting identification and quantification of corals

D. Archaeological Field Technicians/Lab Technicians: In working with the PI, these individuals shall: provide field and laboratory support services; conduct archaeological remote sensing surveys; interpret archaeological remote sensing data; conduct scientific review of literatures; assist in the preparation of field and lab activities, logistics and field/lab equipment; manage the project's files, including field/lab notes and database; assist in the preparation of materials for project meetings; and other duties as assigned.

- Master of Science or Master of Arts degree in maritime archaeology, nautical archaeology, or a related field
- These individuals shall have at least two (2) years of experience working on maritime archaeological remote sensing surveys; possess a demonstrated knowledge of marine remote sensing methodology and equipment; and possess a knowledge of the maritime archaeological record of the Mariana Islands

3. The recipient shall provide the Grants Officer (via the CATR) the names of persons and copies of their resumes being considered for work under this Agreement. After resume submission, the Recipient shall not replace or substitute any submitted personnel member without requesting to substitute, providing name and copy of resume for proposed substitute and receiving prior written approval by the Grants Officer for the substitution.
4. **Substantial Involvement by the Government.** In reference to this Agreement, substantial involvement is required between the DON and Recipient during the period of performance based on the requirements prescribed in the scope of work. The anticipated involvement between the CATR and PI is deemed appropriate to carry out a public purpose of support to include a direct benefit to the Government.
  - i) Advise Recipient, as needed, in preparing scientific articles destined for peer-reviewed journals;
  - ii) Provide relevant maps and information pertaining to study sites, to include data and literature generated from previous similar control projects;
  - iii) Will assist with field activities and coordination with Base security to ensure safety procedures are met;
  - iv) Will facilitate access to DoN lands and facilitate any required passes;
  - v) Will assist with plan of action and milestones (POAM development);
  - vi) Will accompany Recipient during development and implementation of this co-knowledge production as often as necessary, to ensure quality control, efficacy of actions, and;
  - vii) Will conduct meetings with Recipient to determine if milestones are met
5. All work conducted in support of this Agreement shall comply with all federal and territorial laws applicable to JRM.

6. All parties involved in this Agreement agree to comply with all applicable laws and regulations pertaining to the provision of safe and respectful workplace and to provide a work environment free of harassment and intimidation for such party's own employees and third parties.
7. At no cost to the Government, the Recipient shall be in possession of all necessary permits or certifications necessary to conduct the activities stipulated in the Agreement.
8. All field notes, and forms, electronic storage of field data, photographs, etc. collected and produced as part of this Agreement are property of the DON and shall be provided to the CATR upon request.
9. The data obtained during this Agreement shall be scientifically defensible and suitable for publication. All methods of data collection and analyses shall be standardized with previous studies conducted by the Recipient under past Agreements for this type of work, or when appropriate, analyzed using acceptable new or improved methods as determined in current scientific literature(s). If changes in analyses make results unfit for comparison with previously collected data, the Recipient shall reanalyze all appropriate data sets for comparison. The Grants Officer shall approve (via the CATR) in advance any changes to previously used experimental designs, methods of data collection and/or analysis, which shall be provided in the Recipient's required Work Plan. The CATR at their discretion, may subject draft work plans, draft reports or draft manuscripts to external peer review.
10. Throughout the term of this Agreement the CATR shall be afforded the opportunity by the Recipient to periodically observe the Recipient's field activities, to review computer or paper files of raw data, prepared data (such as data analyses, summaries, maps, figures, tables, etc.), or any record deemed appropriate by the Grants Officer in establishing the Recipient's performance in fulfilling the requirements of this Agreement.
11. The DON, via the Grants Officer, may request updated data presented on maps, figures and/or tables whenever the DON's need to obtain this information is before the next report required under Section J of this Agreement. The Recipient shall forward the requested data electronically within ten (10) days from the date of request. If the requested data cannot be provided within this time frame, the Recipient shall forward electronically the most updated raw data to the Grants Officer, via the CATR. The DON understands that facilitating the most updated requested data may reduce the amount of work that would normally be accomplished during the period of time required to complete the request. The Recipient shall document the amount of efforts and its translated cost estimate that would have been incurred by the Recipient to complete the request for updated data. This document shall be electronically forwarded to the Grants Officer (via CATR) to review so that the DON will have a firm understanding on the

amount of work displaced that would have normally been accomplished during the period of time required to complete the request.

## **H. SPECIFIC REQUIREMENTS**

This Agreement requires the Recipient to develop and implement six (6) technical requirements and seven (7) tasks during the performance period, as follows:

### Technical Requirements:

- A Develop and submit a draft and final Work Plan pursuant to task 7 (below) for the performance of the SOW that will accomplish technical requirements 1 through six (below);
- B Conduct identification and quantification of structural characteristics of marine habitat using cutting edge technology;
- C Conduct maritime archaeological remote sensing survey for underwater cultural heritage sites;
- D Conduct evaluation of potentially significant underwater heritage sites as appropriate;
- E Report results of remote sensing assessment and underwater heritage sites evaluation in a manner meeting Secretary of the Interior, NOAA, and Navy standards;
- F Write, and submit draft and final co-knowledge production report on

### Tasks:

Task 1: Project Planning - The Recipient shall participate in a kick-off meeting prior to the start of work to become acquainted with the various parties involved with the project; to discuss the statement of the proposed work including scheduling, coordination, and to define channels of communication and points of contact.

1. The Recipient will be responsible for presenting a plan of action and milestones (POAM) for timely completion of the work. The POAM will be provided to the Cooperative Agreements Technical Representative (CATR) at least 1 week prior to the kick-off meeting. CATR will comment on POAM and Recipient will incorporate comments before POAM is finalized.
2. The Recipient shall ask any questions related to the successful completion of the work.
3. The Recipient shall be responsible for documenting the discussions (meeting minutes). Meeting minutes shall be provided to the CATR within 5 days after the kick-off meeting.

