CIVIL ENGINEERING UNIT MIAMI
15608 S.W. 117TH AVENUE
MIAMI, FLORIDA 33177

CONTRACT SPECIFICATIONS

REBUILD BAHIA DE GUAYANILLA ENTRANCE RANGE REAR LIGHT
(LIGHT LIST NUMBER 32075)
AT
UNITED STATES COAST GUARD
AIDS TO NAVIGATION TEAM (ANT) PUERTO RICO,
PUERTO RICO

PROJECT NUMBER 13832866
FINAL DESIGN: JULY 02, 2026

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SECTION 01 11 00
SUMMARY OF WORK

PART 1 GENERAL

1.1. GENERAL DESCRIPTION

1.2. GENERAL WORK REQUIREMENTS

The work generally includes, but is not limited to, the following:

BASE BID

The base bid, on-site work consists of furnishing all labor, tools, equipment, materials, supervision, and transportation necessary for, and incidental to, the demolition/removal and new construction of the aid-to-navigation (ATON) structure; the Bahia de Guayanilla Entrance Range Rear Light (RRL), Light List Number(LLNR) 32075 in accordance with drawing number M13832866 sheets G-001 and S-001 through S-006. The new structure will consist of a metal skeleton tower design mounted and bolted to a metal platform supported on steel piles. The following is a general summary of the work:

A. Remove the existing metal tower and steel piles that are embedded in the mudline, including any debris still attached to or surrounding the structure. The piles shall be cut at the mud line elevation (not pulled out). Dispose in accordance with specifications and state and federal laws.

B. Survey and mark the location of the existing structure on the ocean bottom with a timber pile marker for placement of the new structure.(see paragraph 1.25).

C. Construct the new James River Ice Resistant Structure (JRIRS) platform foundations supported on steel piles for each structure as -per details on drawings.

D. The new JRIRS structure will consist of a four-pile steel dolphin and an eight feet square steel platform with fiberglass grating that will serve as the foundation for a steel skeleton tower. An 18-inch diameter by ½-inch thick "king pile" will be driven on the surveyed position, a structural steel JRIRS sleeve template as shown in the drawings will be placed over the “king pile” and three 12-inch by ½-inch diameter batter piles will be driven through the sleeve template. All steel piles are to be driven to refusal or a minimum of 45 tons whichever is achieved first. The steel platform and fiberglass grating will be mounted on the pile dolphin foundation. The design height for the platform is 10 feet above the Mean Lower Low Water (MLLW) elevation of 0.00’feet based on The North American Vertical Datum of 1988 (NAVD 88). For purposes of bid, the embedment depth of the steel piles in the mud line shall be assumed to be 50 feet. The water depth at the area of work fluctuates during the year from approximately 10-feet to 15-feet.

E. The skeleton tower mounted on the JRIRS platform will have a height of 10-feet above the steel platform with a focal signal height of 11 feet above the steel platform. The tower will be used to support solar panels, day boards, batteries, light signals, and servicing personnel as necessary. Solar panels, day boards, batteries and light signals will be provided and installed by the U.S. Coast Guard (USCG) Aids to Navigation Team (ANT) Puerto Rico personnel.

The skeleton metal tower shall be fabricated off site as per details on the drawings.

Prepare the top of the steel platform foundation, transport and install metal tower structure to foundation with anchor bolts as per details on drawings.

F. Conduct a final position survey for the structure.

G. The contractor must notify the Contracting Officer's Representative (COR) in writing at least 72 hours in advance, the exact time and day when the existing focal lights and day boards need to be removed by U.S. Coast Guard ANT Puerto Rico personnel prior to the demolition of the existing ATON structure. Also, the contractor must notify the COR in writing 72 hours in advance when the new solar panels, day boards, and focal lights are ready to be installed once the new ATON structure has been completed and inspected.

H. The contractor shall comply with the requirements of the CEU Miami Environmental Scope of Work (SOW) Requirements for Aids to Navigation (ATON) Projects in District 7 and District 8 included in Appendix F of these specifications.

1.3. SPECIAL WORK REQUIREMENTS

A. The site superintendent shall:

(1) Be an employee of the prime contractor.
(2) Be "on site" while work is conducted.
(3) Speak fluent English.
(4) Have at least 10 years of experience in the construction industry.

B. The Contractor's Quality Control Manager is responsible for all quality control and quality assurance aspects of the project, and may also be the site superintendent.

C. Comply with all hot work requirements of the USCG unit.

D. Coordinate all staging and laydown areas with the COR prior to commencement of work.

1.4. DRAWINGS ACCOMPANYING SPECIFICATION

A. There are seven drawings accompanying this specification, USCG drawing number M13832866 sheets G-001 and S-001 through S-

006.

1.5. PROJECT PERFORMANCE PERIOD

A. The total contract performance period shall include the time needed to complete administrative processes, review, and approve material submittals, complete the work, any inspections, complete all project record (closeout) documents, and USCG's review of submittals. After work begins at the site, perform the work continuously during normal working hours and show daily progress until all work is complete.

B. The total contract performance period is 180 calendar days for the construction of the Bahia de Guayanilla Entrance Range Rear Light (RRL) (LLNR 32075) structure.

1.6. CONSTRUCTION PROGRESS MEETINGS:

A. The Contractor's Quality Control Manager shall hold on-site bi-weekly meetings with a virtual option provided for all stakeholders, in accordance with Section 01 45 00 Quality Control, paragraph titled QC Meetings.

B. The Contractor shall submit a meeting agenda at least two working days beforehand to all stakeholders, to include a list of attendees, a two-week look ahead, pending requests for information (RFIs), submittals, or other similar items. After the meeting, the Contractor shall submit the meeting minutes within three working days to all stakeholders.

1.7. LOCATION

Location of Bahia de Guayanilla Entrance RRL (LLNR 32075):

Latitude: 17 Degrees 59 Minutes 06.99 Seconds North
Longitude: 66 Degrees 40.5 Minutes 50.88 Seconds West

The site is located on the entrance to the Bahia de Guayanilla, Puerto Rico. The location is shown on drawing sheet G-001.

1.8. INSPECTION PRIOR TO BID

Prospective bidders are highly encouraged to visit the site to familiarize themselves with the existing conditions. Arrangements for visiting the site may be made by contacting:

Robert E. McCurdy, BMC / Tyler T. Steffey, BM1
Officer in Charge (OIC)
Aids to Navigation Team Puerto Rico
5 Calle La Puntilla
San Juan, PR 00901
Email: Robert.e.mcurdy@uscg.mil / Tyler.T.Steffey@uscg.mil
Telephone: (206) 815-7448

The work site is accessible by vessel. It is the Contractor's responsibility to determine off-site lay-down and vessel accommodation.

1.9. WORK HOURS AND SPECIAL TIME EVENTS AND ACTIVITIES

1.9.1. Normal Working Hours

A. Perform all work at the site from Monday through Friday from 7:00 am to 4:00 pm, except on federal holidays.

B. Performing the work beyond the listed working hours is at the discretion of the COR. The USCG may reject any such request without impacting the cost and performance period of the contract.

(1) Compose the request to include projected day(s) and hours of the work, a list of expected personnel including the Sub-Contractor, and the planned work to be performed during this period. Indicate in the request that the planned work is to be performed at no additional cost to the USCG.

(2) The Contractor shall request approval three working days in advance of the requested time.

1.9.2. Special Prior Notice Notifications or Requests

Notify or request via email, COR approval for the events listed in the table below. Failure to adhere to the timelines below may result in disapproval or delay attributable to the Contractor. Include these special project notifications in the Construction Progress Schedule specified in Section 01 32 01.00 10 PROJECT SCHEDULE.

Activity	Type	Lead Time
Mobilization	Approval	10 Working Days
Work commencement	Notice	Five Working Days
Change in Personnel	Approval	Three Working Days
Work Outside Normal Hours	Approval	Three Working Days
Utility Interruption	Approval	15 Working Days
Submittals	Approval	10 Working Days
Requests for Information	Approval	10 Working Days
Field Tests	Notice	10 Working Days
Final Inspection	Approval	Five Working Days

1.10. SPECIFIC ENVIRONMENTAL REQUIREMENTS

Refer to the section titled Environmental for general environmental requirements. Sea turtles may be present in the work area, although highly unlikely due to the location and time of year.

Best management practices (BMP) shall be implemented by the Contractor for sea turtles, which includes stopping work when a sea turtle comes within 50 feet of equipment. In addition, BMPs will be implemented for manatees and will include similar precautions.

The disposal of all wastes generated from this project must be sent to a Puerto Rico approved landfill or shipped off site to a state approved landfill, all solid wastes must be separated by type of recyclable, hazardous, acute hazardous and general landfill. Hazardous waste codes must be utilized

to identify any hazardous waste and must be disposed of in accordance with federal, state, and local rules.

1.11. NENVIRONMENTAL

1.11.1. Protection of the Environment

The Contractor shall comply with all applicable federal, state, and local laws and regulations for the protection of the environment, including but not limited to the Endangered Species Act, Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, National Historic Preservation Act, the Resource Conservation and Recovery Act, and Comprehensive Environmental Response, Compensation, and Liability Act.

1.11.2. Generated Waste

A. Any waste generated shall be properly characterized and shall be recycled or be disposed of in accordance with Resource Conservation and Recovery Act (RCRA) requirements and in accordance with federal, state, and local laws and regulations.

B. Any hazardous waste shall have the USCG listed as the generator and signatory. Any hazardous waste shall be analyzed, characterized, stored, and disposed of in accordance with RCRA and all applicable federal, state, and local laws and ordinances.

C. The Contractor shall coordinate an on-site storage location with the COR prior to the waste generation.

D. The Contractor shall submit for COR approval, the proposed disposal facility with proof of acceptance, qualifications of the transporters, and the hazardous waste manifest at least 10 working days prior to transportation. The Contractor shall not proceed without approval.

E. The Contractor shall provide the disposal facility receipt for all waste within 10 working days of disposal.

1.12. SAFETY PROGRAM

1.12.1. General

The Contractor is responsible for work site safety. Implement a safety program that protects the lives and health of personnel in the construction area, prevents damage to property, and avoids work interruptions.

1.12.2. Compliance

Provide appropriate safety measures including but not limited to barricades, signs, and signal lights as well as complying with the requirements of all applicable federal, state, and local safety laws, rules, and regulations, including, but not limited to, the U.S. Army Corps of Engineers (USACE) EM-385-1-1, and Occupational Safety and Health Administration (OSHA) requirements.

1.12.3. Qualifications

As per the EM 385-1-1, the Site Safety and Health Officer (SSHO) should have their OSHA 30-hour course completion, five years of continuous construction industry safety experience, and eight hours documented coursework per year. If the SSHO is off site for longer than 24 hours, an alternate SSHO shall be provided.

1.12.4. Safety Plan

Submit a written safety plan. At a minimum, describe the general safety program and identify specific safety provisions for hazards incidental to the contract work such as elevated working surfaces, working over water, working from floating work platforms, overhead crane operations or similar conditions of the work, and provide the SSHO qualifications.

1.12.5. Safety Data Sheets and Material Handling Procedures

A. Data Sheets:

(1) Submit Safety Data Sheet (SDS) for all materials containing hazardous substances required for contract execution. Submit SDS to COR for approval prior to bringing these materials on site.

B. Material Storage:

(1) Limit the quantity of these materials stored on site to the amount needed for execution of the work. Do not store excess materials on site. Store these materials in accordance with all applicable federal, state, and local laws and regulations and provide additional storage facilities (paint lockers, etc.) as required for the storage of such materials.

(2) Coordinate the physical location of storage areas with the COR prior to bringing these materials on site.

C. Protective Measures:

(1) Comply with protective measures specified on the SDS and as required by federal, state, and local regulations to protect all personnel near the work area from exposure to these materials. Include all required protective measures in the safety plan. Submit protective measures to the COR for approval prior to allowing use of these materials.

D. Disposal of Excess Material:

(1) Dispose of all excess hazardous materials as specified in the respective SDS and the paragraph titled Generated Waste.

1.13. AVAILABILITY OF UTILITY SERVICES

No utilities are available at the site. The Contractor shall be responsible for providing any and all required electricity and potable water. The Contractor shall provide temporary toilet facilities for their personnel.

1.14 TRANSPORTATION OF GOVERNMENT INSPECTORS

The Contractor shall provide transportation for Government Inspectors to and from the work site. Requests for transportation to the site will be made by the COR at least 24 hours prior to inspection.

1.15 CLEANUP

A. The Contractor shall keep the work area free from accumulation of waste materials daily. The Contractor shall not use USCG waste disposal facilities.

B. All materials including construction debris and equipment shall be removed from USCG property in accordance with the paragraph titled Generated Waste above.

1.16 PRECAUTIONS

The area in which the work is being performed is exposed to heavy weather action at times. As such, the area can be subject to high winds, breaking waves, submersion and countless other hazards associated with its location on a jetty exposed to the sea. The Contractor shall take every practicable precaution to minimize danger to personnel and government property.

1.17 SIGNAGE LIGHTS

The Contractor’s marine equipment shall display such lights and day signals as may be required under the COMDTINST M16672.2(series) Navigation Rules, International and Inland. The Contractor may inquire at the nearest U.S. Coast Guard Sector Prevention Office for specific information on these rules. The Contractor must provide obstruction lighting on any obstruction, including the tower while under construction that is created by the Contractor.

1.18 MISPLACED MATERIAL

Should the Contractor, during the progress of the work, lose, dump, throw over-board, sink, or misplace any material, plant, machinery, or appliance which in the opinion of the COR may be dangerous to the environment or obstruct navigation, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the COR, and when required shall mark or buoy such obstructions until the same are removed. Should the Contractor refuse, neglect, or delay compliance with the above requirements, such obstruction may be removed by the Government, and the cost of such removal may be deducted from any money due or to become due the Contractor or may be recovered under the Contractor’s bond. The liability of the Contractor for the removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Section 15, 19 and 20 of the River and Harbor Act of 3 March 1899 (33 U.S.C. 410 et seq.).

1.19 STORM PROTECTION

The Contractor shall take every practicable precaution to minimize danger from storms to personnel, the work, and to adjacent property.

1.20 RECEIPT OF MATERIALS

The Contractor is responsible to receive all equipment, materials, and supplies.

1.21 DELIVERY AND STORAGE

The Contractor is responsible for the proper transport and storage of all equipment and materials.

1.22 SECURITY

1.22.1.1.1 Submit a list of the names of all personnel working on the project site prior to the preconstruction conference for approval. The list shall be submitted via email, and at a minimum, include the first name, last name, job description, and company of employment.

1.22.1.1.2 Submit a new list within three working days of a change in on-site project personnel. Only personnel on the approved list are allowed onto the project site.

1.22.1.1.3 All approved personnel shall carry a valid, Government-issued identification while on USCG property in conformance with the Real ID Act of 2005. Non-compliant personnel shall be escorted off USCG property.

1.23 FINAL INSPECTION AND ACCEPTANCE

Submit an electronic, written request for final inspection acceptance to the COR in accordance with the paragraph titled Special Prior Notice Notifications and Requests.

1.24 WARRANTIES

Endorse all warranties or guarantees to the USCG.

1.25 PRE-CONSTRUCTION SURVEY

The Contractor shall perform a pre-construction survey of the existing aid-to-navigation structure to determine the exact location of the center of the existing light. The new aid-to-navigation structure and light shall be located as close as possible to the center of the existing light. The Contractor shall mark the geographic position of the existing and proposed lights and submit the position to the government for approval along with photographs showing the marked location with reference to other landmarks.

1.26 POST-CONSTRUCTION SURVEY

Once construction is complete and the USCG installs the new lights and day boards, the Contractor shall use a third party, registered land surveyor to survey the actual position of the light on the structure. Survey and report shall be submitted in accordance with Appendix D.

-- End of Section --

SECTION 01 32 01.00 10
PROJECT SCHEDULE

PART 1 GENERAL

1.1 GENERAL

Prepare a horizontal bar graph project schedule using a time scale. The project should be divided and subdivided into a sufficient number of work activities that can accurately graphically display the work sequence, activity duration interplay of activities, and dollar value of each activity.

1.2 RESPONSIBILITIES

The Contractor is responsible for executing the work within the time stated in the contract.

1.3 SUBMITTALS

1.3.1 FINAL PROJECT SCHEDULE

Submit the final project schedule no later than five calendar days after receiving the notice to proceed (NTP). A draft schedule is to be submitted before the preconstruction conference with time periods shown but without dates of NTP and completion shown. Once a NTP date is established, the dates are to be filled in. By having the draft schedule at the preconstruction conference, the COR and the Contractor can discuss any apparent inconsistencies or omissions, and approval can be expedited.

Submit an updated project schedule every month along with the request for payment.

1.3.2 UPDATED PROJECT SCHEDULE

Submit an updated project schedule every month along with the request for payment.

PART 2 PRODUCTS

2.1 PROJECT SCHEDULE

The project schedule shall include the project name, location, contract number, and company name. The final project schedule, with the NTP and completion dates filled in, shall be signed.

At the left side of the form, list in columns.

2.1.1 Activity number and description - At a minimum, break down the project into 10 activities or the number of disciplines or trades involved in the project. Activities can be of various origins (i.e., by specification section, by logical sequence of work, by breakdown used for bid estimates, etc.)

2.1.2 Specification section reference - This is optional. Use only if the breakdown of activities directly correlates with the specification sections.

2.1.3 The activities percentage (i.e. 50 percent) or weight (i.e., 0.5) of the entire contract based on dollar value - the cumulative percentage shall add up to 100 percent.

2.1.4 Estimated value of the activity - Profit and overhead should be distributed throughout activities or listed as a separate line item and distributed over the entire length of the project. The total values shall add to the contract amount.

