

SECTION 01 11 30.00 25

DIVING

PART 1 GENERAL

1.1 GENERAL INFORMATION

This Section covers the general requirements for Contract diving operations to be performed as specified within this Contract. Diving shall be performed in accordance with the latest edition of the U.S. Army Corps of Engineers Safety and Occupational Health Requirements, EM 385-1-1 Chapter 30; The U.S. Navy Diving Manuals, NAVSEA 0994-LP001-0910 and NAVSEA 0994-LP001-0920; 29 CFR 1910, Occupational Safety and Health Standards, Subpart T: Commercial Diving Operations; Japan's Ministry of Health, Labour and Welfare's "Ordinance on Safety and Health of Work under High Pressure" (JISHA ORDINANCE NO. 171) standard, and ADCI International Consensus Standards inclusive of all other references listed therein. All diving operations shall be considered incidental to the work specified elsewhere herein. No separate payment for diving work will be made.

1.2 REFERENCES

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

ASSOCIATION OF DIVING CONTRACTORS INTERNATIONAL (ADCI)

ADCI (2020) International Consensus Standards For Commercial Diving And Underwater Operations, 6.4

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2020; Errata 1 2021) Structural Welding Code - Steel

AWS D3.6M (2017) Underwater Welding Code

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 Safety -- Safety and Health Requirements Manual

ER 385-1-86 (2021) Safety, U.S. Army Corps of Engineers Dive Program

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910 Occupational Safety and Health Standards

U.S. NAVAL SEA SYSTEMS COMMAND (NAVSEA)

NAVSEA 0994-LP001-0910 (2016) U.S. Navy Diving Manual, REV 7

NAVSEA 0994-LP001-0920 (2016) U.S. Navy Diving Manual, REV 7

MINISTRY OF HEALTH, LABOUR AND WELFARE, GOVERNMENT OF JAPAN (MHLW)

ORDINANCE NO. 171

(2001) Ordinance on Safety and Health of
Work under High Pressure

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.

The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES and 01 35 26, GOVERNMENTAL SAFETY REQUIREMENTS.

Submit the following preconstruction submittal items no later than 30 calendar days after Notice to Proceed:

SD-01 Preconstruction Submittals

Dive Operations Plan; G

Dive Personnel Qualifications; G

Dive Submittal Review Checklist; G

Addendums To The Dive Operations Plan; G

SD-06 Test Reports

Underwater Quality Control (UWQC) Reports; G

SD-07 Certificates

Equipment Certifications

SD-11 Closeout Submittals

Dive Logs; G

1.4 PRE-QUALIFIED DIVE COMPANIES AND DIVE TEAM PERSONNEL

1.4.1 Dive Personnel Qualifications

- a. Qualifications, and training certificates of dive personnel. "Annual" diver physicals shall conform to the requirements of EM 385-1-1 & JISHA ORDINANCE NO. 171.
- b. Contractor shall submit only a statement from a licensed physician (DMO or MD) with experience with dive physiology that states the diver is "Fit to Dive". "Fit to Dive" certificates will not be accepted with signatures from Occupational Health Nurses. Physicians' assistants are acceptable if currently licensed specialty in Dive / Hyperbaric Medicine.
- c. Submitted physician statement shall contain at a minimum the diver's name, examination date, physician's name, physician's signature, physicians' medical license number, and physicians telephone number. To include legible contact information and stamp.

- d. The signing physician shall be an MD, DMO, or an OD. Submitted statement shall NOT contain divers Personal Health Information (PHI) or Personal Identification Information (PII). To meet JISHA ORDINANCE NO. 171 requirements, the divers Fit to Dive/ Physicals should be considered a living document and the contractor shall update the divers Physicals / fit to dive statements per JISHA ORDINANCE NO. 171 requirements and frequency.
- e. First Aid (FA), Cardiopulmonary Resuscitation (CPR) & Emergency Oxygen System (EO2) training shall be in accordance with the JISHA ORDINANCE NO. 171, Chapter 30-3.D and all applicable OSHA regulations.
- f. FA, CPR & EO2 training are required to be Hands-on training. Online training will "NOT" be accepted.
- g. Proof of Hands-on training shall be provided within this submittal.
- h. All certifications shall be maintained & submitted as required for the life cycle of the project.