The kickoff meeting will be held on Guam (location to be determined) or via conference call.

The Recipient shall provide project status and schedule updates, and coordinate activities and deliverables throughout the duration of the Agreement.

Task 2: Conduct identification and quantification of structural characteristics of marine habitat using cutting edge technology - Conduct fieldwork utilizing scientific sampling strategy and produce three dimensional models of marine habitat. List plot by site (location and depth). Include number of observations/minimum abundance by site, and estimate assemblages if determinable, and comparisons of assemblages by site.

Task 3: Conduct maritime archaeological remote sensing survey for underwater cultural heritage sites – Conduct archaeological marine remote sensing assessment using proven remote sensing



techniques and equipment such as side-scan sonar, multi-beam sonar, magnetometer, etc. Remote sensing equipment must be operated in conjunction with precision spatial positioning software. Collected data is to be compiled and stored in a manner consistent with the Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) (<http://www.sdsfie.org>).

Task 4: Conduct evaluation of potentially significant underwater cultural heritage sites as appropriate – Conduct evaluations concerning eligibility to the National Register of Historic Places (NRHP) for any potential eligible underwater cultural heritage sites. NRHP evaluations are to be compiled in the Draft and Final Co-Knowledge Production Report.

Task 5: Report results of remote sensing assessment and underwater cultural heritage sites evaluation in a manner meeting Secretary of the Interior Standards - Report on remote sensing survey results including an appendix containing sonar contact report and an appendix containing magnetometer anomaly report. This deliverable must meet Secretary of the Interior Reporting Identification Results standards ([https://www.nps.gov/history/local-law/arch\\_stnds\\_2.htm#report](https://www.nps.gov/history/local-law/arch_stnds_2.htm#report)). It is acceptable to include this report as a chapter or separate volume of the co-knowledge production final deliverable.

Task 6: Draft and Final Project Reports - Forty-five (45) days before the end of performance period, the Recipient will submit a Draft Final Project Report. Refer to Section J for specific submittal requirements, including content, format, and delivery.

Task 7: Project Management - The Recipient shall provide project oversight and coordination for all technical requirements and tasks. This will include: maintaining budget coordination, tracking, and reporting, as appropriate.

- 1) The recipient is responsible for providing monthly updates to the CATR and the updates shall include implementation accomplishments, budget drawdowns, technical aspects, any project coordination difficulties, safety concerns, adaptive management proposals or actions, agreement's quality control and assurance activities and their successful implementation of the study.
- 2) The CATR will inspect all documents that recipient is required to provide, inspect all relevant equipment, interview Recipient's staff to determine which actions were taken, and accompany Recipient during the project to provide adequate Government oversight.

## **I. MEETINGS/COORDINATION**

1. The Recipient or his/her designee will attend (either on-site or via telephone) a kick-off meeting with the CATR and/or other necessary parties to ensure coordination of activities. The CATR shall arrange the meeting.
2. The Recipient shall be available for coordination meetings with the CATR and other environmental staff, as required throughout the project.

## **J. SUBMITTALS and SCHEDULES**

1. Electronic copies of all submittals/schedules/deliverables. Some examples include, but are not limited to, draft/interim/final reports, progress reports/monthly reports which will be provided to the Agreement Administrator for retention in the official Agreement file.

## 2. Submittals

The Recipient shall submit the following:

- a. POAM: The Recipient of the Agreement shall submit a POAM for timely completion of the work, one week prior to the kick-off meeting.
- b. Draft/Final Work Plan: The Recipient of the Agreement shall submit a Draft/Final Work Plan that will show in reasonable detail the approach (including the project's work schedule milestones with dates) that will be taken to successfully accomplish the requirements and specifications of the Agreement., The draft/final work plan shall include a schedule in table format of deliverable submittals.
  - 1) The Recipient of the Agreement shall submit the Draft Work Plan seven days prior to the date of the project's kickoff meeting.
  - 2) The Recipient of the Agreement shall submit the Final Work Plan five days after the receipt of Government comments. Fieldwork activities cannot proceed until the Final Work Plan has been reviewed and acknowledged for proceeding by the Government.
  - 3) The Recipient of the Agreement shall append to the Draft/Final Work Plan the list of personnel that will be involved in the project with their respective short version of resume. Personnel date of birth, address and social security number shall **not** be included in the resume. The maximum number of pages for resume shall be 5 pages with font size no smaller than "11".
- c. Meeting Minutes: The Recipient of the Agreement shall be responsible for taking the minutes of the meetings specified in this Agreement. The Recipient of the Agreement shall submit the draft meeting minutes within five (5) days from the date when the meeting was held.
- d. Monthly Progress Reports (Monthly PR): The Recipient of the Agreement shall provide monthly PR that would detail their implementation accomplishments as specified in the Agreements scope and final work plan. The monthly PR shall also include information on the Recipient of the Agreement's quality control and assurance activities and their successful implementation of the work plan. The first monthly PR shall be submitted following the first month of fieldwork and every month thereafter while analysis is being conducted.
- e. Draft and Final Project Report: The Draft Project Report (DPR) and Final Project Report (FPR) shall document all work conducted under this Agreement. CATR will compare monthly reports, and all other QA/QC actions to determine if FPR contains sufficient detail and incorporates all work conducted under the Agreement.
  - 1) The DPR shall be submitted to the CATR for review and comment forty-five (45) days before the end of the performance period. The Recipient of

the Agreement shall submit electronic copies via email or other file sharing platform. The DPR will include all maps, GIS data and appropriate figures/graphics for all work completed.

