



- 3.3 MEASUREMENT
  - 3.3.1 Method of Measurement
  - 3.3.2 Surveys During Progress of Work
  - 3.3.3 Monthly Estimates
- 3.4 FINAL EXAMINATION AND ACCEPTANCE

-- End of Section Table of Contents --

\*\*\*\*\*  
USACE / NAVFAC / AFCEA / NASA           UFGS-35 20 23 (April 2006)  
-----  
Preparing Activity: NAVFAC               Replacing without change  
                                          UFGS-02325 (August 2004)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

\*\*\*\*\*

SECTION 35 20 23

DREDGING  
04/06

\*\*\*\*\*

NOTE: This guide specification covers the requirements for dredging.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

\*\*\*\*\*

\*\*\*\*\*

NOTE: The techniques of sounding, sweeping, or a combination thereof are applicable methods in the acceptance examination, depending upon specific requirements of the project. In general, for maintenance dredging or for new dredging on soft bottom, the acceptance examination by soundings will be acceptable; for new dredging on hard coral or rock bed, and also for dredging below existing channel bottom on hard coral or rock bed, sweepings are required. For new dredging on hard bed harbor channel and turning basin for capital ships (such as aircraft carriers), the combination of soundings and sweepings is required. If modification of navigation charts is required after completion of dredging work, the EFD shall coordinate with Naval Facilities Engineering Command Code 04A3 for the proper data transfer procedures to the Defense Mapping Agency.

\*\*\*\*\*

## PART 1 GENERAL

### 1.1 DEFINITION

Hard material is defined as material requiring [blasting or] [the use of] special equipment for economical removal, and includes boulders or fragments too large to be removed in one piece by the dredge.

### 1.2 SUBMITTALS

\*\*\*\*\*

NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

\*\*\*\*\*

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [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:

#### SD-02 Shop Drawings

##### Submerged Pipeline

Soundings or Sweepings[; G][; G, [\_\_\_\_]]

Indicate pipeline location and installation details. Submit drawings of surveys during progress of work by soundings or

sweepings.

## SD-07 Certificates

### Protection Plan

Prior to blasting, submit a plan for protection of surrounding structures, equipment, and vessels.

#### 1.3 MATERIAL TO BE REMOVED

\*\*\*\*\*  
NOTE: Include silt and mud if project is for  
maintenance dredging. Delete new material if area  
has been previously dredged to design depth. New  
material is material which has never been dredged.  
\*\*\*\*\*

The material to be removed is [silt and mud] [new material] [\_\_\_\_\_].

##### 1.3.1 Hard Material

\*\*\*\*\*  
NOTE: Choose one of the following options. Choose  
the first option when removal of hard material is  
anticipated and the second option when removal of  
hard material is not anticipated. For both options,  
when blasting will not be permitted, so state and  
delete requirements relating to blasting. When  
blasting is permitted, incorporate in the project  
specification information relative to maximum amount  
of charge that will be permitted and detailed  
requirements applicable to the specific project.  
\*\*\*\*\*

[Remove hard material. Blasting will [not] be permitted. [Blasting shall be performed only by experienced persons. Conduct operations in strict accordance with applicable regulations. Protect exposed structures from the effects of the blast in accordance with the [protection plan](#).]]

[The removal of hard material is not included. Should the Government direct in writing that hard material be removed, the work shall be performed and an adjustment in the contract price or time for completion, or both, will be made in accordance with "FAR 52.236-2, Differing Site Conditions." If hard material is to be removed, blasting will [not] be permitted. [Blasting shall be performed only by experienced persons. Conduct operations in strict accordance with applicable regulations. Protect exposed structures from the effects of the blast in accordance with the protection plan.]]