Establish the time schedule across the top of the sheet for the entire project duration. Divide the project into months, weeks, or days depending on the length of the project and an appropriate time scale.

Lay out a bar graph opposite each activity, corresponding to the schedule start date and extended for the scheduled duration of the activity. Indicate the percentage of the activity, which you intend to complete each week above or below each bar.

PART 3 EXECUTION

3.1 UPDATING SCHEDULE

Update and submit the project schedule every month with progress payment showing actual progress. The updated project schedule shall include the original information and an updated actual progress curve using a broken line.

3.2 DELAYS

If the Contractor knows or has reason to believe that the delivery of any material or equipment, the shortage of qualified labor, delays caused by others, or the occurrence of any other difficulty may cause delay in executing the work as scheduled, the Contractor shall notify the COR, in writing, within three calendar days.

3.3 PROGRESS CHART

A sample progress chart is shown on the following page. This is provided for reference only. It displays the "type" of information, which shall be included in the submitted project schedules.

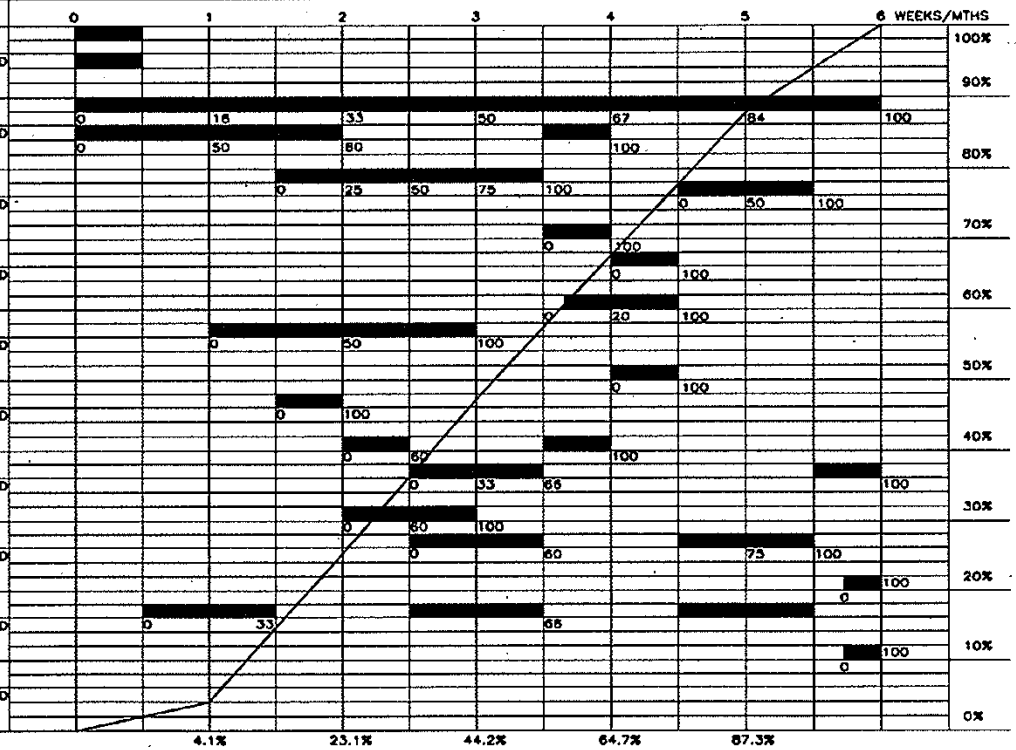
CONSTRUCTION PROGRESS CHART SAMPLE SAMPLE SAMPLE

TO: CONTRACTING OFFICER CEU. MIAMI	1. FROM: CONTRACTOR, INC.	2. VIA	3. REPORT FOR PERIOD ENDING	4. REPORT NUMBER
5. CONTRACT NUMBER: DTO82-98-C-3WA01	7. CONTRACT DESCRIPTION: REHABILITION OF ADMINISTRATION BUILDING USCG STATION WHEREVER	8. SUBMITTED FOR APPROVAL	DATE	
6. LOCATION: MIAMI, FL.		9. APPROVAL RECOMMENDED		
		10. APPROVED		

LEGEND — BARS PROGRESS TO DATE OF REPORT; ACTUAL PROGRESS CURVES %; 0% 50 100

SCHED. PROGRESS ____ % ACTUAL ____ %

PRINCIPAL CONTRACT FEATURE	WT. %	ESTIMATED COST	
1. BOND	6.0	$21,000	
2. MOBILIZATION	8.0	$28,000	SCHEDULED / ACTUAL
3. SITE WORK, DEMOLITION	3.3	$11,550	
4. SITE WORK, EARTHWORK	7.6	$26,000	SCHEDULED / ACTUAL
5. ROADS AND WALKWAYS	1.0	$ 6,300	
6. CONCRETE	0.4	$ 1,400	SCHEDULED / ACTUAL
7. MASONRY	0.1	$ 450	
8. MISCELLANEOUS METALS	1.2	$ 4,200	SCHEDULED / ACTUAL
9. CARPENTRY	4.2	$14,700	
10. MOISTURE PROTECTION, SIDING	1.6	$ 6,250	SCHEDULED / ACTUAL
11. MOISTURE PROTECTION, ROOFING	2.1	$ 7,350	
12. DOORS & WINDOWS	13.0	$45,500	SCHEDULED / ACTUAL
13. FINSIHES	12.0	$42,000	
14. SPECIALTIES	9.1	$31,850	SCHEDULED / ACTUAL
15. MECHANICAL, PLUMBING	4.0	$14,000	
16. MECHANICAL, HVAC	10.3	$36,050	SCHEDULED / ACTUAL
17. MECHANICAL, TEST & BALLANCE	0.6	$ 2,100	
18. ELECTRICAL	11.4	$40,600	SCHEDULED / ACTUAL
19. DEMOBILIZATION	3.2	$11,200	
TOTAL:		$350,000	SCHEDULED / ACTUAL



NOTICE TO PROCEED DATE: _____ COMPLETION DATE: _____

-- End of Section --

13832866

SECTION 01 33 00
SUBMITTALS PROCEDURES

PART 1 GENERAL

1.1 SUBMITTALS REQUIRED

Items to be submitted are specified in each applicable section of this specification. Submittals shall be approved before procurement, fabrication, or delivery of items to the job site. Partial submittals are not acceptable and will be returned without review. Submittals shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, layout dimensions, capacity, project specification and paragraph reference, applicable federal, military, industry and technical society publication references, and other information necessary to establish contract compliance of each item the Contractor proposes to furnish.

1.2 TIMING OF SUBMITTALS

1.2.1 TIMING AND SEQUENCE

Submit submittals in sufficient time and in such sequence to avoid delays in the work. Except for voluminous submittals, numerous submittals submitted on or about the same time, and submittals for very complex items, submittals will be reviewed by the COR and returned to the Contractor within 10 working days after receipt. The Contractor shall begin the shop drawing submittal process after the project is awarded.

1.2.2 LONG LEAD TIME ITEMS

Submit a list of long lead items within five calendar days of award. This list shall identify items such as but not limited to materials, fabrication, and delivery of items to the job site. The Contractor shall prepare submittals and submit those items in sufficient time to avoid delays. Special attention shall be given to the long lead items to avoid delays in the work.

1.2.3 SHOP DRAWING SUBMITTAL PROCESS

The Contractor shall begin the shop drawing submittal process after the project is awarded. Special attention shall be given to long lead items to avoid delays in the work.

1.3 DEFINITION

The Contractor shall review individual sections for special submittal requirements and applicable publications relating to submittals. Typical submittal types and numbers of each required, are as follows:

1.3.1 MANUFACTURER'S DATA (ONE ELECTRONIC COPY)

Submittals for each manufactured item shall be manufacturer's descriptive literature of cataloged products, equipment drawings, diagrams, performance and characteristic curves and catalog cuts. Submit complete descriptive data for each type of material. Clearly mark data to indicate the type the Contractor intends to provide.

1.3.2 SHOP DRAWINGS (FIVE EACH)

Shop drawings shall show types, sizes, accessories, and other items that must be shown to ensure a coordinated installation. If any equipment is disapproved, the drawings shall be revised to show acceptable equipment and be resubmitted. Shop drawings shall be a minimum of 8.5 inches by 11 inches in size.

1.3.3 SCHEDULES (ONE ELECTRONIC COPY)

As required under specific sections.

-- End of Section --

SECTION 01 45 00
QUALITY CONTROL

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. Army Corps of Engineers (USACE)

EM 385-1-1 2024 Safety and Occupational Health Requirements

1.2 SUBMITTALS

The USCG approval is required for all submittals indicated below. The following shall be submitted in accordance with Section 01 33 00, Submittal Procedures:

Submit a quality control plan within 15 calendar days after award.

1.3 INFORMATION FOR THE COR

Deliver the following to the COR:

1.3.1 Contractor Quality Control (CQC) Report: Original by 10:00 AM the next working week that work is performed.

1.3.2 Contractor Production Report: Original by 10:00 AM the next working week that work is performed.

1.3.3 Preparatory Phase Checklist: Original attached to the CQC Report.

1.3.4 Initial Phase Checklist: Original attached to the CQC Report.

1.3.5 Field Test Reports: Within the week after the test is performed, attached to the CQC report.

1.3.6 Quality Control (QC) Meeting Minutes: Within the week after the meeting.

1.3.7 QC Certifications: As required by the paragraph entitled "QC Certifications."

1.4 QUALITY CONTROL PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. The QC program consists of a QC manager, a QC plan, a coordination and mutual understanding meeting, QC meetings, three phases of control, submittal review and approval, testing, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction, and operations which comply with the requirements of this contract.

The QC program shall cover on-site and off-site work and shall be keyed to the work sequence. No work or testing may be performed unless the QC manager is on the work site.

1.4.1 PRELIMINARY WORK AUTHORIZED PRIOR TO ACCEPTANCE

The only work that is authorized to proceed prior to the acceptance of the QC plan is mobilization of storage and office trailers, temporary utilities, and surveying.

1.4.2 ACCEPTANCE

Acceptance of the QC plan is required prior to the start of construction. The COR reserves the right to require changes in the QC plan and operations as necessary, including removal of personnel, to ensure the specified quality of work. The COR reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications.

1.4.3 NOTIFICATION OF CHANGES

Notify the COR, in writing, of any proposed change, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to the acceptance by the COR.

1.5 QC ORGANIZATION

1.5.1 QC MANAGER

1.5.1.1 Duties

Provide a QC manager at the work site to implement and manage the QC program. In addition to implementing and managing the QC program, the QC manager may perform the duties of site superintendent. The QC manager is required to attend the coordination and mutual understanding meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this contract. The QC manager is responsible for managing and coordinating the three phases of control and documentation performed by others.

1.5.1.2 Qualifications

An individual with a minimum of ten years combined experience as a superintendent, inspector, QC manager, project manager or construction manager on similar size and type construction contracts which included the major trades that are part of this contract. The individual must be familiar with the requirements of the EM 385-1-1 and have experience in the areas of hazard identification and safety compliance.

1.5.1.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC manager shall have completed the course “Construction Quality Management for Contractors” and will have a current certificate.

1.5.2 ALTERNATE QC MANAGER DUTIES AND QUALIFICATIONS

Designate an alternate QC manager to serve in the event of the designated QC manager's absence. The period of absence may not exceed two weeks at one time, and not more than 30 working days during a calendar year. The qualification requirements for the alternate QC manager shall be the same as for the QC manager.

1.6 QUALITY CONTROL PLAN

1.6.1 REQUIREMENTS

Provide, for acceptance by the COR, a QC plan submitted electronically that covers both on-site and off-site work and includes the following with a table of contents listing the major sections identified with tabs.

1.6.1.1 QC Organization: A chart showing the QC organizational structure and its relationship to the production side of the organization.

1.6.1.2 Names and Qualifications: In resume format, for each person in the QC organization. Include the QC manager for contractor's course certification required by the paragraph entitled "Construction Quality Management Training".

1.6.1.3 Duties, Responsibilities and Authorities of QC Personnel: Of each person in the QC organization.

1.6.1.4 Outside Organizations: A listing of outside organizations such as architectural and consulting engineering firms that will be employed by the Contractor and a description of the services these firms will provide.

1.6.1.5 Appointment Letters: Letters signed by an officer of the firm appointing the QC manager and alternate QC manager and stating that they are responsible for managing and implementing the QC program as described in this contract. Include in this letter the QC manager's authority to direct the removal and replacement of non-conforming work.

1.6.1.6 Submittal Procedures and Initial Submittal Registers: Procedures for reviewing, approving, and managing submittals. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval.

1.6.1.7 Testing Plan and Log: A testing plan and log that includes the tests required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

1.6.1.8 Procedures to Complete Rework Items: Procedures to identify, record, track, and complete rework items.

1.6.1.9 Documentation Procedures:

1.6.1.10 List of Definable Features: A definable feature of work (DFOW) is a task, which is separate and distinct from other tasks, has the same control requirements and work crews. The list shall be cross-referenced to the Contractor's construction schedule and the specification sections. For

projects requiring a progress chart, the list of definable features of work shall include but not be limited to all items of work on the schedule. For projects requiring a network analysis schedule, the list of definable features of work shall include but not be limited to all critical path activities.

1.6.1.11 Procedures for Performing Three Phases of Control: For each DFOW provide preparatory and initial phase checklists. Each list shall include a breakdown of quality checks that will be used when performing the quality control functions, inspections, and tests required by the contract documents. The preparatory and initial phases shall be conducted with a view towards obtaining quality construction by planning ahead and identifying potential problems.

1.6.1.12 Procedures for Completion Inspection: See the paragraph titled “Completion Inspections”.

1.7 COORDINATION AND MUTUAL UNDERSTANDING MEETING

During the preconstruction conference and prior to the start of construction, discuss the QC program required by this contract. The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, and the coordination of the Contractor’s management, production and the QC personnel. At the meeting, the Contractor will be required to explain how three phases of control will be implemented for each DFOW. The Contractor’s personnel required to attend shall include the QC manager, project manager, and superintendent. Minutes of the meeting will be prepared by the QC manager and be signed by both the Contractor and the COR. The Contractor shall provide a copy of the signed minutes to all attendees. Repeat the coordination and mutual understanding meeting when a new QC manager is appointed.

1.8 QC MEETINGS

After the start of construction, the QC manager shall conduct QC meetings once every two weeks at the work site with the superintendent and the foreman responsible for the ongoing and upcoming work. The QC manager shall prepare the minutes of the meeting and provide a copy to the COR within two working days after the meeting. As a minimum, the following shall be accomplished at each meeting:

1.8.1 Review the minutes of the previous meeting.

1.8.2 Review the schedule and the status of work and rework.

1.8.3 Review the status of submittals.

1.8.4 Review the work to be accomplished in the next two weeks and documentation required.

1.8.5 Resolve QC and production problems (Request for Information (RFIs), etc.).

1.8.6 Address items that may require revising the QC plan.

1.8.7 Review the safety plan.

1.9 THREE PHASES OF CONTROL

The three phases of control shall adequately cover both on-site and off-site work and shall include the following for each DFOW.

1.9.1 PREPARATORY PHASE

Notify the COR at least two working days in advance of each preparatory phase. Conduct the preparatory phase with the superintendent and the foreman responsible for the DFOW. Document the results of the preparatory phase actions in the daily CQC report and in the QC checklist. Perform the following prior to beginning work on each DFOW:

1.9.1.1 Review each paragraph of the applicable specification sections.

1.9.1.2 Review the contract drawings.

1.9.1.3 Verify that appropriate shop drawings and submittals for materials and equipment are submitted and approved. Verify receipt of approved factory test results, when required.

1.9.1.4 Review the testing plan and ensure that provisions are made to provide the required QC testing.

1.9.1.5 Examine the work area to ensure that the required preliminary work is completed.

1.9.1.6 Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data.

1.9.1.7 Review the Accident Prevention Plan (APP) and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required SDS are submitted.

1.9.1.8 Discuss specific controls used and the construction methods and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW.

1.9.2 INITIAL PHASE

Notify the COR at least two working days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the initial phase with the foreman responsible for that DFOW. Observe the initial segment of the work to ensure that it complies with contract requirements. Document the results of the Initial Phase in the daily CQC report and in the QC checklist. Perform the following for each DFOW:

1.9.2.1 Establish the quality of workmanship required.

1.9.2.2 Resolve conflicts.

1.9.2.3 Ensure that testing is performed by the approved laboratory.

1.9.2.4 Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.

1.9.3 FOLLOW-UP PHASE

Perform the following for on-going work daily, or more frequently as necessary, until the completion of each DFOW and document in the daily CQC report and in the QC checklist:

1.9.3.1 Ensure the work is in compliance with contract requirements.

1.9.3.2 Maintain the quality of workmanship required.

1.9.3.3 Ensure that testing is performed by the approved laboratory.

1.9.3.4 Ensure that rework items are being corrected.

1.9.3.5 Ensure manufacturers' representatives have performed necessary inspections, if required.

1.9.4 ADDITIONAL PREPARATORY AND INITIAL PHASES

Additional preparatory and initial phases shall be conducted on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW is resumed after substantial period of inactivity, or if other problems develop.

1.9.5 NOTIFICATION OF THREE PHASES OF CONTROL FOR OFF-SITE WORK

Notify the COR at least two weeks prior to the start of the preparatory and initial phases.

1.10 SUBMITTAL REVIEW AND APPROVAL

Procedures for submission, review, and approval of submittals are described in the submittal section of the specification.