- 2) The FPR will be submitted to the CATR no later than fifteen days after receipt of comments on the DPR from the CATR. The Recipient of the Agreement shall also submit one (1) hard copy and three (3) electronic copies of the FPR on CD or DVD. The electronic copies on CD or DVD shall include the following: a) the FPR in Microsoft Word; b) the FPR in Portable Document Format (pdf); c) figures and graphics; d) GIS data layers, if relevant; and e) comment matrix. For the comment matrix, the Recipient of the Agreement shall take all comments from the Government on all reports and incorporate them into a comment matrix. The comment matrix shall identify how each comment was addressed by the Recipient and where in the document (page number, paragraph, and line) the corrections are to be found. The comment matrix will be used as a quality assurance tool.
  - 3) For the DPR and FPR, the Recipient shall reasonably follow the standards provided in Scientific Style and Format; The CSE Manual Authors, Editors, and Publishers, Seventh Edition, Style Manual Committee Council of Science Editors,  
<http://www.scientificstyleandformat.org/Home.html>.
  - 4) All GIS data will contain populated metadata, be SDSFIE compliant, and projected in UTM Zone 55 North, WGS84. All GIS Data must comply with NAVFAC Standards for Geographic Information System (Attachment D) and Specifications for GIS Layers and Attributes (Attachment E)
3. Related Requirements and Information.
- The Recipient shall solely be responsible for providing all study design, labor, transportation, equipment, material, tools, supplies, supervision, and administration services required to complete the requirements of this SOW.
- a. The Recipient will coordinate and hold a project kickoff meeting with CATR to discuss work expectations.
  - b. The Recipient will email monthly status reports in electronic format.
  - c. If unforeseen conditions warrant any deviations from these methods, the Recipient must consult with CATR.
  - d. Work will be conducted according to the schedule agreed (POAM) during the kick-off meeting. The Recipient shall notify the Agreement Administrator within two business days of any problems that occur to prevent the scheduled project. The Recipient will also immediately report any problems or concerns encountered during the project.

4. The Recipient shall submit the following deliverables:

<u>Task Deliverables</u>	<u>Copies</u>	<u>Submittal Date/Timing</u>
Draft Work Plan	Electronic-word doc (email)	1 week before kick-off meeting
Final Work Plan	Electronic-pdf format (email), 2 hard copy	5 days after receipt of Government comments
POAM	Electronic-pdf format (email)	1 week before kickoff meeting
Kickoff meeting minutes	Electronic-pdf format (email)	5 days after kickoff meeting
Monthly Progress Reports	Electronic-pdf format (email)	Monthly
Draft Project Final Report	Electronic-word doc format (email)	45 days before the end of the performance period
Final Project Report	Electronic-pdf, and word doc on 4 CD's, 4 hard copy	No later than 15 business days after Receipt of Government comments

5. Format for Deliverables

All documents shall be submitted electronically.

- a. The electronic version/file of the draft and final after comments are addressed shall be submitted in both A) the native format, which Navy prefers be a Microsoft product, and B) Adobe Acrobat PDF, or compatible, format. The PDF version of all final deliverables, other than raw analytical and databases, must be a complete, mirror image of the hardcopy, and include appendices, maps, signature pages, etc. At completion of the project with the Final Report submittals, the Recipient will provide an electronic deliverable with a copy of all reports, meeting minutes, point papers, maps and map databases, and briefings. All electronic submittals will be certified "virus free" and include the statement "virus free" on the disk or transmittal message. The Recipient shall verify, with the CATR, the appropriate data management requirements and electronic data deliverables.

b. CD-ROM Requirements

PDF files of final documents shall be provided in the following formats:

The entire document shall be provided as one .pdf file. The .pdf file shall have bookmarks for each item identified in the document's table of contents. The bookmark shall use the same description as provided in the table of contents. If the bookmark is lengthy, abbreviate as needed. Bookmark to the second level (i.e., 1.1, 1.2, 1.3, etc.). Do not bookmark signature page, list of acronyms, individual tables, photos, or figures. Each appendix, regardless of size, shall be provided as an individual .pdf file. All maps, figures, and pictures shall be provided at a useable resolution. All color maps, figures, and pictures shall be provided in color PDF format. All files associated with the document shall be provided in native file format (e.g. Word, Access, CADD) on deliverable CD copies. In addition, the CDs shall include raw data.

The CD jewel case cover (outside front) and CD label shall use the current approved layout and include:

- NAVFAC Marianas logo

- Agreement Number Report Title
- Site
- Location
- Date Report finalized
- The word “UNCLAS”

Standard CD jewel cases shall be used. The jewel case spine shall identify the report title, site, and location. In the event multiple reports are requested on one CD, the jewel case cover (inside) shall include a list of all reports with the date and file name. The jewel case spine shall use "Various Reports" as the report title and also identify the site and location.

c. Photographs

The Recipient will document and record pertinent aspects of the work using color digital imagery. The Recipient will provide camera and all necessary equipment. Photographs of activities documented shall be included as an appendix on CD ROM. All photographs shall become DON property and shall be submitted with the draft and final report. All original photographs shall be appropriately labeled with information to include:

- Date
- Location (specific place and/or Installation) subject/activity
- Identification of any people in the picture photographed

6. Submittal/Deliverable Standards

All submittals/deliverables are expected to be of the highest professional quality and will be rejected if any of the following exists:

- There are typographical errors, spelling, or grammar mistakes; or
- Results and discussion are not tied directly and continually to natural resource management concerns of the installation; or
- The document is not organized in a manner that flows well; or
- The document does not provide appropriate context, background, literature review, and comparison to other relevant studies, locations, and habitat types; or
- The appropriate style guide is not adhered to; in most cases, this is the JWM or CSE.

**K. DATA AND PUBLICATION**

1. This Agreement is subject to, and Recipient shall comply with, 2 CFR 200.315 concerning “Intangible Property,” which includes use of research data. Any information or data protected by federal law will be identified by the Government prior to being provided to Recipient and the Government will notify the Recipient in advance of applicable limitations on such information. Archaeological site investigations are to be non-intrusive and subject to Archaeological Resources Protection Act; National Historic Preservation Act; Submerged Military Craft Act; Abandoned Shipwreck Act; other preservation laws as applicable. Except as to information so identified and limited, there are no restrictions on reporting or publishing reports based upon the fundamental research that is the subject of this Agreement.