1.4.2 Pre-Dive Conference

- a. A Pre-Dive Conference shall be held prior to commencement of any diving operations and will be attended by the following Personnel prior to commencement of operations.
 - 1. Contractor Dive Supervisor
 - 2. Designated Diving Coordinator & Government Safety Representative
 - 3. Contracting Officers Representative (having authority on contract)
 - 4. Contractor SSSHO
 - 5. Contractor individual with sufficient authority to speak and make agreements on the Contractors behalf
- b. Additional requirement prior to commencement of operations.
 - 1. Designated Dive Coordinator (DDC) / Dive Safety Inspector (DSI) inspection of gear to be used and location of operations.
 - 2. Successful performance of an Unresponsive Diver Drill. This shall be required annually and performed with change of Dive Supervisor, replacement of more than 50% of dive personnel, or as requested by the District Dive Coordinator for cause.

1.5 DIVING ENVIRONMENT

Each diving Contract must contain the following environmental and work-area information:

- a. The estimated maximum working depth for demolition and repair work is approximately [X] (MSW) meters below water surface.
- b. The estimated maximum depth (distance from water surface to bottom) the diver(s) will be exposed to is approximately [X] (MSW) meters below water surface.

- c. Turbidity during normal working conditions may limit visibility to [X] CM or less.
- d. The current water velocity through the work area is estimated to be approximately [X] knots, weather dependent.
- e. Water temperature(s) are estimated to vary between [X] and [XX] degrees Celsius.
- f. Underwater operations [[XXX] will not][will [XXX]] require diver(s) to perform work within confined spaces and/or enclosed areas or areas with overhead obstruction. If this type of work is to be performed, all requirements most recent version of EM 385-1-1, Chapter 30 shall apply.
- g. The overall work site is a restricted access area and shall be delineated by turbidity curtains and marker buoys.
- h. Work to be performed is on an active (Military or Civilian) [briefly specify the site that the work is to be performed on ie: fuel pier, etc.] whose primary function is [provide brief explanation of the site's function].
- i. The contractor shall at no time cause delay to any existing marine operations unless properly scheduled in advance with the Authority having Jurisdiction (AHJ).
Any delays incurred by the contractor to scheduled marine operations shall be burdened by the contractor and will represent no additional cost to the government.
- j. At no time will divers be deployed while vessels are operating in AOR unless predetermined zones have been established and approved.
- k. Divers shall not work under suspended or unsecured loads. Loads bearing structure require associated engineering assessments to be performed by a Registered Professional Engineer (of appropriate Discipline) as required by the contracting officer's representative and shall be performed at no additional cost of the government.

Contractor shall take the above into account while scheduling work.

1.6 DIVE OPERATIONS PLAN, SCHEDULE, AND CHECKLIST

No later than 30 working days prior to the first planned diving operation, the Dive Plan and Schedule shall be submitted to coordinate work schedules at the Project and other concurrent work.

The Dive Plan and Schedule shall detail dive locations and shall be flexible enough to accommodate any conflicts with Marine operations. Personnel and equipment certifications shall be included in the plan.

A site-specific Emergency Management Plan shall be included in the Dive Plan in accordance with all applicable references.

A job specific Activity Hazard Analysis (AHA) shall be prepared in accordance with ER 385-1-86 and EM 385-1-1, Chapter 30, Diving Operations, and shall be included in the Dive Plan.

In addition to the Dive Plan and Schedule, the Dive Submittal Review Checklist (Attachment 01 11 30.00 25-A) shall be completed and submitted for review and approval by the DDC.