1.11 QC CERTIFICATIONS

1.11.1 CONTRACTOR QUALITY CONTROL REPORT CERTIFICATION

Each CQC report shall contain the following statement: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used and work performed during this reporting period is in compliance with the contract drawings and specifications to the best of my knowledge except as noted in this report."

1.11.2 INVOICE CERTIFICATION

Furnish a certificate to the COR with each payment request, signed by the QC manager, attesting that as-built drawings are current and attesting that the work for which payment is requested, including stored material, is in compliance with contract requirements.

1.11.3 COMPLETION CERTIFICATION

Upon completion of work under this contract, the QC manager shall furnish a certificate to the COR attesting that "the work is completed, inspected, tested and is in compliance with the contract."

1.12 COMPLETION INSPECTIONS

1.12.1 PUNCH-OUT INSPECTION

Near the completion of all work or any increment thereof established by a completion time or stated elsewhere in the specifications, the QC manager shall conduct an inspection of the work and develop a punch list of items which do not conform to the approved drawings and specifications. Include in the punch list any remaining items which were not corrected prior to the punch-out inspection. The punch list shall include the estimated date by which the deficiencies will be corrected. A copy of the punch list shall be provided to the COR. The QC manager or staff shall make follow-on inspections to ascertain that all deficiencies are corrected. Once this is accomplished, the Contractor shall notify the USCG that the facility is ready for the USCG "Pre-Final Inspection".

1.12.2 FINAL ACCEPTANCE INSPECTION

The QC manager, the superintendent, or other Contractor management personnel and the COR will be in attendance at this inspection. Additional USCG personnel may be in attendance. The final acceptance inspection will be formally scheduled by the COR based upon results of the “Pre-Final Inspection”. Notice shall be given to the COR at least five working days prior to the final inspection. The notice shall state that all specific items previously identified to the Contractor as being unacceptable will be complete by the date scheduled for the final acceptance inspection.

1.13 DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph “Information for the COR” shall be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The superintendent and the QC manager must prepare and sign the Contractor production and CQC reports, respectively. The reporting of work shall be identified by terminology consistent with the construction schedule. In the “remarks” section in this report which will contain pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards

encountered, instructions given, and corrective actions taken, delays encountered and a record of visitors to the work site. For each remark given, identify the schedule activity number that is associated with the remark.

1.13.1 QUALITY CONTROL VALIDATION

Establish and maintain the following in a series of three ring binders. Binders shall be divided and tabbed as shown below. These binders shall be readily available to the COR during all business hours.

1.13.1.1 All completed Preparatory and Initial Phase Checklists, arranged by specification section.

1.13.1.2 All milestone inspections, arranged by Activity/Event Number.

1.13.1.3 A current up-to-date copy of the Testing and Plan Log with supporting field test reports, arranged by specification section.

1.13.1.4 Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.

1.13.1.5 A current up-to-date copy of the punch List.

1.13.1.6 Maintain up-to-date copies of all punch lists issued by the QC Staff, the Contractor and Sub-Contractors and of all punch lists issued by the USCG.

1.13.2 AS-BUILT DRAWINGS

The QC manager is required to review the as-built drawings and ensure that they are kept current on a daily basis and marked to show deviations, which are made from the contract drawings. Ensure each deviation is identified with the appropriate modifying documentation, e.g. modification number, RFI number, etc. The QC manager shall initial each deviation or revision. Upon completion of work, the QC manager shall submit a certificate attesting to the accuracy of the as-built drawings prior to submission to the COR.

1.14 NOTIFICATION ON NON-COMPLIANCE

The COR will notify the Contractor of any detected non-compliance with the foregoing requirements. The Contractor shall take immediate corrective action. If the Contractor fails or refuses to correct the non-compliant work, the COR will issue a non-compliance notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the COR may issue an order stopping all or part of the work until satisfactory corrective action is taken. The Contractor shall make no part of the time lost due to such stop orders the subject of a claim for extension of time, for excess costs, or damages.

-- End of Section --

SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 112 Oil Pollution Prevention

40 CFR 171 General Information, Regulations, and Definitions

40 CFR 172 Hazardous Materials, Tables, and Hazardous Materials

40 CFR 261 Identification and Listing of Hazardous Waste

40 CFR 279 Used Oil Regulations

40 CFR 300 National Oil and Hazardous Substances Pollution Contingency Plan

40 CFR 355 Emergency Planning and Notification

1.2 DEFINITIONS

1.2.1 SEDIMENT

Soil and other debris, including that which has eroded and has been transported by runoff water or wind.

1.2.2 SOLID WASTE

Garbage, refuse, debris, rubbish, or other discharged material (except hazardous waste as defined in the paragraph titled Hazardous Waste) resulting from domestic, industrial, commercial, mining, or agricultural operations.

1.2.3 DEBRIS

Combustible and noncombustible wastes such as ashes and waste materials resulting from construction or maintenance and repair work, leaves, and tree trimmings.

1.2.4 HAZARDOUS WASTE

Hazardous waste as defined in 40 CFR 261 or as defined by applicable state and local regulations.

1.2.5 HAZARDOUS MATERIALS

Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172.

1.3 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during normal construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with federal, state, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

1.3.1 CONTRACTOR LIABILITIES FOR ENVIRONMENTAL PROTECTION

The Contractor is advised that this project and facility are subject to federal, state, and local regulatory inspections to review compliance with environmental laws and regulations. The Contractor shall fully cooperate with any representative from any federal, state or local regulatory agency who may visit the job site and shall provide immediate notification to the COR, who shall accompany them on any subsequent site inspections. The Contractor shall complete, maintain, and make available to the COR, base, or regulatory agency personnel all documentation relating to environmental compliance under applicable federal, state, and local laws and regulations. The Contractor shall immediately notify the COR if a notice of violation is issued to the contractor.

PART 2 EXECUTION

1.4 PROTECTION OF NATURAL RESOURCES

Preserve the natural resources within the project boundaries and outside the limits of permanent work unless otherwise indicated. Restore to an equivalent or improved condition upon completion of work. Confine construction activities to within the limits of the work indicated or specified.

1.4.1 WATER RESOURCES

Prevent oil or hazardous substances from entering the ground, drainage areas, or navigable waters. In accordance with 40 CFR 112, surround all temporary fuel oil or petroleum storage tanks with a temporary berm or containment of sufficient size and strength to contain the contents of the tanks, plus 10 percent freeboard for precipitation. The berm shall be impervious to oil for 72 hours and be constructed so that any discharge will not permeate, drain, infiltrate, or otherwise escape before cleanup occurs.

1.4.2 FISH AND WILDLIFE RESOURCES

Do not disturb fish and wildlife. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as indicated or specified.

1.5 TURBIDITY CONTROL

1.5.1 PROTECTIVE MEASURES

Turbidity Controls – A floating turbidity boom and curtain shall be installed to surround the specific work areas to prevent degradation of the water quality. Any turbidity control devises used shall remain in place until turbidity within controlled areas returns to within ambient turbidity levels of the surrounding waters. The Contractor shall ensure that turbidity curtains surround all the active work sites and extend to within one foot of the bottom. Turbidity levels measured in nephelometric turbidity units (NTUs) shall be maintained.

1.5.2 EXCEED LIMIT

If turbidity at the compliance sites exceeds the background site by more than 29 NTUs, the Contractor shall immediately notify the COR. All measures required to reduce turbidity shall be immediately taken. Such measures shall include work shutdown, if necessary. Construction shall not resume until turbidity has returned to acceptable levels as determined by proper testing.

1.6 CONTROL AND DISPOSAL OF HAZARDOUS SUBSTANCES

1.6.1 DISPOSAL OF CHROMATED COPPER ARSENATE TREATED WOOD

1.6.1.1 Transportation

The Contractor shall use manifests for transporting hazardous wastes as required by 40 CFR 263 or any applicable state or local law or regulation. Transportation shall comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. The Contractor shall prepare hazardous waste manifests for each shipment of hazardous waste shipped off-site. Manifests shall be completed using instructions in 40 CFR 262, Subpart B and any applicable state or local law or regulation. Manifests and waste profiles shall be submitted to the COR for review and approval. The Contractor shall prepare land disposal restriction notifications as required by 40 CFR 268 or any applicable state or local law or regulation for each shipment of hazardous waste. Notifications shall be submitted with the manifest to the COR for review and approval.

1.6.1.2 Disposal of Hazardous Wastes

The hazardous waste shall be transported to an approved hazardous waste disposal facility within 30 days of the accumulation start date on each container. The Contractor shall ship hazardous wastes only to facilities which are properly permitted to accept the hazardous waste or operating under interim status. The Contractor shall ensure wastes are treated to meet land disposal treatment standards in 40 CFR 268 prior to land disposal. The Contractor shall propose the approved hazardous waste disposal facility via submission of the hazardous waste management plan, subject to the approval of the COR.

1.6.2 PETROLEUM PRODUCTS

Conduct the fueling and lubricating of equipment and motor vehicles in a manner that protects against spills and evaporation. All used oil generated on site shall be managed in accordance with 40 CFR 279 and FAC 62-710. The Contractor shall determine if any used oil generated while on site exhibits a characteristic of hazardous waste. In addition, used oil containing 1,000 parts per million of solvents will be considered a hazardous waste and

disposed of at the Contractor's expense. Used oil mixed with a hazardous waste will also be considered a hazardous waste.

1.6.3 RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES

Take precautions to prevent releases/spills of oil and hazardous substances. In the event of any releases of oil and hazardous substances, chemicals, or gases, notify the COR within 15 minutes. The Contractor is responsible for verbal and written notifications as required by 40 CFR 355, state, and local regulations. Spill response shall be in accordance with 40 CFR 300 and applicable state and local regulations. Contain and clean up these spills without cost to the USCG. Provide copies of the written notification and documentation that a verbal notification was made within 20 calendar days.

1.7 DUST CONTROL

Keep dust down at all times, including during non-working periods. Sprinkle with water the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning non-particulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

1.8 NOISE

Make the maximum use of low-noise emission products, as certified by the Environmental Protection Agency. Blasting or use of explosives will not be permitted without written permission from the COR, and then only during the designated times.

--End of Section--

SECTION 02 41 19
SELECTIVE STRUCTURAL DEMOLITION

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A1O.6 (2014) Demolition Operations

1.2 GENERAL REQUIREMENTS

Do not begin demolition until authorization is received from the COR. Remove rubbish and debris from the project site; do not allow accumulation inside or outside buildings and operating areas. Store materials that cannot be removed daily in areas specified by the COR.

1.3 SUBMITTALS

Submit the following in accordance with Section 01 33 00, Submittal Procedures.

1.3.1 Demolition Plan

Submit proposed demolition and removal procedures to the COR for approval before work is started.

1.4 REGULATORY AND SAFETY REQUIREMENTS

Comply with federal, state, and local hauling and disposal regulations. In addition safety requirements shall conform with ANSI A1O.6.

1.5 PROTECTION

1.5.1 Existing Work

Protect existing work which is to remain in place, be reused, or remain the property of the USCG. Repair items which are to remain and which are damaged during performance of the work to their original condition, or replace with new. Do not overload structural elements or pavements. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement, or structural replacement must have the COR’s approval.

1.5.2 Facilities

Protect electrical and mechanical services and utilities.

1.6 BURNING

Burning will not be permitted.

PART 2 EXECUTION

2.1 DISPOSAL OF MATERIALS

All demolished, and removed materials and equipment from the ATON structure shall be removed from USCG property. Disposal of all materials shall be done in accordance with all applicable federal, state, and local laws. The USCG will not be responsible for the condition or loss of, or damage to, such property after contract award. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

2.2 CLEAN UP

Clean up spillage from pavements, streets and adjacent areas. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets, or adjacent areas.

-- End of Section --

APPENDIX A

SUBMITTAL REGISTER

SUBMITTAL REGISTER

CONTRACT NO.

REBUILD BAHIA DE GUAYANILLA ENTRANCE RRL (LLNR 32075), AIDS TO NAVIGATION TEAM (ANT) PUERTO RICO, PUERTO RICO

PROJECT NUMBER: 1383286

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		APPROVING AUTHORITY						
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
(a)	(b)	(c)	(d)	(e)		(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 11 00	SD-01 Preconstruction/Post Construction Submittals															
1			Progress and completion pictures															
2			Record Drawings															
3			Report pre-construction position															
4			Post-Construction Survey Report as per Appendix D requirements															
5			Safety Plan															
6			King Pile Embedment and Installation Plan															
7			Notification to U.S. Coast Guard ANT Puerto Rico that the existing lights and day boards are ready to be dismantelled															
8			Notification to U.S. Coast Guard ANT Puerto Rico that the new lights and day boards are ready to be installed															
		01 32 01.00 10	SD-01 Preconstruction Submittals															
9			Final Progress Schedule															
10			Updated Project Schedule															
		01 33 00	SD-01 Preconstruction Submittals															
11			Submittal register															
		01 45 00	SD-01 Preconstruction Submittals															
12			Construction Quality Management Certificate															
13			Quality Control Plan															
		N/A	General															
14			Demolition plan															
15			Qualification of Welders and Welding Operators															
		Drawings																
16			Fabrication Shop Drawings															
17			Steel Product Data															
18			Bolts, nuts, and washers Product Data															
19			Anchor bolts, nuts and washers Product Data															
20			Fiberglas Grating Product Data															
21			Guardrails Product Data															
22			Ladders Data															

SUBMITTAL FORM, JAN 96 PREVIOUS EDITION IS OBSOLETE PAGE 1 OF 2 PAGES

SUBMITTAL REGISTER																			CONTRACT NO.
REBUILD BAHIA DE GUAYANILLA ENTRANCE RRL (LLNR 32075), AIDS TO NAVIGATION TEAM (ANT) PUERTO RICO, PUERTO RICO PROJECT NUMBER: 1383286																			CONTRACTOR
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							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION	MAILED TO CONTR/ DATE RCD FRM APPR AUTH	
(a)	(b)	(c)	(d)	(e)		(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	
23			Lattice Tower Product Data																
24			Coating Product Data																

APPENDIX B

ENVIRONMENTAL BEST MANAGEMENT PRACTICES

NATIONWIDE STANDARD CONSERVATION MEASURES

Listed below are effective measures that should be employed at all project development sites nationwide with the goal of reducing impacts to birds and their habitats. These measures are grouped into three categories: General, Habitat Protection, and Stressor Management. These measures may be updated through time. We recommend checking the Conservation Measures website regularly for the most up-to-date list.

1. **General Measures**
   a. Educate all employees, contractors, and/or site visitors of relevant rules and regulations that protect wildlife. See the Service webpage on Regulations and Policies for more information on regulations that protect migratory birds.
   b. Prior to removal of an inactive nest, ensure that the nest is not protected under the Endangered Species Act (ESA) or the Bald and Golden Eagle Protection Act (BGEPA). Nests protected under ESA or BGEPA cannot be removed without a valid permit.
      i. See the Service Nest Destruction Policy
   c. Do not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit. Please visit the Service permits page for more information on permits and permit applications.
   d. Provide enclosed solid waste receptacles at all project areas. Non-hazardous solid waste (trash) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor. For more information about solid waste and how to properly dispose of it, see the EPA Non-Hazardous Waste website.
   e. Report any incidental take of a migratory bird, to the local Service Office of Law Enforcement.
   f. Consult and follow applicable Service industry guidance.

2. **Habitat Protection**
   a. Minimize project creep by clearly delineating and maintaining project boundaries (including staging areas).
   b. Consult all local, State, and Federal regulations for the development of an appropriate buffer distance between development site and any wetland or waterway. For more information on wetland protection regulations see the Clean Water Act sections 401 and 404.
   c. Maximize use of disturbed land for all project activities (i.e., siting, lay-down areas, and construction).
   d. Implement standard soil erosion and dust control measures. For example:
      i. Establish vegetation cover to stabilize soil
      ii. Use erosion blankets to prevent soil loss
      iii. Water bare soil to prevent wind erosion and dust issues

3. Stressor Management

Stressor: Vegetation Removal

Conservation Goal: Avoid direct take of adults, chicks, or eggs.

Conservation Measure 1: Schedule all vegetation removal, trimming, and grading of vegetated areas outside of the peak bird breeding season to the maximum extent practicable. Use available resources, such as internet-based tools (e.g., the FWS's Information, Planning and Conservation system and Avian Knowledge Network) to identify peak breeding months for local bird species; or, contact local Service Migratory Bird Program Office for breeding bird information.

Conservation Measure 2: When project activities cannot occur outside the bird nesting season, conduct surveys prior to scheduled activity to determine if active nests are present within the area of impact and buffer any nesting locations found during surveys.

1) Generally, the surveys should be conducted no more than five days prior to scheduled activity.
2) Timing and dimensions of the area to be surveyed vary and will depend on the nature of the project, location, and expected level of vegetation disturbance.
3) If active nests or breeding behavior (e.g., courtship, nest building, territorial defense, etc.) are detected during these surveys, no vegetation removal activities should be conducted until nestlings have fledged or the nest fails or breeding behaviors are no longer observed. If the activity must occur, establish a buffer zone around the nest and no activities will occur within that zone until nestlings have fledged and left the nest area. The dimension of the buffer zone will depend on the proposed activity, habitat type, and species present and should be coordinated with the local or regional Service office.
4) When establishing a buffer zone, construct a barrier (e.g., plastic fencing) to protect the area. If the fence is knocked down or destroyed, work will suspend wholly, or in part, until the fence is satisfactorily repaired.
5) When establishing a buffer zone, a qualified biologist will be present onsite to serve as a biological monitor during vegetation clearing and grading activities to ensure no take of migratory birds occurs. Prior to vegetation clearing, the monitor will ensure that the limits of construction have been properly staked and are readily identifiable. Any associated project activities that are inconsistent with the applicable conservation measures, and activities that may result in the take of migratory birds will be immediately halted and reported to the appropriate Service office within 24 hours.
6) If establishing a buffer zone is not feasible, contact the Service for guidance to minimize impacts to migratory birds associated with the proposed project or removal of an active nest. Active nests may only be removed if you receive a permit from your local Migratory Bird Permit Office. A permit may authorize active nest removal by a qualified biologist with bird handling experience or by a permitted bird rehabilitator.