The Government has the right to obtain, reproduce, publish or otherwise use the data first produced under this Agreement and authorize others to receive, reproduce, publish, or

otherwise use such data for Federal purposes. The DON acknowledges and agrees that the Recipient's fundamental consideration in performing the research under this Agreement shall be Recipient's right to publish the results of such research for academic and scientific purposes subject to Archaeological Resources Protection Act; National Historic Preservation Act; Submerged Military Craft Act; Abandoned Shipwreck Act; other preservation laws as applicable.. The Recipient shall submit, for review and comment, any proposed professional, scientific or non- scientific report, paper or note published or unpublished or be part of any technical or non-technical presentation or be provided to anyone not a party to this Agreement to the DON thirty (30) days prior to the submission of the work mentioned above.

2. The acknowledgements for any paper or presentation resulting from this work shall include the following statement: "This research was funded by the DON on behalf of JRM, Guam." Any publications resulting from this work shall be provided at no cost to the DON in quantities jointly determined by the DON's representative and the Recipient at the time of publication.

3. The Recipient shall be responsible for ensuring all personnel participating in activities under this Agreement have read and acknowledged the DATA AND PUBLICATION provisions of this Agreement.

#### **L. RELEASE OF INFORMATION**

The Recipient shall not respond to any inquiries about this Agreement from the news media or non- governmental organizations or other persons during the term of this Agreement unless it has first consulted with the Government and a determination appropriately made by the cognizant Government representative concerning release of information pursuant to the authority (Federal or State) cited by the requester. All inquiries shall be directed to the JRM Public Affairs Officer at the Region and Public Affairs Officer at NAVFAC Marianas through the CATR.

#### **M. SAFETY**

The Recipient will not be required to develop an Accident Prevention Plan (APP) following the format in Appendix A of the EM 385-1-1 05 July 2011 or latest edition. A Site Safety and Health Plan (SSHP) is also not required if the work is potentially non-hazardous.

Man-hour reporting is also required by the EM 385-1-1 and the Unified Facilities Guide Specifications (UFGS) -01 35 26, (February 2012) change 2, 08/13. The recipient will provide a Monthly Exposure Report (MER) and attach to the monthly billing request. The CATR will submit a copy of the MER to the NAVFAC Marinas Safety Office.

#### **N. HOLD HARMLESS**

1. The Government shall not be responsible for the loss of, or damage to, property of the Recipient and/or his/her representatives, or for personal injuries to the Recipient and/or his/her representatives arising from or incident to the use of government facilities or equipment. Recipient shall indemnify, hold harmless, defend and save Government harmless and shall pay all costs, expenses, and reasonable attorney's fees for all trial and appellate levels and post- judgment proceedings in connection with any fines, suits, actions, damages, liability, and causes of action of every nature whatsoever arising or growing out of, or in any

manner connected with, the Agreement and attendant occupation or use of Government Premises including but not limited to NBG, by Recipient, its employees, servants, agents, guests, invitees, and contractors. This includes, but is not limited to, any fines, claims, demands and causes of action of every nature whatsoever that may be made upon, sustained or incurred by the Government by reason of any breach, violation, omission or non-performance of any term, covenant or condition hereof on the part of the Recipient, its employees, servants, agents, guests, invitees, or contractors. This indemnification also applies to claims arising out of the furnishings of any utilities or services by the Government or any interruption therein or failure thereof, occasioned by the negligence or lack of diligence of Recipient or its respective officers, agents, servants or employees. However, this indemnity shall not extend to damages due to the sole fault of the Government or its employees, agents, servants, guests, invitees or contractors. This covenant shall survive the termination of this Agreement.

2. In the event of damage, including damage by contamination, to any Government property by the Recipient, its officers, agents, servants, employees, or invitees, the Recipient, at the election of the Government, shall promptly repair, replace, or make monetary compensation for the repair or replacement of such property to the satisfaction of the Government.

#### **O. PAYMENTS**

1. Partial payments equal to the amount of work accomplished may be made monthly after submission of completed schedules and deliverables in Section J. Recipient shall prepare itemized invoices according to costs incurred during the reporting period and submit the itemized invoices to the Government for payment. Partial payments shall not exceed 85 percent of the total funding for the Agreement for any individual period of performance.
2. The final payment of the balance of the Agreement funds for a period of performance or 15 percent of the period of performance funding for the Agreement, whichever is less, shall be paid when the final report and all other submittals and deliverables listed in Section J have been received and accepted by the CATR.
3. Any requirement for the payment or obligation of funds, under the terms of this Agreement, shall be subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 USC §1341 et seq. Nothing in this Agreement shall be construed as implying that Congress will, at a later time, appropriate funds sufficient to meet deficiencies.
4. Payments will be made in accordance with Defense Federal Acquisition Regulation (DFAR) 252.232-7006 Wide Area Work Flow Payment Instruction. See Attachment C WAWF Instructions for instructions on payment procedures.

#### **P. EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT REPORTING**

1. Section 2(d) of the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282), as amended by section 6202 of the Government Funding Transparency Act of 2008 (Pub. L. 110-252), requires the Contractor/ Recipient to report information on subcontract awards. The law requires all reported information be made public;

therefore, the Contractor/ Recipient is responsible for notifying its subcontractors that the required information will be made public.