#### 1.4 ARTIFICIAL OBSTRUCTIONS

\*\*\*\*\*  
NOTE: Choose one of the following options. Choose  
the first option where no known obstructions exist  
and site is not near existing piers. Choose the  
second option where known obstructions exist or for  
dredging around existing piers.  
\*\*\*\*\*

[Except as indicated, the Government has no knowledge of cables, pipes, or other artificial obstructions or of any wrecks, wreckage, or other material that would necessitate the use of explosives or the employment of additional equipment for economical removal. If actual conditions differ from those stated or shown, or both, an adjustment in contract price or time for completion, or both, will be made in accordance with "FAR 52.236-2, Differing Site Conditions."]

[The Government has knowledge of debris such as, but not limited to, metal bands, pallets, pieces of broken cable, rope, fire hose, and broken piles. The Government has no knowledge of existing wrecks, wreckage, or other material of such size or character as to require the use of explosives or special or additional plant for its economical removal. Prior to dredging, the Contractor shall rake the dredge areas and shall remove debris encountered. Debris removed from the dredged area shall be removed from the water. Disposal shall be the responsibility of the Contractor and disposal shall be outside the limits of government property. In case the actual conditions differ from those stated or shown, or both, an adjustment in contract price or time of completion, or both, will be made in accordance with "FAR 52.236-2, Differing Site Conditions."]

#### [1.5 QUANTITY OF MATERIAL

\*\*\*\*\*  
NOTE: Insert quantities for project dredging,  
overdepth dredging, and total in the blanks. Delete  
paragraph for lump sum contracts.  
\*\*\*\*\*

The total estimated amount of material to be removed from within the specified limits, including side slopes, but excluding overdepths, is [\_\_\_\_\_] cubic meters cubic yards. The maximum amount of allowable overdepth dredging is estimated to be [\_\_\_\_\_] cubic meters cubic yards. The estimated quantity for bidding purposes and for application of the "FAR 52.212-11, Variation in Estimated Quantity" shall be [\_\_\_\_\_] cubic meters cubic yards, which is the total quantity, including overdepth. The quantities listed are estimates only. Within the limits of available funds, complete the work specified whether the quantities involved are greater or less than those estimated.

#### ]1.6 OVERDEPTH DREDGING

\*\*\*\*\*  
NOTE: Insert allowable depth for overdepth  
dredging, for which payment will be made.  
\*\*\*\*\*

To cover unavoidable inaccuracies of dredging processes, material actually removed to a depth of [\_\_\_\_\_] meters feet below the depth specified and within the dredging limits will be measured and paid for at full contract price.

#### 1.7 SIDE SLOPES

\*\*\*\*\*  
NOTE: Use first bracketed item when the side slope  
overdredge allowance is specified; use second  
bracketed item when side slope overdredge allowance

is not specified. For first bracketed item, insert allowable depth for dredging of side slopes beyond the indicated or specified side slopes for which payment will be made.

\*\*\*\*\*

Dredging on side slopes shall follow, as closely as practicable, the lines indicated or specified. [A [ ] meters [ ] foot allowance will be made for dredging beyond the indicated or specified side slopes, except as provided herein.] [An allowance will be made for dredging beyond the lines indicated or specified for side slopes. The allowance will be determined by projecting a line upwards, paralleling the project design side slopes, from the intersection of the overdepth dredging limit (at a point located vertically below the limit of dredging at the top of slope).] The amount of material excavated from side slopes will be determined by either cross-sections or computer, or both.

#### 1.8 PERMIT

\*\*\*\*\*

NOTE: When disposal area is under jurisdiction of Corps of Engineers, insert "Department of the Army" in the blank. Delete sentence when not applicable. Permit may include restrictions and conditions, such as time of year the dredging may be accomplished, use of turbidity control devices, and equipment restrictions.

\*\*\*\*\*

The Contractor shall comply with conditions and requirements of the Corps of Engineers Permit and other State or Federal permits. The Contracting Officer will secure the permit for dredging and disposal of material as indicated. Make arrangements with [ ] for disposal of excavated materials.

#### 1.9 CHARGES

\*\*\*\*\*

NOTE: Insert "Department of the Army" in the first blank where disposal area is under jurisdiction of the Corps of Engineers. Insert name of disposal area in second blank. Delete entire paragraph when not applicable.