Conservation Measure 3: Prepare a vegetation maintenance plan that outlines vegetation maintenance activities and schedules so that direct bird impacts do not occur.

Stressor: Invasive Species Introduction
Conservation Goal: Prevent the introduction of invasive plants.

Conservation Measure 1: Prepare a weed abatement plan that outlines the areas where weed abatement is required and the schedule and method of activities to ensure bird impacts are avoided.

Conservation Measure 2: For temporary and permanent habitat restoration/enhancement, use only native and local (when possible) seed and plant stock.

Conservation Measure 3: Consider creating vehicle wash stations prior to entering sensitive habitat areas to prevent accidental introduction of non-native plants.

Conservation Measure 4: Remove invasive/exotic species that pose an attractive nuisance to migratory birds.

Stressor: Artificial Lighting
Conservation Goal: Prevent increase in lighting of native habitats during the bird breeding season.

Conservation Measure 1: To the maximum extent practicable, limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.

Conservation Measure 2: If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low intensity energy saving lighting (e.g. low pressure sodium lamps) will be used.

Conservation Measure 3: Minimize illumination of lighting on associated construction or operation structures by using motion sensors or heat sensors.

Conservation Measure 5: Bright white light, such as metal halide, halogen, fluorescent, mercury vapor and incandescent lamps should *not* be used.

Stressor: Human Disturbance
Conservation Goal: Minimize prolonged human presence near nesting birds during construction and maintenance actions.

Conservation Measure 1: Restrict unauthorized access to natural areas adjacent to the project site by erecting a barrier and/or avoidance buffers (e.g., gate, fence, wall) to minimize foot traffic and off-road vehicle uses.

Stressor: Collision

Conservation Goal: Minimize collision risk with project infrastructure and vehicles.

Conservation Measure 1: Minimize collision risk with project infrastructure (e.g., temporary and permanent) by increasing visibility through appropriate marking and design features (e.g., lighting, wire marking, etc.).

Conservation Measure 2: On bridge crossing areas with adjacent riparian, beach, estuary, or other bird habitat, use fencing or metal bridge poles (Sebastian Poles) that extend to the height of the tallest vehicles that will use the structure.

Conservation Measure 3: Install wildlife friendly culverts so rodents and small mammals can travel under any new roadways instead of over them. This may help reduce raptor deaths associated with being struck while tracking prey or scavenging road kill on the roadway.

Conservation Measure 4: Remove road-kill carcasses regularly to prevent scavenging and bird congregations along roadways.

Conservation Measure 5: Avoid planting "desirable" fruited or preferred nesting vegetation in medians or Rights of Way.

Conservation Measure 6: Eliminate use of steady burning lights on tall structures (e.g., >200 ft).

Stressor: Entrapment

Conservation Goal: Prevent birds from becoming trapped in project structures or perching and nesting in project areas that may endanger them.

Conservation Measure 1: Minimize entrapment and entanglement hazards through project design measures that may include:

1. Installing anti-perching devices on facilities/equipment where birds may commonly nest or perch
2. Covering or enclosing all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material must have no opening or mesh size greater than 19 mm and must be maintained until the structure is removed.
3. Cap pipes and cover/seal all small dark spaces where birds may enter and become trapped.

Conservation Measure 2: Use the appropriate deterrents to prevent birds from nesting on structures where they cause conflicts, may endanger themselves, or create a human health and safety hazard.

1. During the time that the birds are trying to build or occupy their nests (generally , between April and August, depending on the geographic location), potential nesting

surfaces should be monitored at least once every three days for any nesting activity, especially where bird use of structures is likely to cause take. It is permissible to remove non-active nests (without birds or eggs), partially completed nests, or new nests as they are built (prior to occupation). If birds have started to build any nests, the nests shall be removed before they are completed. Water shall not be used to remove the nests if nests are located within 50 feet of any surface waters.

2. If an active nest becomes established (i.e., there are eggs or young in the nest), all work that could result in abandonment or destruction of the nest shall be avoided until the young have fledged or the nest is unoccupied. Construction activities that may displace birds after they have laid their eggs and before the young have fledged should not be permitted. If the project continues into the following spring, this cycle shall be repeated. When work on the structure is complete, all netting shall be removed and properly disposed of.

Stressor: Noise

Conservation Goal: Prevent the increase in noise above ambient levels during the nesting bird breeding season.

Conservation Measure 1: Minimize an increase in noise above ambient levels during project construction by installing temporary structural barriers such as sand bags

Conservation Measure 2: Avoid permanent additions to ambient noise levels from the proposed project by using baffle boxes or sound walls.

Stressor: Chemical Contamination

Conservation Goal: Prevent the introduction of chemicals contaminants into the environment.

Conservation Measure 1: Avoid chemical contamination of the project area by implementing a Hazardous Materials Plan. For more information on hazardous waste and how to properly manage hazardous waste, see the EPA Hazardous Waste website.

Conservation Measure 2: Avoid soil contamination by using drip pans underneath equipment and containment zones at construction sites and when refueling vehicles or equipment.

Conservation Measure 3: Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging laydown, and dispensing of fuel, oil, etc., to designated upland areas.

Conservation Measure 4: Any use of pesticides or rodenticides shall comply with the applicable Federal and State laws.

1. Choose non-chemical alternatives when appropriate
2. Pesticides shall be used only in accordance with their registered uses and in accordance with the manufacturer's instructions to limit access to non-target species.

3. For general measures to reducing wildlife exposure to pesticides, see EPA's Pesticides: Environmental Effects website.

Stressor: Fire

Conservation Goal: Minimize fire potential from project-related activities.

Conservation Measure 1: Reduce fire hazards from vehicles and human activities (e.g., use spark arrestors on power equipment, avoid driving vehicles off road).

Conservation Measure 2: Consider fire potential when developing vegetation management plans by planting temporary impact areas with a palate of low-growing, sparse, fire resistant native species that meet with the approval of the County Fire Department and local FWS Office.

NATIONAL BALD EAGLE MANAGEMENT GUIDELINES

U.S. Fish and Wildlife Service

May 2007

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INTRODUCTION

The bald eagle (*Haliaeetus leucocephalus*) is protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The MBTA and the Eagle Act protect bald eagles from a variety of harmful actions and impacts. The U.S. Fish and Wildlife Service (Service) developed these National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of the Eagle Act may apply to their activities. A variety of human activities can potentially interfere with bald eagles, affecting their ability to forage, nest, roost, breed, or raise young. The Guidelines are intended to help people minimize such impacts to bald eagles, particularly where they may constitute "disturbance," which is prohibited by the Eagle Act.

The Guidelines are intended to:

(1) Publicize the provisions of the Eagle Act that continue to protect bald eagles, in order to reduce the possibility that people will violate the law,

(2) Advise landowners, land managers and the general public of the potential for various human activities to disturb bald eagles, and

(3) Encourage additional nonbinding land management practices that benefit bald eagles (see Additional Recommendations section).

While the Guidelines include general recommendations for land management practices that will benefit bald eagles, the document is intended primarily as a tool for landowners and planners who seek information and recommendations regarding how to avoid disturbing bald eagles. Many States and some tribal entities have developed state-specific management plans, regulations, and/or guidance for landowners and land managers to protect and enhance bald eagle habitat, and we encourage the continued development and use of these planning tools to benefit bald eagles.

Adherence to the Guidelines herein will benefit individuals, agencies, organizations, and companies by helping them avoid violations of the law. However, the Guidelines themselves are not law. Rather, they are recommendations based on several decades of behavioral observations, science, and conservation measures to avoid or minimize adverse impacts to bald eagles.

The U.S. Fish and Wildlife Service strongly encourages adherence to these guidelines to ensure that bald and golden eagle populations will continue to be sustained. The Service realizes there may be impacts to some birds even if all reasonable measures are taken to avoid such impacts. Although it is not possible to absolve individuals and entities from liability under the Eagle Act or the MBTA, the Service exercises enforcement discretion to focus on those individuals, companies, or agencies that take migratory birds without regard for the consequences of their actions and the law, especially when conservation measures, such as these Guidelines, are available, but have not been implemented. The Service will prioritize its enforcement efforts to focus on those individuals or entities who take bald eagles or their parts, eggs, or nests without implementing appropriate measures recommended by the Guidelines.

The Service intends to pursue the development of regulations that would authorize, under limited circumstances, the use of permits if “take” of an eagle is anticipated but unavoidable. Additionally, if the bald eagle is delisted, the Service intends to provide a regulatory mechanism to honor existing (take) authorizations under the Endangered Species Act (ESA).

During the interim period until the Service completes a rulemaking for permits under the Eagle Act, the Service does not intend to refer for prosecution the incidental “*take*” of any bald eagle under the MBTA or Eagle Act, if such take is in full compliance with the terms and conditions of an incidental take statement issued to the action agency or applicant under the authority of section 7(b)(4) of the ESA or a permit issued under the authority of section 10(a)(1)(B) of the ESA.

The Guidelines are applicable throughout the United States, including Alaska. The primary purpose of these Guidelines is to provide information that will minimize or prevent violations only of *Federal* laws governing bald eagles. In addition to Federal laws, many states and some smaller jurisdictions and tribes have additional laws and regulations protecting bald eagles. In some cases those laws and regulations may be more protective (restrictive) than these Federal guidelines. If you are planning activities that may affect bald eagles, we therefore recommend that you contact both your nearest U.S. Fish and Wildlife Service Field Office (see the contact information on p.16) and your state wildlife agency for assistance.

LEGAL PROTECTIONS FOR THE BALD EAGLE

The Bald and Golden Eagle Protection Act

The Eagle Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The Act provides criminal and civil penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” “Disturb’’ means:

> "Disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle=s return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

A violation of the Act can result in a criminal fine of $100,000 ($200,000 for organizations), imprisonment for one year, or both, for a first offense. Penalties increase substantially for additional offenses, and a second violation of this Act is a felony.

The Migratory Bird Treaty Act
The MBTA (16 U.S.C. 703-712), prohibits the taking of any migratory bird or any part, nest, or egg, except as permitted by regulation. The MBTA was enacted in 1918; a 1972 agreement supplementing one of the bilateral treaties underlying the MBTA had the effect of expanding the scope of the Act to cover bald eagles and other raptors. Implementing regulations define "take" under the MBTA as "pursue, hunt, shoot, wound, kill, trap, capture, possess, or collect."

Copies of the Eagle Act and the MBTA are available at: http://permits.fws.gov/ltr/ltr.shtml.

State laws and regulations
Most states have their own regulations and/or guidelines for bald eagle management. Some states may continue to list the bald eagle as endangered, threatened, or of special concern. If you plan activities that may affect bald eagles, we urge you to familiarize yourself with the regulations and/or guidelines that apply to bald eagles in your state. Your adherence to the Guidelines herein does not ensure that you are in compliance with state laws and regulations because state regulations can be more specific and/or restrictive than these Guidelines.

NATURAL HISTORY OF THE BALD EAGLE

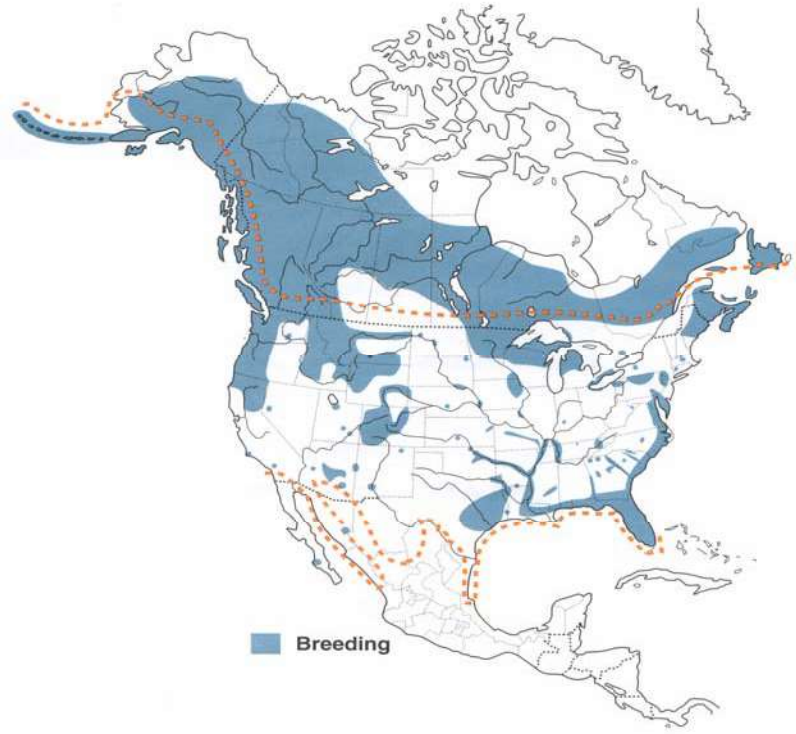
Bald eagles are a North American species that historically occurred throughout the contiguous United States and Alaska. After severely declining in the lower 48 States between the 1870s and the 1970s, bald eagles have rebounded and re-established breeding territories in each of the lower 48 states. The largest North American breeding populations are in Alaska and Canada, but there are also significant bald eagle populations in Florida, the Pacific Northwest, the Greater Yellowstone area, the Great Lakes states, and the Chesapeake Bay region. Bald eagle distribution varies seasonally. Bald eagles that nest in southern latitudes frequently move northward in late spring and early summer, often summering as far north as Canada. Most eagles that breed at northern latitudes migrate southward during winter, or to coastal areas where waters remain unfrozen. Migrants frequently concentrate in large numbers at sites where food is abundant and they often roost together communally. In some cases, concentration areas are used year-round: in summer by southern eagles and in winter by northern eagles.

Juvenile bald eagles have mottled brown and white plumage, gradually acquiring their dark brown body and distinctive white head and tail as they mature. Bald eagles generally attain adult plumage by 5 years of age. Most are capable of breeding at 4 or 5 years of age, but in healthy populations they may not start breeding until much older. Bald eagles may live 15 to 25 years in the wild. Adults weigh 8 to 14 pounds (occasionally reaching 16 pounds in Alaska) and have wingspans of 5 to 8 feet. Those in the northern range are larger than those in the south, and females are larger than males.

Where do bald eagles nest?

Breeding bald eagles occupy "territories," areas they will typically defend against intrusion by other eagles. In addition to the active nest, a territory may include one or more alternate nests (nests built or maintained by the eagles but not used for nesting in a given year). The Eagle Act prohibits removal or destruction of both active and alternate bald eagle nests. Bald eagles exhibit high nest site fidelity and nesting territories are often used year after year. Some territories are known to have been used continually for over half a century.

Bald eagles generally nest near coastlines, rivers, large lakes or streams that support an adequate food supply. They often nest in mature or old-growth trees; snags (dead trees); cliffs; rock promontories; rarely on the ground; and with increasing frequency on human-made structures such as power poles and communication towers. In forested areas, bald eagles often select the tallest trees with limbs strong enough to support a nest that can weigh more than 1,000 pounds. Nest sites typically include at least one perch with a clear view of the water where the eagles usually forage. Shoreline trees or snags located in reservoirs provide the visibility and accessibility needed to locate aquatic prey. Eagle nests are constructed with large sticks, and may be lined with moss, grass, plant stalks, lichens, seaweed, or sod. Nests are usually about 4-6 feet in diameter and 3 feet deep, although larger nests exist.