2. Unless otherwise directed by the Contracting Officer/Grants Officer, by the end of the month following the month of award of a first-tier subcontract with a value of \$25,000 or more, (and any modifications to these subcontracts that change previously reported data), the Contractor/ Recipient shall report the following information at <http://www.fsr.gov> for each first-tier subcontract:

- (a) Unique identifier (DUNS Number) for the subcontractor receiving the award and for the subcontractor's parent company, if the subcontractor has one.
- (b) Name of the subcontractor.
- (c) Amount of the subcontract award.
- (d) Date of the subcontract award.
- (e) A description of the products or services (including construction) being provided under the subcontract, including the overall purpose and expected outcomes or results of the subcontract.
- (f) Subcontract number (the subcontract number assigned by the Recipient).
- (g) Subcontractor's physical address including street address, city, state, and country. Also include the nine-digit zip code and congressional district.
- (h) Subcontractor's primary performance location including street address, city, state, and country. Also include the nine-digit zip code and congressional district.
- (i) The prime Agreement number, and order number if applicable.
- (j) Awarding agency name and code.
- (k) Funding agency name and code.
- (l) Government contracting office code.
- (m) Treasury account symbol (TAS) as reported in FPDS.
- (n) The applicable North American Industry Classification System (NAICS) code.

3. By the end of the month, following the month of a Agreement award and annually thereafter, the Recipient shall report the names and total compensation of each of the five most highly compensated executives for the Recipient's preceding completed fiscal year at <http://www.ccr.gov>, if –

(a) In the Contractor's/ Recipient's preceding fiscal year, the Contractor/ Recipient received –

(1) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and sub grants) and cooperative agreements; and

(2) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and sub grants) and cooperative agreements; and

(b) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation



information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>).

(c) Unless otherwise directed by the Contracting Officer, by the end of the month following the month of a first-tier subcontract with a value of \$25,000 or more, and annually thereafter, the Contractor/ Recipient shall report the names and total compensation of each of the five most highly compensated executives for each first-tier subcontractor for the subcontractor's preceding completed fiscal year at <http://www.fsrs.gov>, if

(1) In the Subcontractor's preceding fiscal year, the Subcontractor received –

- (a) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and sub grants) and cooperative agreements; and
- (b) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and sub grants) and cooperative agreements; and

(d) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>).

If the Contractor/ Recipient in the previous tax year had gross income, from all sources, under \$300,000, the Contractor/ Recipient is exempt from the requirement to report subcontractor awards. Likewise, if a subcontractor in the previous tax year had gross income from all sources under \$300,000, the Contractor/ Recipient does not need to report awards to that subcontractor.

## ATTACHMENT A

### SELF-INSURANCE REQUIREMENTS FORM

**INSURANCE MUST CONFORM TO ALL THE REQUIREMENTS LISTED BELOW PRIOR TO RECIPIENT BEING PERMITTED TO USE OR OCCUPY GOVERNMENT PREMISES OR PROPERTY PURSUANT TO THE COOPERATIVE AGREEMENT**

#### 1. PUBLIC LIABILITY AND PROPERTY DAMAGE

a. Required minimum amounts of insurance listed below:

\$ N/A Fire and Extended Coverage  
\$ 1,000,000 Third Party Property Damage  
\$ 1,000,000 Third Party Personal Injury Per Person  
\$ 1,000,000 Third Party Personal Injury Per Accident

**2. SELF-INSURANCE REQUIREMENTS:** If your organization is self-insured, please provide evidence of self- insurance which meets or exceeds the insurance liability amounts in Item # 1.

The following information, written on your organization's letterhead, is also required:

- A brief description of your organization's self-insurance program, with reference to statutory or regulatory authority establishing the self-insurance program.
- The name and telephone number of your organization's self-insurance program administrator.
- Reference the appropriate military facility and cooperative agreement number.

#### 3. IF YOUR SELF-INSURANCE PROGRAM DOES NOT MEET THE ABOVE MINIMUM REQUIREMENTS:

• Provide evidence of Excess Liability Insurance in the amount necessary to meet or exceed the minimum requirements in Item #1 above.

• The following endorsements are required for Excess Liability insurance policies:

a. "The insurer waives any right of subrogation against the United States of America which might arise by reason of any payment made under this policy."

b. "The Commanding Officer, Naval Facilities Engineering Command Marianas, Guam shall be given thirty (30) days written notice prior to making any material change in or the cancellation of the self-insurance program."

c. "The United States of America (Department of the Navy) is added as an additional insured in operations of the policyholder at or from the premises licensed/leased from the United States".

d. "This insurance certificate is for use of facilities at Joint Region Marianas, Guam under this Cooperative Agreement, No. N40192-R-18-8002."

**4. NOTICE: "RIGHT TO USE" DOCUMENTS WILL NOT BE FULLY EXECUTED UNTIL CERTIFICATE IS RECEIVED WITH PROPER ENDORSEMENTS.**

**ATTACHMENT A (Continued) NON SELF-INSURED REQUIREMENTS FORM**

**INSURANCE MUST CONFORM TO ALL THE REQUIREMENTS LISTED BELOW PRIOR TO RECIPIENT BEING PERMITTED TO USE OR OCCUPY GOVERNMENT PREMISES OR PROPERTY PURSUANT TO THE COOPERATIVE AGREEMENT**

**1. PUBLIC LIABILITY AND PROPERTY DAMAGE**

a. Required minimum amounts of insurance listed below:

\$ N/A Fire and Extended Coverage

\$ 1,000,000 Third Party Property Damage

\$ 1,000,000 Third Party Personal Injury Per Person

\$ 1,000,000 Third Party Personal Injury Per Accident

**2. THE CERTIFICATE OF INSURANCE MUST CONTAIN THE FOLLOWING ENDORSEMENTS:**

- a. "The insurer waives any right of subrogation against the United States of America which might arise by reason of any payment made under this policy."
- b. "The Commanding Officer, Naval Facilities Engineering Command Marianas, Guam shall be given thirty (30) days written notice prior to making any material change in or the cancellation of the policy."
- c. "The United States of America (Dept. of the Navy) is added as an additional insured in operations of the policyholder at or from the premises licensed/leased from the United States."
- d. "This insurance certificate is for use of facilities at Joint Region Marianas, Guam under this Cooperative Agreement, PROJECT NUMBER N40192-R-18-8002."
- e. Loss, if any, under this policy shall be adjusted with Recipient and the proceeds, at the direction of the Government, shall be payable to Recipient, and proceeds not paid to Recipient shall be payable to the Treasurer of the United States of America."