Adjustments shall be coordinated and approved by the Contracting Officer's Representative (COR). Dive locations and schedules shall be submitted in accordance with Section 01 33 00, SUBMITTAL PROCEDURES, for approval.

In the event of any addendums to the Dive Operations Plan are required, the Contractor must obtain DDC approval as per EM 385-1-1. Should the Contractor fail to acquire approval for the addendums, the DDC is authorized to stop any and all on going diving operations.

1.7 RESOLUTION OF CONFLICT

EM 385-1-1, ER 385-1-86, as applied by the USACE Japan Engineer District, through the DDC. Supplemental waivers or applicable Memorandum of Agreement (MOA) shall be the controlling authority(s) for implementation of all Contract diving policy.

All Resolution requiring full waivers of any regulation requirement shall be done in accordance with (IAW) EM 385-1-1 (latest version) & ER 385-1-86. All requests will be submitted officially and require District DDC concurrence.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 DIVE TEAM COMPOSITION AND DIVE EQUIPMENT

Surface supplied air (SSA) is the only approved form of diving authorized for execution of work unless otherwise noted.

- a. Minimum dive team staffing shall, unless a waiver is approved by the Authority Having Jurisdiction (AHJ) HQUSACE, Honolulu District Safety Office, via District DDC, be comprised of personnel levels as required by EM 385-1-1:
 1. A single diver requires a 5-man crew as defined in this reference and for two in-water working divers, a 6-man crew shall be required, which includes the addition of one stand-by diver and one tender.
 2. For depths exceeding 100 ft. a 6-man crew is required AND hyperbaric chamber meeting requirements listed in this specification is available onsite.
- b. Any use of breathing gas with oxygen content more than 21 percent is considered mixed gas diving. Mixed gas diving is not authorized on this contract unless specifically approved per the requirements of EM 385-1-1.
- c. Surface-supplied air diving equipment with 2-way voice communication shall be used by divers and standby divers.
- d. An independent reserve air system (30CU bailout bottle at minimum) for all divers is required as specified by EM 385-1-1.

- e. As a minimum, all diver surface air supply compressors, tanks, helmets, and other related equipment must comply with the requirements of EM 385-1-1.
- f. All dive team members must meet the requirements as listed in EM 385-1-1, Chapter 30-3.b through 3 and 30-8.a (10), ER 385-1-86, and JISHA ORDINANCE NO. 171.
- g. Self-Contained Underwater Breathing Apparatus (SCUBA) Diving is not authorized on this contract with the exception of UNDERWATER QUALITY CONTROL (UWQC) TESTING or QA testing and inspection is authorized at Government discretion with DDC concurrence.
- h. Use of SCUBA, tethered or otherwise requires approval from DDC prior to commencement of testing / Inspection AND shall not relieve UWQC or QA activities of 2-way voice communication requirement to be used by divers and standby divers. An independent reserve air system (30CU bailout bottle at minimum) is required to perform UWQC / QA operations.
- i. All necessary top-side equipment such as cranes, trucks, personnel vehicles, access to a hyperbaric chamber (if required) per applicable regulation, and appropriately powered underwater hand/power tools shall be furnished by the Contractor to enable accomplishment of all required dive work.
- j. If a crane is used, a certified crane operator shall not be included as a dive-team member. The operator shall be exclusively dedicated to crane operation and shall have direct communication with the diving supervisor (DS).

3.2 CONTRACTOR-FURNISHED DIVING SUPPORT EQUIPMENT

There is no government furnished diving support equipment used on this contract.

3.3 CONTRACTOR-PROVIDED SPECIAL UNDERWATER EQUIPMENT

The Contractor is expected to furnish all appropriate tools, equipment, and materials needed to accomplish the tasks as stated in paragraph DIVING WORK DESCRIPTION and the specifications of this contract.