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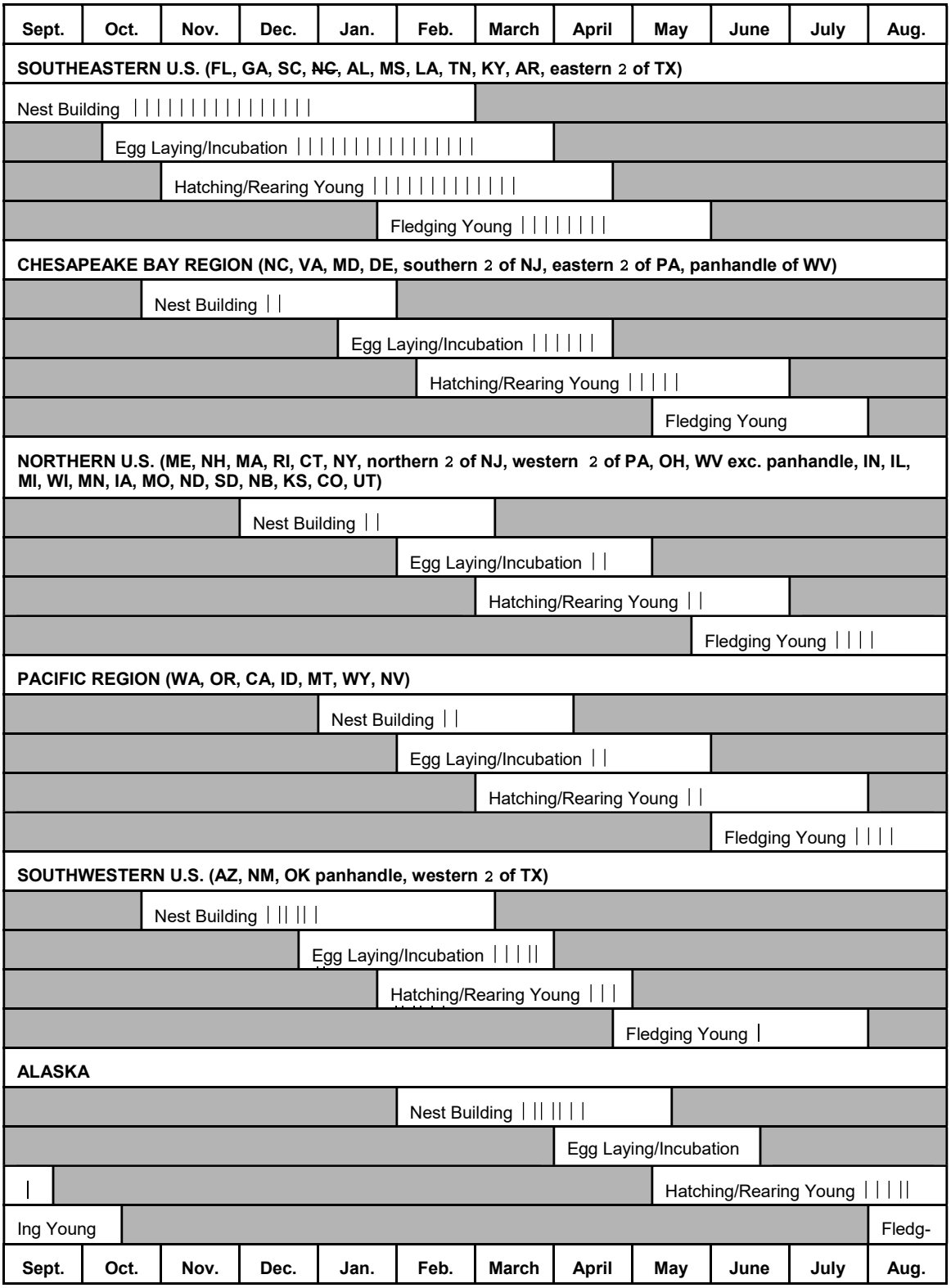
The range of breeding bald eagles in 2000 (shaded areas). This map shows only the larger concentrations of nests; eagles have continued to expand into additional nesting territories in many states. The dotted line represents the bald eagle's wintering range.

When do bald eagles nest?
Nesting activity begins several months before egg-laying. Egg-laying dates vary throughout the U.S., ranging from October in Florida, to late April or even early May in the northern United States. Incubation typically lasts 33-35 days, but can be as long as 40 days. Eaglets make their first unsteady flights about 10 to 12 weeks after hatching, and fledge (leave their nests) within a few days after that first flight. However, young birds usually remain in the vicinity of the nest for several weeks after fledging because they are almost completely dependent on their parents for food until they disperse from the nesting territory approximately 6 weeks later.

The bald eagle breeding season tends to be longer in the southern U.S., and re-nesting following an unsuccessful first nesting attempt is more common there as well. The following table shows the timing of bald eagle breeding seasons in different regions of the country. The table represents the range of time within which the majority of nesting activities occur in each region and does not apply to any specific nesting pair. Because the timing of nesting activities may vary within a given region, you should contact the nearest U.S. Fish and Wildlife Service Field Office (see page 16) and/or your state wildlife conservation agency for more specific information on nesting chronology in your area.

Chronology of typical reproductive activities of bald eagles in the United States.



How many chicks do bald eagles raise?
The number of eagle eggs laid will vary from 1-3, with 1-2 eggs being the most common. Only one eagle egg is laid per day, although not always on successive days. Hatching of young occurs on different days with the result that chicks in the same nest are sometimes of unequal size. The overall national fledging rate is approximately one chick per nest, annually, which results in a healthy expanding population.

What do bald eagles eat?
Bald eagles are opportunistic feeders. Fish comprise much of their diet, but they also eat waterfowl, shorebirds/colonial waterbirds, small mammals, turtles, and carrion. Because they are visual hunters, eagles typically locate their prey from a conspicuous perch, or soaring flight, then swoop down and strike. Wintering bald eagles often congregate in large numbers along streams to feed on spawning salmon or other fish species, and often gather in large numbers in areas below reservoirs, especially hydropower dams, where fish are abundant. Wintering eagles also take birds from rafts of ducks at reservoirs and rivers, and congregate on melting ice shelves to scavenge dead fish from the current or the soft melting ice. Bald eagles will also feed on carcasses along roads, in landfills, and at feedlots.

During the breeding season, adults carry prey to the nest to feed the young. Adults feed their chicks by tearing off pieces of food and holding them to the beaks of the eaglets. After fledging, immature eagles are slow to develop hunting skills, and must learn to locate reliable food sources and master feeding techniques. Young eagles will congregate together, often feeding upon easily acquired food such as carrion and fish found in abundance at the mouths of streams and shallow bays and at landfills.

The impact of human activity on nesting bald eagles
During the breeding season, bald eagles are sensitive to a variety of human activities. However, not all bald eagle pairs react to human activities in the same way. Some pairs nest successfully just dozens of yards from human activity, while others abandon nest sites in response to activities much farther away. This variability may be related to a number of factors, including visibility, duration, noise levels, extent of the area affected by the activity, prior experiences with humans, and tolerance of the individual nesting pair. The relative sensitivity of bald eagles during various stages of the breeding season is outlined in the following table.

Nesting Bald Eagle Sensitivity to Human Activities

Phase	Activity	Sensitivity to Human Activity	Comments
I	Courtship and Nest Building	Most sensitive period; likely to respond negatively	Most critical time period. Disturbance is manifested in nest abandonment. Bald eagles in newly established territories are more prone to abandon nest sites.
II	Egg laying	Very sensitive period	Human activity of even limited duration may cause nest desertion and abandonment of territory for the breeding season.
III	Incubation and early nestling period (up to 4 weeks)	Very sensitive period	Adults are less likely to abandon the nest near and after hatching. However, flushed adults leave eggs and young unattended; eggs are susceptible to cooling, loss of moisture, overheating, and predation; young are vulnerable to elements.
IV	Nestling period, 4 to 8 weeks	Moderately sensitive period	Likelihood of nest abandonment and vulnerability of the nestlings to elements somewhat decreases. However, nestlings may miss feedings, affecting their survival.
V	Nestlings 8 weeks through fledging	Very sensitive period	Gaining flight capability, nestlings 8 weeks and older may flush from the nest prematurely due to disruption and die.

If agitated by human activities, eagles may inadequately construct or repair their nest, may expend energy defending the nest rather than tending to their young, or may abandon the nest altogether. Activities that cause prolonged absences of adults from their nests can jeopardize eggs or young. Depending on weather conditions, eggs may overheat or cool too much and fail to hatch. Unattended eggs and nestlings are subject to predation. Young nestlings are particularly vulnerable because they rely on their parents to provide warmth or shade, without which they may die as a result of hypothermia or heat stress. If food delivery schedules are interrupted, the young may not develop healthy plumage, which can affect their survival. In addition, adults startled while incubating or brooding young may damage eggs or injure their young as they abruptly leave the nest. Older nestlings no longer require constant attention from the adults, but they may be startled by loud or intrusive human activities and prematurely jump from the nest before they are able to fly or care for themselves. Once fledged, juveniles range up to ¼ mile from the nest site, often to a site with minimal human activity. During this period, until about six weeks after departure from the nest, the juveniles still depend on the adults to feed them.

The impact of human activity on foraging and roosting bald eagles

Disruption, destruction, or obstruction of roosting and foraging areas can also negatively affect bald eagles. Disruptive activities in or near eagle foraging areas can interfere with feeding, reducing chances of survival. Interference with feeding can also result in reduced productivity (number of young successfully fledged). Migrating and wintering bald eagles often congregate at specific sites for purposes of feeding and sheltering. Bald eagles rely on established roost sites because of their proximity to sufficient food sources. Roost sites are usually in mature trees where the eagles are somewhat sheltered from the wind and weather. Human activities near or within communal roost sites may prevent eagles

from feeding or taking shelter, especially if there are not other undisturbed and productive feeding and roosting sites available. Activities that permanently alter communal roost sites and important foraging areas can altogether eliminate the elements that are essential for feeding and sheltering eagles.

Where a human activity agitates or bothers roosting or foraging bald eagles to the degree that causes injury or substantially interferes with breeding, feeding, or sheltering behavior and causes, or is likely to cause, a loss of productivity or nest abandonment, the conduct of the activity constitutes a violation of the Eagle Act's prohibition against disturbing eagles. The circumstances that might result in such an outcome are difficult to predict without detailed site-specific information. If your activities may disturb roosting or foraging bald eagles, you should contact your local Fish and Wildlife Service Field Office (see page 16) for advice and recommendations for how to avoid such disturbance.

RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT NEST SITES

In developing these Guidelines, we relied on existing state and regional bald eagle guidelines, scientific literature on bald eagle disturbance, and recommendations of state and Federal biologists who monitor the impacts of human activity on eagles. Despite these resources, uncertainties remain regarding the effects of many activities on eagles and how eagles in different situations may or may not respond to certain human activities. The Service recognizes this uncertainty and views the collection of better biological data on the response of eagles to disturbance as a high priority. To the extent that resources allow, the Service will continue to collect data on responses of bald eagles to human activities conducted according to the recommendations within these Guidelines to ensure that adequate protection from disturbance is being afforded, and to identify circumstances where the Guidelines might be modified. These data will be used to make future adjustments to the Guidelines.

To avoid disturbing nesting bald eagles, we recommend (1) keeping a distance between the activity and the nest (distance buffers), (2) maintaining preferably forested (or natural) areas between the activity and around nest trees (landscape buffers), and (3) avoiding certain activities during the breeding season. The buffer areas serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or replacement nest trees.

The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there are little or no forested or topographical buffers, such as in many western states, distance alone must serve as the buffer. Consequently, in open areas, the distance between the activity and the nest may need to be larger than the distances recommended under Categories A and B of these guidelines (pg. 12) if no landscape buffers are present. The height of the nest above the ground may also ameliorate effects of human activities; eagles at higher nests may be less prone to disturbance.

In addition to the physical features of the landscape and nest site, the appropriate size for the distance buffer may vary according to the historical tolerances of eagles to human activities in particular localities, and may also depend on the location of the nest in relation

to feeding and roosting areas used by the eagles. Increased competition for nest sites may lead bald eagles to nest closer to human activity (and other eagles).

Seasonal restrictions can prevent the potential impacts of many shorter-term, obtrusive activities that do not entail landscape alterations (e.g. fireworks, outdoor concerts). In proximity to the nest, these kinds of activities should be conducted only outside the breeding season. For activities that entail both short-term, obtrusive characteristics and more permanent impacts (e.g., building construction), we recommend a combination of both approaches: retaining a landscape buffer *and* observing seasonal restrictions.

For assistance in determining the appropriate size and configuration of buffers or the timing of activities in the vicinity of a bald eagle nest, we encourage you to contact the nearest U.S. Fish and Wildlife Service Field Office (see page 16).

Existing Uses
Eagles are unlikely to be disturbed by routine use of roads, homes, and other facilities where such use pre-dates the eagles' successful nesting activity in a given area. Therefore, in most cases *ongoing* existing uses may proceed with the same intensity with little risk of disturbing bald eagles. However, some *intermittent, occasional, or irregular* uses that pre-date eagle nesting in an area may disturb bald eagles. For example: a pair of eagles may begin nesting in an area and subsequently be disturbed by activities associated with an annual outdoor flea market, even though the flea market has been held annually at the same location. In such situations, human activity should be adjusted or relocated to minimize potential impacts on the nesting pair.

ACTIVITY-SPECIFIC GUIDELINES

The following section provides the Service=s management recommendations for avoiding bald eagle disturbance as a result of new or intermittent activities proposed in the vicinity of bald eagle nests. Activities are separated into 8 categories (A – H) based on the nature and magnitude of impacts to bald eagles that usually result from the type of activity. Activities with similar or comparable impacts are grouped together.

In most cases, impacts will vary based on the visibility of the activity from the eagle nest and the degree to which similar activities are already occurring in proximity to the nest site. Visibility is a factor because, in general, eagles are more prone to disturbance when an activity occurs in full view. For this reason, we recommend that people locate activities farther from the nest structure in areas with open vistas, in contrast to areas where the view is shielded by rolling topography, trees, or other screening factors. The recommendations also take into account the existence of similar activities in the area because the continued presence of nesting bald eagles in the vicinity of the existing activities indicates that the eagles in that area can tolerate a greater degree of human activity than we can generally expect from eagles in areas that experience fewer human impacts. To illustrate how these factors affect the likelihood of disturbing eagles, we have incorporated the recommendations for some activities into a table (categories A and B).

First, determine which category your activity falls into (between categories A – H). If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity represented.

If your activity is under A or B, our recommendations are in table form. The vertical axis shows the degree of visibility of the activity from the nest. The horizontal axis (header row) represents the degree to which similar activities are ongoing in the vicinity of the nest. Locate the row that best describes how visible your activity will be from the eagle nest. Then, choose the column that best describes the degree to which similar activities are ongoing in the vicinity of the eagle nest. The box where the column and row come together contains our management recommendations for how far you should locate your activity from the nest to avoid disturbing the eagles. The numerical distances shown in the tables are the closest the activity should be conducted relative to the nest. In some cases we have included additional recommendations (other than recommended *distance* from the nest) you should follow to help ensure that your activity will not disturb the eagles.

Alternate nests

For activities that entail permanent landscape alterations that may result in bald eagle disturbance, these recommendations apply to both active and alternate bald eagle nests. Disturbance becomes an issue with regard to alternate nests if eagles return for breeding purposes and react to land use changes that occurred while the nest was inactive. The likelihood that an alternate nest will again become active decreases the longer it goes unused. If you plan activities in the vicinity of an alternate bald eagle nest and have information to show that the nest has not been active during the preceding 5 breeding seasons, the recommendations provided in these guidelines for avoiding disturbance around the nest site may no longer be warranted. The nest itself remains protected by other provisions of the Eagle Act, however, and may not be destroyed.

If special circumstances exist that make it unlikely an inactive nest will be reused before 5 years of disuse have passed, and you believe that the probability of reuse is low enough to warrant disregarding the recommendations for avoiding disturbance, you should be prepared to provide all the reasons for your conclusion, including information regarding past use of the nest site. Without sufficient documentation, you should continue to follow these guidelines when conducting activities around the nest site. If we are able to determine that it is unlikely the nest will be reused, we may advise you that the recommendations provided in these guidelines for avoiding disturbance are no longer necessary around that nest site.

This guidance is intended to minimize disturbance, as defined by Federal regulation. In addition to Federal laws, most states and some tribes and smaller jurisdictions have additional laws and regulations protecting bald eagles. In some cases those laws and regulations may be more protective (restrictive) than these Federal guidelines.

Temporary Impacts

For activities that have temporary impacts, such as the use of loud machinery, fireworks displays, or summer boating activities, we recommend seasonal restrictions. These types of activities can generally be carried out outside of the breeding season without causing disturbance. The recommended restrictions for these types of activities can be lifted for alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched (depending on the distance between the alternate nest and the active nest).

In general, activities should be kept as far away from nest trees as possible; loud and disruptive activities should be conducted when eagles are not nesting; and activity between the nest and the nearest foraging area should be minimized. If the activity you plan to undertake is not specifically addressed in these guidelines, follow the recommendations for the most similar activity addressed, or contact your local U.S. Fish and Wildlife Service Field Office for additional guidance.

If you believe that special circumstances apply to your situation that increase or diminish the likelihood of bald eagle disturbance, or if it is not possible to adhere to the guidelines, you should contact your local Service Field Office for further guidance.

Category A:
Building construction, 1 or 2 story, with project footprint of ½ acre or less.
Construction of roads, trails, canals, power lines, and other linear utilities.
Agriculture and aquaculture – new or expanded operations.
Alteration of shorelines or wetlands.
Installation of docks or moorings.
Water impoundment.

Category B:
Building construction, 3 or more stories.
Building construction, 1 or 2 story, with project footprint of more than ½ acre.
Installation or expansion of marinas with a capacity of 6 or more boats.
Mining and associated activities.
Oil and natural gas drilling and refining and associated activities.

	If there is no similar activity within 1 mile of the nest	***If there is similar activity closer than 1 mile from the nest***
If the activity will be visible from the nest	660 feet. Landscape buffers are recommended.	660 feet, or as close as existing tolerated activity of similar scope. Landscape buffers are recommended.
If the activity will not be visible from the nest	Category A: 330 feet. Clearing, external construction, and landscaping between 330 feet and 660 feet should be done outside breeding season. Category B: 660 feet.	330 feet, or as close as existing tolerated activity of similar scope. Clearing, external construction and landscaping within 660 feet should be done outside breeding season.

The numerical distances shown in the table are the closest the activity should be conducted relative to the nest.

Category C. Timber Operations and Forestry Practices

- Avoid clear cutting or removal of overstory trees within 330 feet of the nest at any time.

- Avoid timber harvesting operations, including road construction and chain saw and yarding operations, during the breeding season within 660 feet of the nest. The distance may be decreased to 330 feet around alternate nests within a particular territory, including nests that were attended during the current breeding season but not used to raise young, after eggs laid in another nest within the territory have hatched.

- Selective thinning and other silviculture management practices designed to conserve or enhance habitat, including prescribed burning close to the nest tree, should be undertaken outside the breeding season. Precautions such as raking leaves and woody debris from around the nest tree should be taken to prevent crown fire or fire climbing the nest tree. If it is determined that a burn during the breeding season would be beneficial, then, to ensure that no take or disturbance will occur, these activities should be conducted only when neither adult eagles nor young are present at the nest tree (i.e., at the beginning of, or end of, the breeding season, either before the particular nest is active or after the young have fledged from that nest). Appropriate Federal and state biologists should be consulted before any prescribed burning is conducted during the breeding season.