**3. NOTICE: "RIGHT TO USE" DOCUMENTS WILL NOT BE FULLY EXECUTED UNTIL CERTIFICATE IS RECEIVED WITH PROPER ENDORSEMENTS.**

## ATTACHMENT B

### DRAFT AND FINAL REPORT FORMAT

The Draft and Final Project Reports shall follow the formats described by Endangered Species Research: <http://www.int-res.com/journals/guidelines-for-authors/author-guidelines/>, Frontiers in Marine Science: <http://journal.frontiersin.org/journal/marine-science#author-guidelines>, or other appropriate peer-reviewed scientific journal's format (representative of the subject matter and target audience), with the following outline:

1. Title page showing the title, date, and CATR representative location and Cooperative Agreement Number
- ii. Sub-title page showing:
  - (a) Title
  - (b) "Prepared by" listing with affiliations
  - (c) "Under contract to" listing, and shall include the CATR representative location
  - (d) Date
  - (e) Recommended citation
- iii. Table of contents, arranged as follows:
  - (a) Table of contents
  - (b) List of tables
  - (c) List of figures (photographs are considered figures)
  - (d) References/literature cited
  - (d) List of appendices
- iv. Abstract
- v. Introduction
- vi. Study Area
- vii. Methods
- viii. Results
- ix. Discussion
- x. Acknowledgments
- xi. Appendices

## **ATTACHMENT B (Continued)**

### **DRAFT AND FINAL REPORT FORMAT**

#### xii. Electronic Appendices

Where JWM Manuscript Guidelines do not provide sufficient direction, as appropriate, follow the standards provided in *Scientific Style and Format; The CSE Manual Authors, Editors, and Publishers, Seventh Edition*, Style Manual Committee Council of Science Editors, <http://www.scientificstyleandformat.org/Home.html> .

**ATTACHMENT C  
WAWF INSTRUCTIONS**

252.232-7006 WIDE AREA WORKFLOW PAYMENT INSTRUCTIONS (JUN 2012)

(a) Definitions. As used in this clause—

Department of Defense Activity Address Code (DoDAAC) is a six position code that uniquely identifies a unit, activity, or organization.

Document type means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

Local processing office (LPO) is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) Electronic invoicing. The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports.

(c) WAWF access. To access WAWF, the Contractor/Recipient shall—

(1) Have a designated electronic business point of contact in the Central Contractor Registration at <https://www.acquisition.gov>; and

(2) Be registered to use WAWF at <https://wawf.eb.mil/> following the step-by-step procedures for self-registration available at this website.

(d) WAWF training. The Contractor/Recipient should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the “Web Based Training” link on the WAWF home page at <https://wawf.eb.mil/>.

(e) WAWF methods of document submission. Document submissions may be via Web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) WAWF payment instructions. The Contractor/Recipient must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:  
PROJECT NUMBER N40192-R-18-8002

(1) Document type. The Recipient shall use the following document type(s).  
NAVY CONSTRUCTION/FACILITIES MANAGEMENT INVOICE

(2) Inspection/acceptance location. The Contractor/Recipient shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

(3) Document routing. The Contractor/Recipient shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the system.

Routing Data Table\*

-----

**ATTACHMENT C (Continued) WAWF INSTRUCTIONS**

Field Name in WAWF Data to be entered in WAWF

-----  
Pay Official DoDAAC N68732  
Issue By DoDAAC PROJECT NUMBER N40192-R-18-8002  
Admin DoDAAC PROJECT NUMBER N40192-R-18-8002  
Inspect By DoDAAC PROJECT NUMBER N40192-R-18-8002  
Ship To Code N/A  
Ship From Code N/A  
Mark For Code N/A  
Service Approver (DoDAAC) N/A  
Service Acceptor (DoDAAC) PROJECT NUMBER N40192-R-18-8002  
Accept at Other DoDAAC N/A  
LPO DoDAAC PROJECT NUMBER N40192-R-18-8002  
DCAA Auditor DoDAAC N/A  
Other DoDAAC(s) N/A  
-----

(4) Payment request and supporting documentation. The Contractor/Recipient shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) WAWF email notifications. The Contractor/Recipient shall enter the email address identified below in the "Send Additional Email Notifications" field of WAWF once a document is submitted in the system.

(g) Christopher.Santos@fe.navy.mi, WAWF point of contact. (1) The Contractor/Recipient may obtain clarification regarding invoicing in WAWF from the following contracting activity's WAWF point of contact.

**NOT APPLICABLE**

(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988. (End of clause)

**ATTACHMENT D**  
**NAVFAC Standards for Geographic Information System (GIS)**

**1. Overview:**

The GeoReadiness Center (GRC) is the single, authoritative source and distribution point for all geospatial shore installation data within the region. The GRC houses the most current geospatial information for the entire region and provides access to the comprehensive data set and analysis tools to Regional and DoD decision makers/managers, sponsored contractors, and other sponsored individuals via a secure government Internet site.

**2. Basic Deliverable Requirements:**

- a. Submittals, Government Review and Acceptance:
  - i. All data used and developed under contract is intellectual property of the U.S. Government, and shall be turned over to the U.S. Navy upon completion of this amendment.
  - ii. All submittals shall be reviewed for accuracy, structure and completeness by a GeoReadiness representative before acceptance. Contractors shall submit data and documentation samples at 25% and 75% project completion to avoid the rejection of final deliverables.
  - iii. All source code (e.g. Python scripts, html files, etc.) and map files (ESRI ArcGIS .mpk) shall be provided to the government.
  - iv. Failure to adhere to any of the stated delivery specifications could result in rejection of deliverables and nonpayment.
  