3.4 SAFE CLEARANCE PROCEDURES

- a. A safe clearance Lock-out/Tag-out system is to be used by dive personnel to ensure continuity of service and safety to personnel and equipment. Any work performed which requires taking Project operating equipment out of service shall be done only after formal clearance is obtained through the Government DDC, DSI, Government Quality Assurance Representative (GQAR), or supervisory / controlling authority of water way operational area.
- b. The Contractor will furnish a checklist of clearance lock-out/tag-out items implemented for each clearance action and the Contractor dive supervisor shall accompany Government personnel during the verification of the lock-out/tag-out process.
- c. The Contractor dive supervisor Shall keep one of the following personnel always informed of all diving activity underway; DDC, DSI,

GQAR, Harbor Master (or designee), or supervisory / controlling authority of water way operational area.

- d. In, on, or around project site areas where differential Pressures (DIF-P) or Hazardous energy exist or are of concern, Contractor personnel who violate Clearances or procedures, will be cause to immediately and permanently ban the person(s) from the project site at the discretion of the District DDC to include concurrence from the Contracting Officers Representative.

3.5 BOAT RESTRICTED ZONE (BRZ)

3.5.1 General

Each USACE Japan Engineer District Project requires compliance with any site-specific Boat Restricted Zone (BRZ) Policy, where any work on or over water near structures with active vessel operations will be planned and coordinated with local Marine Operations personnel and the COR or representative before approaching the worksite.

3.5.2 Permission

The Contractor shall be informed of pending marine vessel schedules that would impact diving operations, in advance of the anticipated work interruption date(s). Coordination with Marine Operations and the Contractor shall include the COR or their representative at minimum.

3.5.3 Safety Requirements & Restrictions

- a. Untethered Scuba, Mixed Gas Diving, and Scientific Snorkeling are not authorized methodology for use on this contract unless otherwise noted.
- b. Confined space diving is not authorized on this contract unless otherwise noted.
- c. Turbidity curtain installation if applicable, movement, and maintenance is required to be accomplished by divers unless otherwise prescribed in this contract specification.
- d. Divers shall not work under loads, suspended or otherwise unsecured load at any time. Loads bearing structure require associated engineering be performed by a Registered Professional Engineer (of appropriate Discipline) as required by the contracting officer's representative and shall be performed at no additional cost of the government.
- e. Dive supervisor is not authorized to dive unless an accepted alternate supervisor possesses the same certifications at a supervisory level.
- f. All Dive Supervisors shall meet the minimum requirements for Dive Supervisor as listed in all applicable reference in this specification.
- g. Underwater Structural welders will not be accepted for welding work without meeting the requirements AWS D1.1/D1.1M & AWS D3.6M, or Host Country governing regulations pertaining to welding certifications.

Divers submitting welding qualifications meeting the intent of the AWS requirements, however and were trained and working as an underwater welder prior to the acceptance of the AWS standards will be considered

on a case-by-case basis for Supplemental waivers by the District DDC and the contracting officer's representative (U.S. diving contractors only).

- h. Arrange with local authorities for emergency dive medical response, treatment and evacuation to medical facility and nearest hyperbaric chamber. Provide map with route directions to nearest hospital and hyperbaric chamber in dive plan Emergency Management Plan required by EM 385-1-1.