- Avoid construction of log transfer facilities and in-water log storage areas within 330 feet of the nest.

Category D. Off-road vehicle use (including snowmobiles). No buffer is necessary around nest sites outside the breeding season. During the breeding season, do not operate off-road vehicles within 330 feet of the nest. In open areas, where there is increased visibility and exposure to noise, this distance should be extended to 660 feet.

Category E. Motorized Watercraft use (including jet skis/personal watercraft). No buffer is necessary around nest sites outside the breeding season. During the breeding season, within 330 feet of the nest, (1) do not operate jet skis (personal watercraft), and (2) avoid concentrations of noisy vessels (e.g., commercial fishing boats and tour boats), except where eagles have demonstrated tolerance for such activity. Other motorized boat traffic passing within 330 feet of the nest should attempt to minimize trips and avoid stopping in the area where feasible, particularly where eagles are unaccustomed to boat traffic. Buffers for airboats should be larger than 330 feet due to the increased noise they generate, combined with their speed, maneuverability, and visibility.

Category F. Non-motorized recreation and human entry (e.g., hiking, camping, fishing, hunting, birdwatching, kayaking, canoeing). No buffer is necessary around nest sites outside the breeding season. If the activity will be visible or highly audible from the nest, maintain a 330-foot buffer during the breeding season, particularly where eagles are unaccustomed to such activity.

Category G. Helicopters and fixed-wing aircraft.
Except for authorized biologists trained in survey techniques, avoid operating aircraft within 1,000 feet of the nest during the breeding season, except where eagles have demonstrated tolerance for such activity.

Category H. Blasting and other loud, intermittent noises.
Avoid blasting and other activities that produce extremely loud noises within 1/2 mile of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area. This recommendation applies to the use of fireworks classified by the Federal Department of Transportation as Class B explosives, which includes the larger fireworks that are intended for licensed public display.

RECOMMENDATIONS FOR AVOIDING DISTURBANCE AT FORAGING AREAS AND COMMUNAL ROOST SITES

1. Minimize potentially disruptive activities and development in the eagles' direct flight path between their nest and roost sites and important foraging areas.

2. Locate long-term and permanent water-dependent facilities, such as boat ramps and marinas, away from important eagle foraging areas.

3. Avoid recreational and commercial boating and fishing near critical eagle foraging areas during peak feeding times (usually early to mid-morning and late afternoon), except where eagles have demonstrated tolerance to such activity.

4. Do not use explosives within ½ mile (or within 1 mile in open areas) of communal roosts when eagles are congregating, without prior coordination with the U.S. Fish and Wildlife Service and your state wildlife agency.

5. Locate aircraft corridors no closer than 1,000 feet vertical or horizontal distance from communal roost sites.

ADDITIONAL RECOMMENDATIONS TO BENEFIT BALD EAGLES

The following are additional management practices that landowners and planners can exercise for added benefit to bald eagles.

1. Protect and preserve potential roost and nest sites by retaining mature trees and old growth stands, particularly within ½ mile from water.

2. Where nests are blown from trees during storms or are otherwise destroyed by the elements, continue to protect the site in the absence of the nest for up to three (3) complete breeding seasons. Many eagles will rebuild the nest and reoccupy the site.

3. To avoid collisions, site wind turbines, communication towers, and high voltage transmission power lines away from nests, foraging areas, and communal roost sites.

4. Employ industry-accepted best management practices to prevent birds from colliding with or being electrocuted by utility lines, towers, and poles. If possible, bury utility lines in important eagle areas.

5. Where bald eagles are likely to nest in human-made structures (e.g., cell phone towers) and such use could impede operation or maintenance of the structures or jeopardize the safety of the eagles, equip the structures with either (1) devices engineered to discourage bald eagles from building nests, or (2) nesting platforms that will safely accommodate bald eagle nests without interfering with structure performance.

6. Immediately cover carcasses of euthanized animals at landfills to protect eagles from being poisoned.

7. Do not intentionally feed bald eagles. Artificially feeding bald eagles can disrupt their essential behavioral patterns and put them at increased risk from power lines, collision with windows and cars, and other mortality factors.

8. Use pesticides, herbicides, fertilizers, and other chemicals only in accordance with Federal and state laws.

9. Monitor and minimize dispersal of contaminants associated with hazardous waste sites (legal or illegal), permitted releases, and runoff from agricultural areas, especially within watersheds where eagles have shown poor reproduction or where bioaccumulating contaminants have been documented. These factors present a risk of contamination to eagles and their food sources.

CONTACTS

The following U.S. Fish and Wildlife Service Field Offices provide technical assistance on bald eagle management:

Alabama	Daphne	(251) 441-5181
Alaska	Anchorage	(907) 271-2888
	Fairbanks	(907) 456-0203
	Juneau	(907) 780-1160
Arizona	Phoenix	(602) 242-0210
Arkansas	Conway	(501) 513-4470
California	Arcata	(707) 822-7201
	Barstow	(760) 255-8852
	Carlsbad	(760) 431-9440
	Red Bluff	(530) 527-3043
	Sacramento	(916) 414-6000
	Stockton	(209) 946-6400
	Ventura	(805) 644-1766
	Yreka	(530) 842-5763
Colorado	Lakewood	(303) 275-2370
	Grand Junction	(970) 243-2778
Connecticut	(See New Hampshire)	
Delaware	(See Maryland)	
Florida	Panama City	(850) 769-0552
	Vero Beach	(772) 562-3909
	Jacksonville	(904) 232-2580
Georgia	Athens	(706) 613-9493
	Brunswick	(912) 265-9336
	Columbus	(706) 544-6428
Idaho	Boise	(208) 378-5243
	Chubbuck	(208) 237-6975
Illinois/Iowa	Rock Island	(309) 757-5800
Indiana	Bloomington	(812) 334-4261
Kansas	Manhattan	(785) 539-3474
Kentucky	Frankfort	(502) 695-0468
Louisiana	Lafayette	(337) 291-3100
Maine	Old Town	(207) 827-5938
Maryland	Annapolis	(410) 573-4573
Massachusetts	(See New Hampshire)	
Michigan	East Lansing	(517) 351-2555
Minnesota	Bloomington	(612) 725-3548
Mississippi	Jackson	(601) 965-4900
Missouri	Columbia	(573) 234-2132
Montana	Helena	(405) 449-5225
Nebraska	Grand Island	(308) 382-6468
Nevada	Las Vegas	(702) 515-5230
	Reno	(775) 861-6300
New Hampshire	Concord	(603) 223-2541
New Jersey	Pleasantville	(609) 646-9310
New Mexico	Albuquerque	(505) 346-2525
New York	Cortland	(607) 753-9334
	Long Island	(631) 776-1401
North Carolina	Raleigh	(919) 856-4520
	Asheville	(828) 258-3939
North Dakota	Bismarck	(701) 250-4481
Ohio	Reynoldsburg	(614) 469-6923
Oklahoma	Tulsa	(918) 581-7458
Oregon	Bend	(541) 383-7146
	Klamath Falls	(541) 885-8481
	La Grande	(541) 962-8584
	Newport	(541) 867-4558
	Portland	(503) 231-6179
	Roseburg	(541) 957-3474
Pennsylvania	State College	(814) 234-4090
Rhode Island	(See New Hampshire)	
South Carolina	Charleston	(843) 727-4707
South Dakota	Pierre	(605) 224-8693
Tennessee	Cookeville	(931) 528-6481
Texas	Clear Lake	(281) 286-8282
Utah	West Valley City	(801) 975-3330
Vermont	(See New Hampshire)	
Virginia	Gloucester	(804) 693-6694
Washington	Lacey	(306) 753-9440
	Spokane	(509) 891-6839
	Wenatchee	(509) 665-3508
West Virginia	Elkins	(304) 636-6586
Wisconsin	New Franken	(920) 866-1725
Wyoming	Cheyenne	(307) 772-2374
	Cody	(307) 578-5939

National Office
U.S. Fish and Wildlife Service
Division of Migratory Bird Management
4401 North Fairfax Drive, MBSP-4107
Arlington, VA 22203-1610
(703) 358-1714
http://www.fws.gov/migratorybirds

State Agencies

To contact a state wildlife agency, visit the Association of Fish & Wildlife Agencies' website at http://www.fishwildlife.org/where_us.html

GLOSSARY

The definitions below apply to these National Bald Eagle Management Guidelines:

Communal roost sites – Areas where bald eagles gather and perch overnight – and sometimes during the day in the event of inclement weather. Communal roost sites are usually in large trees (live or dead) that are relatively sheltered from wind and are generally in close proximity to foraging areas. These roosts may also serve a social purpose for pair bond formation and communication among eagles. Many roost sites are used year after year.

Disturb – To agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

In addition to immediate impacts, this definition also covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle=s return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

Fledge – To leave the nest and begin flying. For bald eagles, this normally occurs at 10-12 weeks of age.

Fledgling – A juvenile bald eagle that has taken the first flight from the nest but is not yet independent.

Foraging area – An area where eagles feed, typically near open water such as rivers, lakes, reservoirs, and bays where fish and waterfowl are abundant, or in areas with little or no water (i.e., rangelands, barren land, tundra, suburban areas, etc.) where other prey species (e.g., rabbit, rodents) or carrion (such as at landfills) are abundant.

Landscape buffer – A natural or human-made landscape feature that screens eagles from human activity (e.g., strip of trees, hill, cliff, berm, sound wall).

Nest – A structure built, maintained, or used by bald eagles for the purpose of reproduction. An **active** nest is a nest that is attended (built, maintained or used) by a pair of bald eagles during a given breeding season, whether or not eggs are laid. An **alternate** nest is a nest that is not used for breeding by eagles during a given breeding season.

Nest abandonment – Nest abandonment occurs when adult eagles desert or stop attending a nest and do not subsequently return and successfully raise young in that nest for the duration of a breeding season. Nest abandonment can be caused by altering habitat near a nest, even if the alteration occurs prior to the breeding season. Whether the eagles migrate during the non-breeding season, or remain in the area throughout the non-breeding season, nest abandonment can occur at any point between the time the eagles return to the nesting site for the breeding season and the time when all progeny from the breeding season have

dispersed.

Project footprint – The area of land (and water) that will be permanently altered for a development project, including access roads.

Similar scope – In the vicinity of a bald eagle nest, an existing activity is of similar scope to a new activity where the types of impacts to bald eagles are similar in nature, and the impacts of the existing activity are of the same or greater magnitude than the impacts of the potential new activity. Examples: (1) An existing single-story home 200 feet from a nest is similar in scope to an additional single-story home 200 feet from the nest; (2) An existing multi-story, multi-family dwelling 150 feet from a nest has impacts of a greater magnitude than a potential new single-family home 200 feet from the nest; (3) One existing single-family home 200 feet from the nest has impacts of a lesser magnitude than three single-family homes 200 feet from the nest; (4) an existing single-family home 200 feet from a communal roost has impacts of a lesser magnitude than a single-family home 300 feet from the roost but 40 feet from the eagles' foraging area. The existing activities in examples (1) and (2) are of similar scope, while the existing activities in example (3) and (4) are not.

Vegetative buffer – An area surrounding a bald eagle nest that is wholly or largely covered by forest, vegetation, or other natural ecological characteristics, and separates the nest from human activities.

RELATED LITERATURE

Andrew, J.M. and J.A. Mosher. 1981. Bald eagle nest site selection and nesting habitat in Maryland. Journal of Wildlife Management 46:382-390.

Anonymous. 1977. Bald Eagle Habitat Management Guidelines, Forest Service – California Region. U.S Forest Service, San Francisco, CA.

Anthony, R.G. 2001. Low productivity of bald eagles on Prince of Wales Island, southeast Alaska. Journal of Raptor Research 35:1-8.

Anthony, R.G., R.W. Frenzel, F.B. Isaacs, and M.G. Garrett. 1994. Probable causes of nesting failures in Oregon's bald eagle population. Wildlife Society Bulletin 22:576-582.

Anthony, R.G. and F.B. Isaacs. 1989. Characteristics of bald eagle nest sites in Oregon. Journal of Wildlife Management 53:148-158.

Arizona Game and Fish Department. 1999. Bald Eagle Conservation Assessment and Strategy (draft).

Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute, Raptor Research Foundation, Washington, D.C.

Bangs, E.E., T.N. Bailey and V.D. Berns. Ecology of nesting bald eagles on the Kenai National Wildlife Refuge, Alaska. (USFWS staff)

Becker, J.M. 2002. Response of wintering bald eagles to industrial construction in southeastern Washington. Wildlife Society Bulletin 30:875-878.

Brauning, D.W. and J.D. Hassinger. 2000. Pennsylvania Recovery and Management Plan for the Bald Eagle (draft). Pennsylvania Game Commission. Harrisburg, PA.

Brown, B.T., G.S. Mills, C. Powels, W.A. Russell, G.D. Therres and J.J. Pottie. 1999. The influence of weapons-testing noise on bald eagle behavior. Journal of Raptor Research 33:227-232.

Brown, B.T. and L.E. Stevens. 1997. Winter bald eagle distribution is inversely correlated with human activity along the Colorado River, Arizona. Journal of Raptor Research31:7-10.

Buehler, D.A. 2000. Bald Eagle (*Haliaeetus leucocephalus*). *In* The Birds of North America, No. 506 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Buehler, D.A., T.J. Mersmann, J.D. Fraser, and J.K.D. Seegar. 1991. Effects of human activity on bald eagle distribution on the northern Chesapeake Bay. Journal of Wildlife Management 55:282-290.

Buehler, D.A., T.J. Mersmann, J.D. Fraser, and J.K.D. Seegar. 1991. Nonbreeding bald eagle communal and solitary roosting behavior and roost habitat on the northern Chesapeake Bay. Journal of Wildlife Management 55:273-281.

Chandler, SK., J.D. Fraser, D.A. Buehler and J.K.D. Seegar. 1995. Perch trees and shoreline development as predictors of bald eagle distribution on the Chesapeake Bay. Journal of Wildlife Management 59:325-332.

Cline, K. 1985. Bald Eagles in the Chesapeake: A Management Guide for Landowners. National Wildlife Federation. Washington, D.C.

Dell, D.D. and P.J. Zwank. 1986. Impact of a high-voltage transmission line on a nesting pair of southern bald eagles in southeast Louisiana. Journal of Raptor Research 20(3/4):117-119.

Dunwiddie, P.W. and R.C. Kuntz. 2001. Long-term trends of bald eagles in winter on the Skagit River, Washington. Journal of Wildlife Management 65(2):290-299.

Fletcher, R.J. et. al. 1999. Effects of recreational trails on wintering diurnal raptors along riparian corridors in a Colorado grassland. Journal of Raptor Research 33(3):233-239.

Fraser, J.D. 1981. The breeding biology and status of the bald eagle on the Chippewa National Forest. PhD. Dissertation, University of Minnesota.

Fraser, J.D., LD. Frenzel and J.E. Mathisen. 1985. The impact of human activities on breeding bald eagles in north-central Minnesota. Journal of Wildlife Management 49(3):585-592.

Garrett, M.G., J.W. Watson, and R.G. Anthony. 1993. Bald eagle home range and habitat use in the Columbia River Estuary. Journal of Wildlife Management 57(1):19-27.

Gerrard J.M. and G.R. Bortolotti. 1988. The Bald Eagle: Haunts and Habits of a Wilderness Monarch. Smithsonian Institution Press. Washington, D.C.

Grier, J.W. 1969. Bald eagle behavior and productivity responses to climbing to nests. Journal of Wildlife Management 33:961-966.

Grier, J.W. and J.E. Guinn. 2003. Bald eagle habitats and responses to human disturbance in Minnesota. Report to the Minnesota Department of Natural Resources.

Grubb, T.G. 1976. Survey and analysis of bald eagle nesting in western Washington. M.S. thesis, Univ. of Washington, Seattle.

Grubb, T.G. and R.M. King. 1991. Assessing human disturbance of breeding bald eagles with classification tree models. Journal of Wildlife Management 55:500-511.

Grubb, T.G., W.L. Robinson and W.W. Bowerman. 2002. Effects of watercraft on bald eagles nesting in Voyagers National Park, Minnesota. Wildlife Society Bulletin 30:156-161.

Grubb, T.G. and W.W. Bowerman. 1997. Variations in breeding bald eagle response to jets, light planes and helicopters. Journal of Raptor Research 31:213-222.

Grubb, T.G., W.W. Bowerman, A.J. Bath, J.P. Giesy, D.V.C. Weseloh. 2003. Evaluating Great Lakes bald eagle nesting habitat with Bayesian inference. RMRS-RP-45. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, CO, 10 pp.

Hansen, J.A. 1977. Population dynamics and night roost requirements of bald eagles wintering in the Nooksack River Valley, WA. Huxley College of Environmental Studies, Western Washington State College, Bellingham, WA. (Problem Series)

Hansen, J.A., M.V. Stalmaster and J.R. Newman. 1980. Habitat characteristics, function, and destruction of bald eagle communal roosts in western Washington. Huxley college of Environmental Studies, Western Washington University.

Hunt, W.G., D.E. Driscoll, E.W. Bianchi, and R.E. Jackman. 1992. Ecology of bald eagles in Arizona. Report to U.S. Bureau of Reclamation, Contract 6-CS-30-04470. BioSystems Analysis Inc., Santa Cruz, California.

Isaacs, F.B and R.G. Anthony. 1987. Abundance, foraging, and roosting of bald eagles wintering in the Harney Basin, Oregon. Northwest Science 61(2), pp. 114-121.