- b. GIS Data Format: NAVFAC's GIS data is ESRI Geodatabase format, **version 10.1 as of May 2014**. All ESRI format data submittals must also be in version 10.1.
  - i. All GIS/geospatial projects (i.e., MPK) shall be delivered containing all related source files in a specific project file, including extension, graphics, photos, CAD, source code (non-encrypted, Visual Basic) based on version of ArcGIS Desktop specified for the task order. Submittal format shall be determined by the COR.
  - ii. Spatial Data (GIS Map Themes): Spatial data shall be delivered as an ArcGIS file geodatabase. File geodatabases are relational databases that contain geographic information. File geodatabases contain feature classes and tables. The names of these geodatabases should reflect the location of the geographic information it contains at the appropriate level of detail (region, special area, activity). The general format of personal geodatabase names is as follows:  
Location\_yyyymmdd.gdb
  - iii. Location = Location of the geographic information, defined to the appropriate level of detail. Names begin at the regional level, using the 2-digit country code from iNFADS (e.g. HI=Hawaii, GQ=Guam, JA=Japan, etc.) and may narrow into an area of interest within the region (e.g. Pearl Harbor, Yokosuka, Apra Harbor, etc.). The location can be further narrowed down to the activity level where the geodatabase can be identified by the activity's UIC (N68032, N58003, etc.)
  - iv. yyyymmdd = Date geodatabase was created or amended, as expressed in year (yyyy), month (mm), and date (dd).



## ATTACHMENT D (Continued) NAVFAC Standards for GIS

- c. Data Retention: all data (electronic and paper formats) must be removed from contractor equipment and possession and returned to the government at the end of the period of performance and before the final invoice is approved.
- d. Data Structure:
  - i. Unless specifically directed otherwise, all data shall be structured according to the current version of the Spatial Data Standards (SDSFIE) in use by NAVFAC. **This is version NDM 3.03 as of December 2015.** Information on the SDSFIE data model can be found at: <https://sdsfie.org>, and a copy of the current data model implementation shall be provided to the contractor.
  - ii. If new data is being created and the corresponding SDSFIE data structure exists, the government shall provide unpopulated layers to the contractor structured per current NAVFAC standards.
  - iii. If new data is being created and the corresponding data structure does NOT yet exist, the contractor shall provide the GRC with a data dictionary identifying all of the SDSFIE Entity Types, attributes, and/or domain values associated with the new feature(s), the geographic area(s) covered by the data and Spatial extent information prior to the creation/editing of GIS data. Acceptable formats: MS Excel or MS Word. Adobe PDF is not an acceptable format. New non-SDS compliant attributes (meeting SDSFIE criteria) will require precise schema definitions.
- e. Government Source Data: The contractor will be provided access to any GIS data required for the project via a government computer, which will require Contractor Common Access Card (CAC). Government GIS repository is in an ESRI format. All data shall be returned in this format

and structure unless the government specifies otherwise. A completed NAVFAC GIS Data Release form is required prior to data being released to the Contractor if editing is required to be completed on Contractor equipment.

- f. Attribute Population:
  - i. The contractor shall consult with the COR before populating attribute tables to ensure the results match the current GeoReadiness interpretation of the SDSFIE.
  - ii. The contractor shall identify the classification, type, location, ID number, and any other necessary attributes (specified by the Government) for all new/updated/edited features.
  - iii. For new field collected data, attribution must include the date collected in the following format.
    - 1. **Name:** Date  
**Description:** Date that the feature was edited from its original or previous value.  
**Data Type:** Date  
**Default Value:** null

## ATTACHMENT D (Continued) NAVFAC Standards for GIS

### 3. Data Integrity

- a. Data accuracy standards for all deliverables will be in accordance with those set forth in the section entitled 'Data Collection Procedures'. All deliverables should include an accuracy report in the metadata.
- b. The contractor shall employ appropriate QA/QC standards to ensure that data is topologically correct, accurate and complete (to include):
- c. No erroneous overshoots, undershoots, dangles or intersections in the line work.
- d. Point and line features will be snapped together where appropriate to support networks. For example, do not break linear features for labeling or other aesthetic purposes.
- e. Lines should be continuous and point features should be digitized as points. For example, point features, such as manholes, should not be drawn using only a circle (polygon) to represent its location. Preferably, use an attribute block symbol that has an insertion point in the center of the manhole.
- f. No sliver polygons.
- g. Digital representation of the common boundaries for all graphic features must be coincident, regardless of feature layer.
- h. Geometric network connectivity must be maintained for utility networks.

Note: This excludes field collected "walked" survey transect data

A summary of the methods used to correct inconsistencies and any remaining errors by case should be included in the metadata under the 'Logical Consistency Report' and 'Completeness Report' sections.

### 4. CAD Format Deliverables:

- i. CAD drawings may be accepted as GIS deliverables, if COR approves.
- j. All files must be accurately georeferenced and adhere to the requirements regarding the coordinate system, metadata, and the specified data Quality Control and Quality Assurance requirements.
- k. The government shall specify whether files are to adhere to either the SDSFIE or A/E/C CAD standard.

### 5. Coordinate System:

All geospatial data, unless specified otherwise, shall be in the Geographic Coordinate System: GCS\_WGS\_1984, Datum: D\_WGS\_1984.

### 6. Metadata:

- l. **Feature Level Metadata:** Feature-level (record level) attribute metadata is required to be populated for each GIS feature/record, per the current SDSFIE version.

Attributes for version 3.03 are listed in **APPENDIX C**.

- m. **Layer Level Metadata:** Layer level metadata is required for all deliverables, structured according to the FGDC Content Standard for Digital Geospatial Data (CSDGM). Details on the standard can be found at <http://www.fgdc.gov/metadata/geospatial-metadata-standards>.