3.5.4 Safety items required prior to entry into the BRZ

- a. The requirements of EM 385-1-1 & ER 385-1-86.
 - b. As a minimum, each vessel including floating plants used for dive operations, must meet JISHA ORDINANCE NO. 171 / Japan Coast Guard, or for military projects on base, governing agency's safety standards for day and night vessel operation. Included but not limited to; fire extinguishing capability, personal safety devices, running and anchor lights, propellar guards (where required) and an audible warning device capable of being heard anywhere within the BRZ.
 - c. A marine band radio capable of communication with Marine Operations on channel [XX] must be available to the boat operator. Failure to maintain communication with the Harbor Master (or AHJ) anytime vessels are operating within the BRZ is cause for removal from the BRZ until deficiencies are rectified.
 - d. The dive boat operator shall always remain at the boat controls during dive operations and have no other duties while inside the BRZ.
 - e. The vessel used for primary diving operations shall only be used for the diving operations. A second boat shall be provided specifically for rescue per the requirements of EM 385-1-1.
 - f. A rescue line shall be available in a throw bag. The rescue line length shall be of sufficient length to reach personnel which have gone overboard. A minimum length of 75 feet / 23 meters is recommended. Rescue Line which is constructed of a buoyant material is recommended.
 - g. A spotlight which can be easily operated by the boat operator must be available when performing nighttime operations.
 - h. A second boat of sufficient size, capable of safely removing "ALL" personnel from the work zone, must be dedicated and shall be of sufficient size to carry a stokes litter and backboard along with boat operator and any personnel rendering aid during rescue.
 - i. Both boats must remain in radio contact with each other. The rescue boat is not to perform any work. It is to be manned by a boat operator and at least one rescue individual.
- Dive station personnel may be used during emergencies for this purpose. Procedures shall be clearly listed in Contractor's emergency management plan. Active working boats shall not be used for rescue (EM 385-1-1)
- j. Both boats must be powered by engines capable of motoring upstream at

twice the speed of the quickest flow that will be encountered inside the BRZ while fully loaded and operational.

- k. Each boat must have two motors and be of sufficient size to safely remove "ALL" personnel from the work zone.
- l. Each boat shall have an adequately sized tow line capable of towing a disabled boat to safety.
- m. Contractor shall provide means of identification (flags) for all vessels that are granted permission to enter the BRZ. These flags shall be always displayed clearly and prominently the boat is in the BRZ. If diving, a one (1)-meter square Code Alpha Flag as well as a "Diver Down" flag must be flown a minimum of five feet above the vessel's highest point.
- n. All boat operators must present their credentials prior to initiation of work. This will include all licenses, certifications and resume of appropriate experience. Each operator must be approved by the Contracting Officer (or their representative) prior to beginning work.

3.6 DIVING WORK OPERATIONS

Description of the various diving tasks to be accomplished is as follows:

- a. Execute dives in accordance with approved Dive Operations Plan submittal.
- b. Contractor shall submit completed daily dive logs at the end of each dive day. Daily dive logs shall be submitted with the daily quality control report and provided to the District Dive Coordinator or authorized representative upon request. Contractor shall use COE form ENG 4615 or accepted equivalent (must contain same information) to record daily diving activities. The ENG form can be found in the USACE publication website. (<https://www.publications.usace.army.mil/>)
- c. Site specific dive plan shall be approved prior to commencement of underwater construction.
- d. All debris, cuttings, chips, spalls created during the construction process, and any items placed in the water that do not become a permanent part of the repaired structures shall be recovered and disposed of at the Contractor expense.

3.7 UNDERWATER QUALITY CONTROL (UWQC) REPORTS

- a. Contractor is required to provide photographic, or video documentation of all underwater work as required by contract for acceptance by the Contracting Officers Representative.
- b. If third party UWQC is required and is not being performed by the Contractor's diving subcontractor, the Contractor must provide an UWQC Team at the work site to perform underwater surveillance and inspection for the Government of contracted repairs. The UWQC Team divers must have current commercial diver's credentials, with a minimum of five (5) years' experience with underwater inspection.
- c. The personnel makeup of the UWQC team must comply with all the applicable safety requirements of EM 385-1-1, OSHA and local

requirements for Contract diving operations.

- d. The UWQC lead diver must be thoroughly familiar with the design plans and specifications to sufficiently understand the engineering aspects of the underwater construction and to be able to recognize and document potential problem areas such as improperly constructed or defective areas.
- e. Provide all necessary equipment to conduct surveillance and inspection services, including but not limited to diver's equipment, dive boat, communication equipment, and photographic/video equipment.

-- End of Section --