Juenemann, B.G. 1973. Habitat evaluations of selected bald eagle nest sites on the Chippewa National Forest. M.S. thesis, University of Minnesota, Minneapolis.

Keister, G.P., R.G. Anthony and E.J. O'Neill. 1987. Use of communal roosts and foraging area by bald eagles wintering in the Klamath Basin. Journal of Wildlife Management 51(2):415-420.

Knight, R. and S.K. Knight. 1984. Responses of wintering bald eagles to boating activity. Journal of Wildlife Management 48:999-1004.

Linscombe, J.T., T.J. Hess, Jr., and V.L. Wright. 1999. Effects of seismic operations on Louisiana's nesting bald eagles. Proceedings of the Southeastern Association of Fish and Wildlife Agencies. 54:235-242.

Maine (State of) Inland Fisheries and Wildlife Rules. Chapter 8.05 Essential Habitat for Species Listed as Threatened or Endangered.

Mathisen, J.E. 1968. Effects of human disturbance on nesting bald eagles. Journal of Wildlife Management 32(1): 1-6.

McGarigal, K., R.G. Anthony and F.B. Isaacs. 1991. Interactions of humans and bald eagles on the Columbia River estuary. Wildlife Monographs 115:1-47.

McKay, K.J., J.W. Stravers, B.R. Conklin, U. Konig, S. Hawks, C.J. Kohrt, J.S. Lundh and G.V. Swenson. 2001. Potential human impacts on bald eagle reproductive success along the Upper Mississippi River.

McKewan, L.C. and D.H. Hirth. 1979. Southern bald eagle productivity and nest site selection. Journal of Wildlife Management 43:585-594.

Millsap, B.A. Status of wintering bald eagles in the conterminous 48 States. 1986. Wildlife Society Bulletin 14:433-440.

Millsap, B.A, T. Breen, E. McConnell, T. Steffer, L. Phillips, N. Douglass, and S. Taylor. In Press. Comparative fecundity and survival of bald eagles fledged from suburban and rural natal areas in Florida. Journal of Wildlife Management 68(4).

Montana Bald Eagle Working Group. 1986. Montana Bald Eagle Management Plan. Department of the Interior, Bureau of Land Management. Billings, MT.

Nesbitt, S.A., M.J. Folk and D.A. Wood. 1993. Effectiveness of bald eagle habitat protection guidelines in Florida. Proceedings of the Annual Conference of the Southeast Association of Fish and Wildlife Agencies.

Newman, J.R., W.H. Brennan and L.M. Smith. 1977. Twelve-year changes in nesting patterns of bald eagles on San Juan Island, Washington. The Murrelet 58(2)37-39.

Postapulsky, S. 1974. Raptor reproductive success: some problems with methods, criteria, and terminology. Pages 21-31 *in* F.N. Hammerstrom, Jr., B.E. Harrell, and R.R. Olendorff, eds. Management of raptors. Raptor Res. Found., Vermillion, S.D.

Rodgers, J.A. and Schwikert, S.T. 2003. Buffer zone distances to protect foraging and loafing waterbirds from disturbance by airboats in Florida. Waterbirds 26(4): 437-443.

Russell, D. 1980. Occurrence and human disturbance sensitivity of wintering bald eagles on the Sauk and Suiattle Rivers, Washington. In R.L. Knight, G.T. Allen, M.V. Stalmaster and C.W. Servheen [eds.]. Proceedings of the Washington Bald Eagle Symposium. Nature Conservancy, Seattle, Washington, pp. 165-174.

Shapiro, A.E., F. Montalbano, and D. Mager. 1982. Implications of construction of a flood control project upon bald eagle nesting activity. Wilson Bulletin 94(1), pp. 55-63.

Skagen, S.K. 1980. Behavioral responses of wintering bald eagles to human activity on the Skagit River, Washington. In R.L.Knight, G.T. Allen, M.V. Stalmaster and C.W. Servheen [eds.]. Proceedings of the Washington Bald Eagle Symposium. Nature Conservancy, Seattle, Washington, pp. 231-241.

Skagen, S.K., R.L. Knight and G.J.H. Orians. 1991. Human disturbance of an avian scavenging guild. Ecological Applications 1:215-225. (Internet)

Stalmaster, M.V. 1976 Winter ecology and effects of human activity on bald eagles in the Nooksack River Valley, Washington. MS Thesis, Western Washington State College, Bellingham.

Stalmaster, M.V. 1980. Management strategies for wintering bald eagles in the Pacific Northwest. Proceedings of the Washington Bald Eagle Symposium, pp 49-67.

Stalmaster, M.V. and J.L. Kaiser. 1998. Effects of recreational activity on wintering bald eagles. Wildlife Monographs 137:1-46.

Stalmaster, M.V. and J.L. Kaiser. 1997. Flushing responses of wintering bald eagles to military activity. Journal of Wildlife Management 61:1307-1313.

Stalmaster, M.V. and J.R. Newman. 1978. Behavioral responses of wintering bald eagles to human activity. Journal of Wildlife Management 42:506-513.

Steenhof, K. 1978. Management of Wintering Bald Eagles. FWS/OBS-78/79. U.S. Fish and Wildlife Service, Department of the Interior, Washington D.C.

Steidl, R.J. and R.G. Anthony. 2000. Experimental Effects of Human Activity on Breeding Bald Eagles. Ecological Applications 10(1), pp. 258-268.

Therres, G.D., M.A. Byrd and D.S. Bradshaw. 1993. Effects of development on nesting bald eagles: case studies from Chesapeake Bay. Transactions of the North American Wildlife and Natural Resources Conference 58:62-69.

U.S. Fish and Wildlife Service. 1979. Bald Eagle Management Guidelines: Oregon – Washington. Portland. OR.

U.S. Fish and Wildlife Service. 1983. Northern States bald eagle recovery plan. Appendices E, F, and G. U.S. Fish and Wildlife Service, Region 6, Denver, CO.

U.S. Fish and Wildlife Service. 1987. Habitat Management Guidelines for the Bald Eagle in the Southeast Region. U.S Fish and Wildlife Service, Region 4. Atlanta, GA.

U.S. Fish and Wildlife Service. 1993. Bald Eagle Basics. Anchorage, AK.

U.S. Fish and Wildlife Service. 1993. Habitat Management Guidelines for Bald Eagles in Texas. Austin, TX.

U.S. Fish and Wildlife Service and Virginia Department of Game and Inland Fisheries. 2001. Bald Eagle Protection Guidelines for Virginia. Gloucester and Richmond, VA.

Watson, J.W. 1993. Responses of nesting bald eagles to helicopter surveys. Wildlife Society Bulletin 21:171-178.

Watson, J.W. 2004. Responses of nesting bald eagles to experimental pedestrian activity. Journal of Raptor Research 38:295-305.

Wood, P.B. 1999. Bald eagle response to boating activity in northcentral Florida. Journal of Raptor Research 33:97-101.

Wood, P.B., T.C. Edwards Jr. and M.W. Collopy. 1989. Characteristics of bald eagle nesting habitat in Florida. Journal of Wildlife Management 53(2):441-449.

Young, L.S. 1980. A quantitative evaluation of human disturbance impacts on breeding eagle ecology of bald eagles in the San Juan Islands, Washington. Washington Department of Game, Olympia.

NATIONWIDE STANDARD CONSERVATION MEASURES

Listed below are effective measures that should be employed at all project development sites nationwide with the goal of reducing impacts to birds and their habitats. These measures are grouped into three categories: General, Habitat Protection, and Stressor Management. These measures may be updated through time. We recommend checking the Conservation Measures website regularly for the most up-to-date list.

1. **General Measures**
   a. Educate all employees, contractors, and/or site visitors of relevant rules and regulations that protect wildlife. See the Service webpage on Regulations and Policies for more information on regulations that protect migratory birds.
   b. Prior to removal of an inactive nest, ensure that the nest is not protected under the Endangered Species Act (ESA) or the Bald and Golden Eagle Protection Act (BGEPA). Nests protected under ESA or BGEPA cannot be removed without a valid permit.
      i. See the Service Nest Destruction Policy
   c. Do not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit. Please visit the Service permits page for more information on permits and permit applications.
   d. Provide enclosed solid waste receptacles at all project areas. Non-hazardous solid waste (trash) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor. For more information about solid waste and how to properly dispose of it, see the EPA Non-Hazardous Waste website.
   e. Report any incidental take of a migratory bird, to the local Service Office of Law Enforcement.
   f. Consult and follow applicable Service industry guidance.

2. **Habitat Protection**
   a. Minimize project creep by clearly delineating and maintaining project boundaries (including staging areas).
   b. Consult all local, State, and Federal regulations for the development of an appropriate buffer distance between development site and any wetland or waterway. For more information on wetland protection regulations see the Clean Water Act sections 401 and 404.
   c. Maximize use of disturbed land for all project activities (i.e., siting, lay-down areas, and construction).
   d. Implement standard soil erosion and dust control measures. For example:
      i. Establish vegetation cover to stabilize soil
      ii. Use erosion blankets to prevent soil loss
      iii. Water bare soil to prevent wind erosion and dust issues

3. Stressor Management

Stressor: Vegetation Removal

Conservation Goal: Avoid direct take of adults, chicks, or eggs.

Conservation Measure 1: Schedule all vegetation removal, trimming, and grading of vegetated areas outside of the peak bird breeding season to the maximum extent practicable. Use available resources, such as internet-based tools (e.g., the FWS's Information, Planning and Conservation system and Avian Knowledge Network) to identify peak breeding months for local bird species; or, contact local Service Migratory Bird Program Office for breeding bird information.

Conservation Measure 2: When project activities cannot occur outside the bird nesting season, conduct surveys prior to scheduled activity to determine if active nests are present within the area of impact and buffer any nesting locations found during surveys.

1) Generally, the surveys should be conducted no more than five days prior to scheduled activity.
2) Timing and dimensions of the area to be surveyed vary and will depend on the nature of the project, location, and expected level of vegetation disturbance.
3) If active nests or breeding behavior (e.g., courtship, nest building, territorial defense, etc.) are detected during these surveys, no vegetation removal activities should be conducted until nestlings have fledged or the nest fails or breeding behaviors are no longer observed. If the activity must occur, establish a buffer zone around the nest and no activities will occur within that zone until nestlings have fledged and left the nest area. The dimension of the buffer zone will depend on the proposed activity, habitat type, and species present and should be coordinated with the local or regional Service office.
4) When establishing a buffer zone, construct a barrier (e.g., plastic fencing) to protect the area. If the fence is knocked down or destroyed, work will suspend wholly, or in part, until the fence is satisfactorily repaired.
5) When establishing a buffer zone, a qualified biologist will be present onsite to serve as a biological monitor during vegetation clearing and grading activities to ensure no take of migratory birds occurs. Prior to vegetation clearing, the monitor will ensure that the limits of construction have been properly staked and are readily identifiable. Any associated project activities that are inconsistent with the applicable conservation measures, and activities that may result in the take of migratory birds will be immediately halted and reported to the appropriate Service office within 24 hours.
6) If establishing a buffer zone is not feasible, contact the Service for guidance to minimize impacts to migratory birds associated with the proposed project or removal of an active nest. Active nests may only be removed if you receive a permit from your local Migratory Bird Permit Office. A permit may authorize active nest removal by a qualified biologist with bird handling experience or by a permitted bird rehabilitator.

Conservation Measure 3: Prepare a vegetation maintenance plan that outlines vegetation maintenance activities and schedules so that direct bird impacts do not occur.

Stressor: Invasive Species Introduction
Conservation Goal: Prevent the introduction of invasive plants.

Conservation Measure 1: Prepare a weed abatement plan that outlines the areas where weed abatement is required and the schedule and method of activities to ensure bird impacts are avoided.

Conservation Measure 2: For temporary and permanent habitat restoration/enhancement, use only native and local (when possible) seed and plant stock.

Conservation Measure 3: Consider creating vehicle wash stations prior to entering sensitive habitat areas to prevent accidental introduction of non-native plants.

Conservation Measure 4: Remove invasive/exotic species that pose an attractive nuisance to migratory birds.

Stressor: Artificial Lighting
Conservation Goal: Prevent increase in lighting of native habitats during the bird breeding season.

Conservation Measure 1: To the maximum extent practicable, limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.

Conservation Measure 2: If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low intensity energy saving lighting (e.g. low pressure sodium lamps) will be used.

Conservation Measure 3: Minimize illumination of lighting on associated construction or operation structures by using motion sensors or heat sensors.

Conservation Measure 5: Bright white light, such as metal halide, halogen, fluorescent, mercury vapor and incandescent lamps should *not* be used.

Stressor: Human Disturbance
Conservation Goal: Minimize prolonged human presence near nesting birds during construction and maintenance actions.

Conservation Measure 1: Restrict unauthorized access to natural areas adjacent to the project site by erecting a barrier and/or avoidance buffers (e.g., gate, fence, wall) to minimize foot traffic and off-road vehicle uses.

Stressor: Collision

Conservation Goal: Minimize collision risk with project infrastructure and vehicles.

Conservation Measure 1: Minimize collision risk with project infrastructure (e.g., temporary and permanent) by increasing visibility through appropriate marking and design features (e.g., lighting, wire marking, etc.).

Conservation Measure 2: On bridge crossing areas with adjacent riparian, beach, estuary, or other bird habitat, use fencing or metal bridge poles (Sebastian Poles) that extend to the height of the tallest vehicles that will use the structure.

Conservation Measure 3: Install wildlife friendly culverts so rodents and small mammals can travel under any new roadways instead of over them. This may help reduce raptor deaths associated with being struck while tracking prey or scavenging road kill on the roadway.

Conservation Measure 4: Remove road-kill carcasses regularly to prevent scavenging and bird congregations along roadways.

Conservation Measure 5: Avoid planting "desirable" fruited or preferred nesting vegetation in medians or Rights of Way.

Conservation Measure 6: Eliminate use of steady burning lights on tall structures (e.g., >200 ft).

Stressor: Entrapment

Conservation Goal: Prevent birds from becoming trapped in project structures or perching and nesting in project areas that may endanger them.

Conservation Measure 1: Minimize entrapment and entanglement hazards through project design measures that may include:

1. Installing anti-perching devices on facilities/equipment where birds may commonly nest or perch
2. Covering or enclosing all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material must have no opening or mesh size greater than 19 mm and must be maintained until the structure is removed.
3. Cap pipes and cover/seal all small dark spaces where birds may enter and become trapped.

Conservation Measure 2: Use the appropriate deterrents to prevent birds from nesting on structures where they cause conflicts, may endanger themselves, or create a human health and safety hazard.

1. During the time that the birds are trying to build or occupy their nests (generally , between April and August, depending on the geographic location), potential nesting

surfaces should be monitored at least once every three days for any nesting activity, especially where bird use of structures is likely to cause take. It is permissible to remove non-active nests (without birds or eggs), partially completed nests, or new nests as they are built (prior to occupation). If birds have started to build any nests, the nests shall be removed before they are completed. Water shall not be used to remove the nests if nests are located within 50 feet of any surface waters.

2. If an active nest becomes established (i.e., there are eggs or young in the nest), all work that could result in abandonment or destruction of the nest shall be avoided until the young have fledged or the nest is unoccupied. Construction activities that may displace birds after they have laid their eggs and before the young have fledged should not be permitted. If the project continues into the following spring, this cycle shall be repeated. When work on the structure is complete, all netting shall be removed and properly disposed of.

Stressor: Noise

Conservation Goal: Prevent the increase in noise above ambient levels during the nesting bird breeding season.

Conservation Measure 1: Minimize an increase in noise above ambient levels during project construction by installing temporary structural barriers such as sand bags

Conservation Measure 2: Avoid permanent additions to ambient noise levels from the proposed project by using baffle boxes or sound walls.

Stressor: Chemical Contamination

Conservation Goal: Prevent the introduction of chemicals contaminants into the environment.

Conservation Measure 1: Avoid chemical contamination of the project area by implementing a Hazardous Materials Plan. For more information on hazardous waste and how to properly manage hazardous waste, see the EPA Hazardous Waste website.

Conservation Measure 2: Avoid soil contamination by using drip pans underneath equipment and containment zones at construction sites and when refueling vehicles or equipment.

Conservation Measure 3: Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging laydown, and dispensing of fuel, oil, etc., to designated upland areas.

Conservation Measure 4: Any use of pesticides or rodenticides shall comply with the applicable Federal and State laws.

1. Choose non-chemical alternatives when appropriate
2. Pesticides shall be used only in accordance with their registered uses and in accordance with the manufacturer's instructions to limit access to non-target species.

3. For general measures to reducing wildlife exposure to pesticides, see EPA's Pesticides: Environmental Effects website.

Stressor: Fire

Conservation Goal: Minimize fire potential from project-related activities.

Conservation Measure 1: Reduce fire hazards from vehicles and human activities (e.g., use spark arrestors on power equipment, avoid driving vehicles off road).

Conservation Measure 2: Consider fire potential when developing vegetation management plans by planting temporary impact areas with a palate of low-growing, sparse, fire resistant native species that meet with the approval of the County Fire Department and local FWS Office.

APPENDIX C

PROTECTED SPECIES CONSTRUCTION CONDITIONS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Avenue South
St. Petersburg, FL 33701

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS

The permittee shall comply with the following protected species construction conditions:

a. The permittee shall instruct all personnel associated with the project of the potential presence of these species and the need to avoid collisions with sea turtles and smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of these species.

b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing sea turtles or smalltooth sawfish, which are protected under the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which a sea turtle or smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment. Barriers may not block sea turtle or smalltooth sawfish entry to or exit from designated critical habitat without prior agreement from the National Marine Fisheries Service's Protected Resources Division, St. Petersburg, Florida.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

e. If a sea turtle or smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a sea turtle or smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a sea turtle or smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.

f. Any collision with and/or injury to a sea turtle or smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

Revised: February 21, 2006
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STANDARD MANATEE CONDITIONS FOR IN-WATER WORK
2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida, and to FWC at ImperiledSpecies@myFWC.com

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 ½" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at MyFWC.com/manatee. Questions concerning these signs can be sent to the email address listed above.