### 7. Quality Control and Quality Assurance:

## **ATTACHMENT D (Continued) NAVFAC Standards for GIS**

The contractor shall take all appropriate and needed QA/QC measures to ensure data is complete, topologically correct, accurate, structured correctly, and formatted correctly per the scope of work and complete (to include):

- n. **\*\*All data shall be visually inspected before submittal to the government.\*\***
- o. The numbers of records for all joined tables shall match, or the specific unmatched records shall be identified and explained to the satisfaction of the government.
- p. All required attributes (per SDSFIE version 3.03) shall be populated.
- q. All domain constraints shall be adhered to, unless approved by the government, prior to submittal.
- r. No erroneous overshoots, undershoots, dangles or intersections in the line work.
- s. All area type features shall be closed polygons.
- t. Line features shall be snapped together where appropriate to support networks. For example, do not break linear features for labeling or other aesthetic purposes.
- u. Lines shall be continuous and point features shall be digitized as points. For example, point features, such as manholes, shall not be drawn using only a circle (polygon) to represent its location.
- v. No sliver polygons.
- w. Digital representation of the common boundaries for all graphic features must be coincident, regardless of feature layer.
- x. Geometric network connectivity shall be maintained for utility networks, where specified by the scope of work.

### **8. Field Collection**

- y. Where field data collection is required, the contractor shall utilize conventional and other methods, such as a total station, or Global Positioning System (GPS) in accordance with the applicable Geospatial Positioning Accuracy Standards published by the Federal Geographic Data Committee (FGDC).
- z. At a minimum, the contractor shall provide resource grade GPS collection at an accuracy level of +/- < 1m and shall use differential correction to target accuracies of +/- .5 m.
- aa. Where appropriate (as stipulated in the contract or as otherwise determined by the Government), the contractor shall use survey grade GPS, at an accuracy level of +/- 2 cm. Global Positioning System (GPS) data collection activities will be based on a post-processed environment using an accurately sighted base station. Base station files for post processing acquired locally (off-site CORS Continuous Operating Reference Station) will be verified for accuracy.
- bb. GPS data on the location of utility lines and other features shall be captured at a minimum every 50ft and at each turn or bend in the line and processed as a line feature type. GPS data on the location of utility points and other features shall be captured at the centroid of the feature unless signal obstruction or access prohibits; otherwise, points will be captured at a uniform distance and direction from the centroid and the offset captured

## **ATTACHMENT D (Continued) NAVFAC Standards for GIS**

in the metadata for that feature. Data on polygon features shall be collected at every vertex of the feature and processed as a polygon.

- cc. All survey-grade data collected shall be provided to the Government in a digital format with an attached Survey Report identifying survey method.
  
- dd. Equipment list, calibration documentation, survey layout, description of control points, control diagrams, quality control report, and field survey data.
  
- ee. A digital Survey Control Database (consisting of a survey marker database and a survey traverse database) will be produced for all survey control points established under this contract, including the horizontal and vertical order and coordinate location of each point.
  
- ff. Digitizing/Conversion: Where Digitizing/Conversion is stipulated in the contract, the contractor shall digitize/convert features from designated sources (including remotely sensed data, hardcopy scans, and vector data) to support various GIS applications. Digitizing/conversion routines will insure that 90 percent of all features will measure within 0.01 inches when reproduced at the scale of original imagery or data source.

### **9. Photography.**

- gg. Photography on-base must be approved in advance of visiting the base, the Contractor shall identify the personnel designated as photographers for this contract and shall identify the proposed areas/facilities to be photographed and provide installation (via COR) with any required photographic equipment information.
  
- hh. All photographs to be delivered/ used in the final report must be geotagged with the UTM of the picture location.

## ATTACHMENT E Specifications for GIS Layers and Attributes

The Recipient shall consult with the government points of contact to ensure data is placed into the appropriate layer.

This section lists:

- **SDSFIE Required Global Attributes**: These must be populated for each record in all layers.
- **SDSFIE Required Global Metadata Attributes**: These must be populated for each record in all layers.
- **Project Specific GIS Layer and Attribute Descriptions**: Specific to the scope of work, this section provides the full descriptions of each layer and available attributes. The contractor shall consult with the government points of contact to identify which specific non-required attributes to populate.

**Name: FeatureName**

**Description:** The common name of the feature.

**Data Type:** String (80)

**Default Value:** null

**Domain:** NA

**Key:** NA

**Name: FeatureDescription**

**Description:** A narrative describing the feature.

**Data Type:** vChar (MAX)

**Default Value:** null

**Domain:** NA

**Key:** NA

### 1. SDSFIE Required Global Metadata Attributes

These attributes must be populated in each record in all layers.

**Name: editor**

**Description:** Contractor or person that edited the feature attribution or geometry from its original or previous value. Last Name of the person and first initial. For example, Jane Smith would be attributed as SmithJ.

**Data Type:** String (20)

**Default Value:** null

**Domain:** NA

**Key:** NA

## ATTACHMENT E (Continued) Specifications for GIS Layers and Attributes

**Name:** dateEdited

**Description:** Date that the feature was edited from its original or previous value.

**Data Type:** Date

**Default Value:** null

**Domain:** NA

**Key:** NA

**Name:** collectionSource

**Description:** Describes how the data was collected and verified. (Example: GPS Field Collected – Mapping Grade).

**Data Type:** String (75)

**Default Value:** null

**Domain:** CollectionSource

**Key:** NA

**Name:** locAccy

**Description:** Describes the location accuracy of the data that was collected and verified.

**Data Type:** String (50)

**Default Value:** null

**Domain:** NA

**Key:** NA

**Name:** metaNotes (\*\* use only if needed)

**Description:** Describes other details about what was created or edited and why.

**Data Type:** String (255)

**Default Value:** null

**Domain:** NA

**Key:** NA