\*\*\*\*\*

The [Government] [Contractor] will pay charges imposed by the [ ] for disposal of material in the [ ] disposal area.

#### 1.10 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain during the life of the contract, environmental protective measures. Also, provide environmental protective measures required to correct conditions, such as oil spills or debris, that occur during the dredging operations. Comply with Federal, State, and local regulations pertaining to water, air, and noise pollution.

#### 1.11 BASIS FOR BIDS

\*\*\*\*\*

NOTE: Choose one of the following options. Choose the first option for lump sum bidding of dredging, in projects where exact quantities can be practically determined prior to the actual work. Choose the second option for unit price bidding of dredging. Specify unit price bid items for dredging for projects where exact quantities cannot be practically determined prior to the actual work.

\*\*\*\*\*

[Base bids on the quantity of dredging indicated. Should the total quantity of dredging vary from that specified as the basis for bidding, the contract price will be adjusted in accordance with "FAR 52.243-4, "Changes." The dredging conditions specified and indicated describe conditions which are known. However, the Contractor is responsible for other conditions encountered which are not unusual when compared to the conditions recognized in the dredging business as usual in dredging activities such as those required under this contract.]

\*\*\*\*\*

NOTE: For PACNAVFACENGCOM projects: Edit applicable attachments from Document 00 41 00 for inclusion in Standard Form 1442, "Solicitation, Offer and Award" and "Schedule of Bid Items." Select first bracketed text.

\*\*\*\*\*

[For unit price bid, see [SF 1442, "Solicitation, Offer and Award" and "Schedule of Bid Items."] [paragraph entitled "Basis of Bids, Measurement, and Payment" in Section 01 20 00.00 20 PRICE AND PAYMENT PROCEDURES.]]

\*\*\*\*\*

NOTE: For LANTDIV projects, use the following for unit price bidding.

\*\*\*\*\*

[Payment will be at the contract unit price per cubic meter cubic yard, multiplied by total cubic meters cubic yards of acceptable dredging. Base bids on total cubic meters cubic yards of dredging[, as specified in Section 00 22 13 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS]. Include a bid unit price per cubic meter cubic yard of dredging based on the quantity [as specified or indicated.] [stated in Section 00 22 13, SUPPLEMENTARY INSTRUCTIONS TO BIDDERS.] If the Contracting Officer requires an increase or a decrease in total volume of dredging, the contract price will be adjusted in accordance with the "FAR 52.211-18, Variation in Estimated Quantity." Dredging conditions specified and indicated describe conditions which are known. However, the Contractor is responsible for other conditions encountered which are not unusual when compared to conditions recognized in the dredging business as usual in dredging activities such as those required under this contract.]

## PART 2 PRODUCTS

Not used.



## PART 3 EXECUTION

### 3.1 INSPECTION

\*\*\*\*\*  
NOTE: Choose one of the following options. Choose the first option for projects which incorporate Contractor Quality Control. Choose the second option for projects which do not incorporate Contractor Quality Control.  
\*\*\*\*\*

[Inspect the work, keep records of work performed, and ensure that gages, targets, ranges, and other markers are in place and usable for the intended purpose. Furnish, at the request of the Contracting Officer, boats, boatmen, laborers, and materials necessary for inspecting, supervising, and surveying the work. When required, provide transportation for the Contracting Officer and inspectors to and from the disposal area and between the dredging plant and adjacent points on shore.]

[The Government will keep a record of work performed and will require that gages, ranges, and other markers are usable for the intended purpose. Furnish, at the request of the Contracting Officer, boats, boatmen, laborers, and materials necessary for inspecting, supervising, and surveying the work. When required, provide transportation for the Contracting Officer and inspectors to and from the disposal area and between the dredging plant and adjacent points on shore.]

### 3.2 CONDUCT OF DREDGING WORK

#### 3.2.1 Order of Work

\*\*\*\*\*  
NOTE: Special scheduling requirements, restrictions, or other similar features bearing on the Contractor performing the work, should be specified in this paragraph or reference made to "Special Scheduling Requirements" paragraph in Section 01 40 00 WORK RESTRICTIONS.  
\*\*\*\*\*

The Contracting Officer will direct the Contractor on the order of work. The Government reserves the right to change the order of work at any time.