CAUTION: MANATEE HABITAT

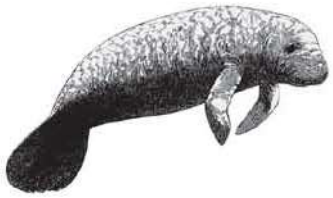
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC

APPENDIX D

POST CONSTRUCTION SURVEY REQUIREMENTS

POST-CONSTRUCTION SURVEY REQUIREMENTS

Survey Statement of Work

Survey the horizontal and vertical positions of the light (lantern).

Vertically, the height shall be to the lantern's focal plane. If there are multiple lanterns, provide the focal plane height for each lantern. Lantern heights shall be referenced to both NAVD88 and Mean High Water (MHW).

Horizontally, use the center of lanterns with horizontal symmetry (like a 155mm, 250mm or 300mm lantern). For an RL14 range lantern the surveyed position shall be the horizontal position of the lifting eye on top of the lantern. For other directional lanterns the surveyor shall pick a spot along the horizontal centerline of the drum. The surveyor shall describe this spot in the survey report. The surveyor shall also mark this spot on the lantern with a felt-tipped pen, take pictures of the mark, and include the pictures in the survey report.

The survey shall be conducted by a surveyor licensed by the State. The surveyed positioned shall have a horizontal accuracy of better than 4 cm (1DRMS).

Each position surveyed shall have a survey report. The survey report shall contain the following:

1. The surveyed horizontal position of the lantern expressed in Latitude and Longitude (NAD83) and in State Plane Coordinates (SPC). Identify the SPC Zone.

2. The surveyed vertical position of the lantern in feet referenced to NAVD88 and Mean High Water.

3. A description of the survey equipment.

4. A description of survey methodologies including:

    a. RTK or post-processed survey?

    b. Identify the type of base station - or stations - used (i.e. CORS?, RTN?, own base station set up over monument?).

    c. Identify the specific base station(s) used.

    d. Identify the sampling rate and number of samples collected.

    e. Describe the procedures used to identify and remove bad data.

5. A description of computational methods and software.

6. An error analysis showing that the horizontal accuracy is 4 cm or better calculated at 1DRMS. The stated accuracy shall NOT be a restatement of equipment specifications or generic process accuracies. Rather, the stated accuracy shall be the product of an analysis of the data and of factors associated with this survey. Include:

   a. The results of the error analysis.

   b. Describe how the error analysis was conducted. Identify software.

   c. If the survey used surveyor's own equipment as a base station, provide accuracy information for the position of the base station, provide data supporting the claimed accuracy of the base station position, and show how the accuracy of the base station position factored into the calculation of the accuracy of the surveyed position of the lantern.

APPENDIX E

PHOTOGRAPHS OF EXISTING ATON STRUCTURE

Figure 1-Bahia de Guayanilla Entrance RRL (LLNR 32075)

APPENDIX F

CEU Miami Environmental SOW Requirements for Aids to Navigation (ATON) Projects in District 7 and District 8

CEU Miami Environmental SOW Requirements for Aids to Navigation (ATON) Projects in District 7 and District 8

While performing any Aid to Navigation (ATON) work for the U.S. Coast Guard (USCG), Contractors shall comply with all applicable requirements from the National Marine Fisheries Service (NFMS) Biological and Conference Opinion (BO) from 2018 and revised on 10 May 2023. It is the Contractor's responsibility to become familiar with the provisions of the aforementioned BO. The below list of requirements is not comprehensive but should be considered salient and of particular relevance to ATON work for the USCG.

Environmental Observers

- At least one designated Environmental Observer must be present during all activities related to establishing, maintaining, or discontinuing ATON. Contractors shall be provided an "Environmental Observer Job Aid" that must be utilized during ATON work in USCG District 7 and 8. The Contractor shall ensure they have one person on each vessel that understands the Environmental Observer Job Guide. The Contractor shall ensure all Environmental Observers are properly trained as per the job aids.
- Environmental Observers must: (a) familiarize themselves with the Endangered Species Act (ESA)-listed species, designated critical habitat, and any Essential Fish Habitat (EFH) that may be in the work area, and the potential routes of effects to such species and habitats; (b) understand the best management practices (BMPs); and (c) discuss with all Contractor personnel the species and habitats of concern that may be present prior to work commencing – all Contractor personnel shall be vigilantly looking for the presence of ESA-listed species during all ATON work.
  - All personnel employed by the Contractor must have access to and be familiar with the job aids (i.e., coral reef, hardbottom, seagrass, eelgrass, kelp) and BMPs included with the design specifications.
  - If Contractor personnel other than the Environmental Observer observe species in the area, those personnel shall report the observation to the designated Environmental Observer(s).
- All in-water work must be postponed or halted when ESA-listed species, whales, and sharks are observed within 100 yards, and within least 50 yards for other species and may be impacted by operations. Work shall not begin or resume until the Environmental Observer(s) observes the protected species move out of the area of their own volition or, if the animal is observed above water then dives below, the Contractor shall not begin or resume in-water work until enough time has elapsed without a sighting (at least 15 minutes, sea turtles, and fish, and 30 minutes for cetaceans) to assume the animal moved beyond these specified distances. ESA-listed species (e.g. marine mammals, sea turtles, sturgeon, and sawfish) and sharks must not be encircled or trapped between multiple vessels or between vessels and the shore.
  - Prior to the commencement of pile driving and pile removal, Environmental Observer(s) must perform a visual scan with a radius of 1,094 yards (1,000 meters) around the project site. If any ESA-listed species (e.g. marine mammals, sea turtles, sturgeon, and sawfish) and sharks are observed within these safety zones, work

will not begin until the Environmental Observer(s) is confident the animal moved out of the area of its own volition.

- Environmental Observer(s) must record all instances when direct mitigation measures were necessary to avoid impacts to ESA-listed species during ATON work. This information should be compiled and submitted in a report to the contracting officer representative (COR). Mitigation examples include altering course.
  - The following must be recorded when direct mitigation measures are necessary:
    - Species type
    - Any recognizable individual characteristics if possible
    - Time, location, and approximate distance from the observer to the species
    - Species behavior
    - Any impact the sighting had on work activities such as delays, shutdowns, and whether the species was at a sufficient distance (100 yards for whales and at least 50 yards for other ESA-listed species or sharks) when work continued.

ESA-Listed Species Interactions

- All Contractor personnel must be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA and the Marine Mammal Protection Act of 1972.
- No person employed by the Contractor will attempt to feed, touch, or otherwise intentionally interact with any ESA-listed species.
- Any collision with and/or injury to any sea turtle, sawfish, marine mammal, or sturgeon must be reported immediately to the COR who will then notify NMFS's Office of Protected Resources.
  - If applicable, the local authorized sea turtle or marine mammal stranding/rescue organization must be contacted as well.
- Any activity that unexpectedly harms or harasses species under NMFS's authority must be reported immediately to the COR who will then notify NMFS's Office of Protected Resources.

General

- Prior to commencement of ATON operations, Contractor personnel shall compare ATON structure locations with available data and maps to determine if seagrasses, hardbottom, or coral reefs occur at the location or in the surrounding area.
  - Impacts to seagrass, oysters, hardbottom, and corals during ATON operations shall be avoided. If impacts cannot be avoided, notify the COR. Please note that the COR will initiate additional consultations with NMFS and work cannot commence until NMFS provides concurrence.
- For USCG District 7 and 8, drag hooks are not permitted to be used for recovery of ATON anchors and/or chain in areas where coral, hardbottom,

or seagrass may occur. Secondary impacts to seagrass, oyster, hardbottom, and coral habitats should be avoided during ATON operations to the extent practicable. To minimize secondary impacts on these habitats ATON construction activities should incorporate BMPs designed to avoid and minimize impacts to the extent practicable.

Vessel handling/Speed

- Contractor vessels shall remain at least 100 yards from observed whales, and at least 50 yards from other observed ESA-listed species (e.g. marine mammals, sea turtles, sturgeon and sawfish) and sharks, if it is safe to do so.
  - Vessel speed must be reduced to less than 10 knots when cetaceans are observed near an underway vessel, when safety permits. A single cetacean at the surface may indicate the presence of submerged animals in the vicinity; therefore, prudent precautionary measures should always be exercised.
  - Vessel speed must be reduced to less than 5 knots when sea turtles are observed near an underway vessel and have the potential to be impacted by the vessel, when safety permits.
- ESA-listed species may surface in unpredictable locations or approach vessels. When an ESA-listed species is sighted in the vessel's path, slowly maneuver the vessel away to the prescribed distance (set forth above), if it is safe to do so.
- While conducting ATON work, Contractor vessels should operate at minimum safe speeds while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom and shall operate in marked channels whenever possible.

Spills/Debris/Turbidity

- All project-related materials and equipment placed in the water must be free of chemicals, oil, and debris. Contractor personnel will perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations will be postponed or halted should a leak with the potential to discharge overboard be detected and will not proceed until the leak is repaired and equipment cleaned.
  - If leak repair is a large effort, notify COR of any time delays
  - For any spills of oils or chemicals entering the water:
    - Notify the National Response Center at 1-800-424-8802.
    - Follow the Contractor's Spill Contingency Plan.
    - Notify the COR.
- The Contractor shall lower all objects (e.g., moorings) to the bottom in a controlled manner. Controlled lowering can may include the use of buoyancy controls such as lift bags, or the use of cranes, winches, or other equipment that affect positive control over the rate of decent to the seafloor.
- When lowering all objects, an Environmental Observer(s) must ensure that there are not any mobile ESA-listed species observed within 50 yards of the area where the object will be lowered.

- The Contractor must not allow contamination of the marine environment to result from ATON activities. The Contractor shall take the following precautions:
  - Each Contractor vessel engaged in ATON operations must implement protective measures to prevent all materials, equipment, and hazardous substances from entering the surrounding environment.
  - The Contractor must maintain a contingency/spill plan to control hazardous materials aboard vessels. Materials and equipment used to contain and clean up any spills must be on board the Contractor vessels.
    - A copy of the contingency plan must be provided to the COR for review.
  - In the event debris or other waste enters the surrounding environment, the Contractor must attempt to capture the debris or waste. This includes the removal of hardware, pins, and bolts used to secure any equipment.
- Turbidity and siltation must be minimized and contained through the use of silt containment devices (e.g. turbidity or silt curtains) and the curtailment of work during adverse tidal and weather conditions.

Pile Driving and Removal

- Adhere to seasonal work windows for all routine pile driving operations, including total replacement or establishment. If work must occur outside the seasonal work window due to operational constraints (scheduling or maintenance issues, etc.), the Coast Guard will be required to complete consultation with NMFS prior to pile driving to minimize potential impacts.
- Vibratory drivers are required for pile driving. If the Contractor believes that vibratory drivers will not be able to successfully complete the work then the Contractor needs to advise the COR in writing as soon as possible. Impact hammers are not authorized without written permission from the COR.
  - If an impact hammer is required, pile driving must employ soft-start or ramp-up techniques (slow increase in hammering intensity), at the start of each workday or following any break of more than 30 minutes to allow any undetected ESA-listed animals to voluntarily depart the area.
  - The Contractor shall implement measures to attenuate the sound or minimize impacts to aquatic resources during piling installation if impact hammers are utilized. Methods to mitigate sound impacts include, but are not limited to, the following:
    - Surround the pile with an air bubble curtain system, dewatered cofferdam, or isolation casings.
    - Use cushion blocks for additional sound attenuation. Consider the size of the piling when choosing the cushion block material. Larger pilings should not use wood cushion blocks, as the driving energy and heat generated in a cushion may cause a fire. Drive piles during low tide

periods, preferably when substrates are exposed in intertidal areas.
- All work must occur between sunrise and sunset.

Required Project Design Criteria (PDC)

1. All vessels 19.8 meters (m) or longer must travel at 10 knots or less in certain Seasonal Management Areas (http://www.nmfs.noaa.gov/pr/shipstrike/#speedlimit) along the U.S. Atlantic seaboard at certain times of the year to reduce the threat of ship collisions with critically endangered North Atlantic right whales.
2. Environmental Observer(s) are responsible for ensuring that any vessel entering North Atlantic right whale critical habitat reports into the Mandatory Ship Reporting System (https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-ship-strikes-north-atlantic-right-whales). Environmental Observer(s) should also check with various communication media for general information regarding avoiding ship strikes and specific information regarding North Atlantic right whale sighting locations. These include National Oceanic and Atmospheric Administration (NOAA) weather radio, U.S. USCG Navigational Telex (NAVTEX) broadcasts, and Notices to Mariners.
3. If a North Atlantic right whale is observed, federal regulation prohibits approaching a right whale closer than 457 m unless permitted by NMFS or one of the limited exemptions applies (see 50 Code of Federal Regulations (CFR) 224.103(c)).
4. All in-water work must be postponed or halted if a North Atlantic right whale is spotted within 457 m. Activities may not resume until the whale departs the project area of its own volition.
5. Mangroves are not authorized for removal.
6. The contractor shall take representative photos of corals found growing on submerged ATON structures when they are brought to the surface for removal (e.g., pilings) or maintenance. Photos are not required for every ATON but instances of dense growth, at reasonable intervals during maintenance, should be documented.
7. Prior to establishment, maintenance, or discontinuance of ATON structures, determine if corals are known to occur in that location or the surrounding area. When seagrass or coral habitat may be present and when feasible (i.e., when divers are onboard or when water clarity allows), the Environmental Observer(s) will use tools (e.g., scuba divers, bottom viewers, high resolution video-equipped remote operating vehicles) to verify bottom type and habitats.
8. Minimize spudding down when conducting ATON operations in coral habitats. Additionally, minimize the repositioning of spuds.
9. Anchoring of vessels is prohibited on coral habitats during ATON operations. During ATON operations occurring in coral habitat, the contractor must use the dynamic positioning systems on vessels that are equipped with such systems to maintain position rather than anchoring.
10. Drag hooks are not permitted for recovery of ATON components (e.g., anchors, chain, pilings) in areas where ESA-listed corals may occur.

11. To minimize the number of ESA-listed coral bundles/planula exposed to disturbance during ATON activities, in-water work in areas where ESA-listed corals occur should be minimized during or immediately following mass-spawning events of ESA-listed corals.
12. The contractor shall adhere to NMFS's Sea Turtle and Smalltooth Sawfish Construction Conditions (http://sero.nmfs.noaa.gov/protected_resources/section_7/guidance_docs/documents/sea_turtle_and_smalltooth_sawfish_construction_conditions_3-23-06.pdf)
13. Impacts to seagrass, oysters, hard bottom, and corals during operations should be avoided to the maximum extent practicable.
14. To minimize secondary impacts on these habitats, activities shall incorporate best management practices (BMPs) designed to avoid and minimize impacts to the extent practicable. Example BMPs include:
    a. Installing turbidity barriers (if equipped) to minimize sedimentation of adjacent habitats.
15. When equipped with a dynamic positioning system, vessels should use the system during ATON operations occurring in coral, hard bottom, oyster, or seagrass critical habitats. However, as practicable, the ATON service vessel should be sited in deeper water, in areas devoid of these habitats.
16. When feasible, use appropriate tools (e.g. in-situ observations made by scuba divers, bottom viewers, high resolution video-equipped remotely operated vehicles) capable of verifying bottom type and habitats; to increase the positional accuracy of installing equipment; and to facilitate the removal of the existing ATON or placement of new equipment to minimize adverse effects to these habitats.

Report

The Contractor shall provide an after-action Environmental Report that documents compliance with the requirements listed above. The report shall include a short summary providing information on the environmental setting, project details, conditions, observances and any impacts. The below must be included:

- Aid name and location (USCG District and latitude longitude)
- Assessment of compliance with required PDC
  - All PDC are required unless additional coordination with the COR is completed. Contractor shall document all deviations from PDC and provide the reason as well as the date of approval by the COR for the deviation.
- If pile driving is conducted:
  - Number, size, and material of piles replaced
  - Installation method – impact or vibratory hammer
  - Were sound attenuation devices used (e.g., dewatered casings or enclosed bubble curtains around each pile to be driven)?
  - Were there any shutdowns or delays required due to the presence of protected species?
- Description of pile removal.
  - Piles should be cut at the mudline.

- Provide date of approval by the COR for any other type of removal.

- Fixed ATON removal or install:
  - The Global Positioning System position of the new installed ATON
  - Were corals found growing on the submerged portion of the ATON structures when brought to the surface for removal (e.g., pilings) or maintenance (part of a structure)? If so, provide pictures of each coral piece with a measurement stick (in centimeters) clearly documenting coral size.
  - OPTIONAL: Provide additional pictures, (in addition to any required due to coral present on the pieces in the bullet above):
    - Prior to removal, one above water and one from below the water using a diver to take a picture under water of whole structure, and a picture from each side underwater showing the sea floor bottom.
    - After removal, using a diver, a minimum of one photo below the water showing it removed and any impacts showing seafloor.
    - After removal, one picture of the ATON structure/pieces on deck of barge or on land out of the water. If corals are present on pieces the Contractor must include additional pictures as stated above.
    - If a new install/build, using a diver, one picture below the water from every side of the new installed structure/pile showing the sea floor and any impacts. Attempt to capture the bottom in the picture.