#### 3.2.2 Interference with Navigation

Minimize interference with the use of channels and passages. The Contracting Officer will direct the shifting or moving of dredges or the interruption of dredging operations to accommodate the movement of vessels and floating equipment, if necessary.

##### 3.2.2.1 Compensation for Interruption of Operations

If dredging operations are interrupted due to the movement of vessels or floating equipment, an adjustment in the contract price or time for completion, or both, will be made as provided by the contract. The Contracting Officer will notify the Contractor 7 days prior to ship movements that will affect dredging operations.

### 3.2.3 Lights

Each night, between sunset and sunrise and during periods of restricted visibility, provide lights for floating plants, pipelines, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation. When night work is in progress, maintain lights from sunset to sunrise for the observation of dredging operations. Lighting shall conform to United States Coast Guard requirements for visibility and color.

### 3.2.4 Ranges, Gages, and Lines

Furnish, set, and maintain ranges, buoys, and markers needed to define the work and to facilitate inspection. Establish and maintain gages in locations observable from each part of the work so that the depth may be determined. Suspend dredging when the gages or ranges cannot be seen or followed. The Contracting Officer will furnish, upon request by the Contractor, survey lines, points, and elevations necessary for the setting of ranges, gages, and buoys.

### 3.2.5 Plant

Maintain the plant, scows, coamings, barges, pipelines, and associated equipment to meet the requirements of the work. Promptly repair leaks or breaks along pipelines. Remove dredged material placed due to leaks and breaks.

### 3.2.6 Disposal of Excavated Material

\*\*\*\*\*  
**NOTE: Delete inapplicable language for disposal area; insert other disposal area language as appropriate.**  
\*\*\*\*\*

Provide for safe transportation and disposal of dredged materials. Transport and dispose of dredged material in the [[\_\_\_\_\_] disposal area] [area designated for disposal of dredged material]. [The Contractor may, at his option, dispose of dredge material at [\_\_\_\_\_] or provide disposal at an approved disposal area.] The deposit of dredged materials in unauthorized places is forbidden. Comply with rules and regulations of local port and harbor governing authorities.

#### 3.2.6.1 Method of Disposal

\*\*\*\*\*  
**NOTE: Delete inapplicable method of disposal and include only the language appropriate for the method of disposal to be used. Details should be specified regarding exact location for discharge into the disposal area, maximum allowable elevation of buildup, and any other limitations or special provisions for disposal.**  
\*\*\*\*\*

Deposit dredged material by [the hydraulic process] [hopper dredge] [self-dumping scow or barge]. [Do not remove loaded or partially loaded scows, barges, or hopper dredges from the dredge area until the load has been measured by the Contracting Officer. Notify the Contracting Officer when scows or barges are returned to the dredge area.] [Pipeline for

hydraulic dredging shall discharge into the disposal area.]

#### 3.2.6.2 Disposal in Indicated Fill Areas

\*\*\*\*\*  
**NOTE: Include any special requirements for construction and maintenance of fill area bulkheads and weirs. Delete when fill areas are not shown on the contract drawings. Require bulkheads and weir submittals for Contracting Officer review.**  
\*\*\*\*\*

In depositing excavated material for fill, uniformly grade and allow for shrinkage. Provide and maintain necessary bulkheads, dikes, ditches, weirs, spillways, and other construction necessary to confine and retain the fill in the dredge fill area.

#### 3.2.6.3 Operation of Sluiceways

\*\*\*\*\*  
**NOTE: Insert Corps of Engineers or other controlling agency in the blank provided. Delete when not applicable to the project.**  
\*\*\*\*\*

Sluiceways on the disposal area levees will be operated and maintained by the [\_\_\_\_\_]. The Contractor will be relieved of operations thereof.

#### 3.2.6.4 Submerged Pipeline

If a leak occurs in the discharge pipeline, immediately discontinue using the line until leaks are repaired. Remove material placed due to leaks or breaks.

#### 3.2.7 Navigation Warnings

Furnish and maintain navigation warning signs along the pipeline.

#### 3.2.8 Method of Communication

\*\*\*\*\*  
**NOTE: Where appropriate, also require communications between dredging crews, disposal area, and the Port Services Department of the Naval installation.**  
\*\*\*\*\*

Provide a system of communication between the dredge crew and the crew at the disposal area. A portable two-way radio is acceptable.

#### 3.2.9 Salvaged Material

anchors, chains, firearms, and other articles of value, which are brought to the surface during dredging operations, shall remain or become the property of the Government and shall be deposited on shore at a convenient location near the site of the work, as directed.

### 3.2.10 Safety of Structures

The prosecution of work shall ensure the stability of piers, bulkheads, and other structures lying on or adjacent to the site of the work, insofar as structures may be jeopardized by dredging operations. Repair damage resulting from dredging operations, insofar as such damage may be caused by variation in locations or depth of dredging, or both, from that indicated or permitted under the contract.

### 3.2.11 Plant Removal

Upon completion of the work, promptly remove plant, including ranges, buoys, piles, and other markers or obstructions.

## 3.3 MEASUREMENT

[Government will] [Contractor shall] take soundings before and after dredging.

### 3.3.1 Method of Measurement

The material removed will be measured by cubic meter cubic yard in place, by means of soundings taken before and after dredging. The drawings represent existing conditions based on current available information, but will be verified and corrected, if necessary, by soundings taken before dredging in each locality. Soundings will be taken by lead line or [200 kHz] [\_\_\_\_\_] sonic methods, or both, as determined by the Government; results of soundings by either or both methods will be the basis for payment. Areas sounded more than 30 days prior to dredging will be re-sounded when requested by the Contractor. The Contractor has the option of being present when such soundings are made.

### 3.3.2 Surveys During Progress of Work

Contract depth will be determined by soundings or sweepings taken behind the dredge as work progresses. The [Government will] [Contractor shall] take progress soundings or sweepings.

### 3.3.3 Monthly Estimates

Monthly estimates of work completed will be based on the result of soundings taken during the progress of the work [or, at the option of the Contracting Officer, on 85 percent of the scow or barge measurement.] Deductions will be made for dredging and disposal not in accordance with the specifications.

## 3.4 FINAL EXAMINATION AND ACCEPTANCE

\*\*\*\*\*

NOTE: The techniques of sounding, sweeping, or a combination thereof are applicable methods in the acceptance examination, depending upon specific requirements of the project. In general, for maintenance dredging or for new dredging on soft bottom, the acceptance examination by soundings will be acceptable; for new dredging on hard coral or rock bed, and also for dredging below existing channel bottom on hard coral or rock bed, sweepings are required. For new dredging on hard bed harbor

channel and turning basin for capital ships (such as aircraft carriers), the combination of soundings and sweepings is required. If modification of navigation charts is required after completion of dredging work, the EFD shall coordinate with Naval Facilities Engineering Command Code 04A3 for the proper data transfer procedures to the Defense Mapping Agency.

\*\*\*\*\*

As soon as practicable after the completion of areas, which in the opinion of the Contracting Officer, will not be affected by further dredging operations, each area will be examined by the Government by sounding or sweeping, or both. Remove shoals and lumps by dragging the bottom or by dredging. However, if the bottom is soft and the shoal areas form no material obstruction to navigation, removal may be waived at the discretion of the Contracting Officer. The Contractor will be notified when soundings or sweepings are to be made and will be permitted to accompany the sounding or sweeping party and to inspect the data and methods used in preparing the final estimate. When areas are found to be in a satisfactory condition, the work therein will be accepted as complete. Final estimates will be subject to deductions or correction of deductions previously made because of excessive overdepth, dredging outside or authorized areas, or disposal of material in an unauthorized manner.

-- End of Section --