

CITY OF BERKELEY

ALAMEDA COUNTY, CALIFORNIA

PROJECT # PRWT 2202, SPECIFICATION # 24-11644-C

**BERKELEY MAIN CHANNEL AND MARINA HARBOR DREDGING PROJECT,  
BERKELEY, CA**

TECHNICAL SPECIFICATIONS

ISSUED FOR BID SUBMITTAL

JANUARY 22, 2024

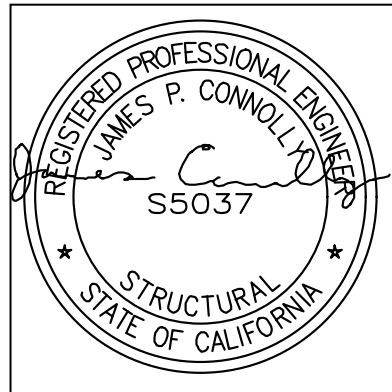
CERTIFICATION PAGE

The various portions of the specifications and other contract documents for "BERKELEY MAIN CHANNEL AND MARINA HARBOR DREDGING", Project # PRWT 2202 Specification # 24-11644-C, Issued for Bid Technical Specification, have been prepared under the direction of the following design professionals, licensed in the State of California.

STRUCTURAL/CIVIL ENGINEERING

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The various portions of the specifications and other contract documents for project "BERKELEY MAIN CHANEL AND MARINA HARBOR DREDGING", Project #PRWT 2202, Issued for Bid Specifications are documented in this document.

<u>Section No.</u>	<u>Section Title</u>	<u>Revision</u>	<u>Source</u>
<b>DIVISION 1 - GENERAL REQUIREMENTS</b>			
	See Division 1		
<b>DIVISION 35 – WATERWAY AND MARINE CONSTRUCTION</b>			
35 20 23	DREDGING AND DISPOSAL	0	Design Specification

## SECTION 35 20 23

### DREDGING AND DISPOSAL

#### PART 1 - GENERAL

##### 1.1 SCOPE

A. The Contractor shall provide all labor, materials, tools, equipment, insurance, licenses, transportation, and any related services necessary for the proper and complete maintenance dredging operations for Berkeley Main Channel and Marina Harbor Dredging.

##### 1.2 DEFINITIONS

- A. Dredged Material Management Office (DMMO). The DMMO is the group of regulatory agencies responsible for coordinating the review of sediment characterization data and determination of its suitability for unconfined aquatic disposal. The US Army Corps of Engineers (USACE) is the organizing agency for the DMMO. The City is currently in the process of obtaining DMMO suitability determination for the Project. A copy of the letter is or will be provided in Division 01 Section 00 1100 Summary of Work.
- B. Suitable for Unconfined Aquatic Disposal (SUAD). Dredged sediment that has been tested and determined by the regulatory agencies comprising the Dredged Material Management Office (DMMO) to be Suitable for Unconfined Aquatic Disposal (SUAD) at Alcatraz Island Disposal Site (SF-11). This material has also been determined suitable for placement at the Cullinan Ranch Restoration Project (CRRP) and Montezuma Wetlands Restoration Project (MWRP) beneficial reuse wetland sites and San Francisco Deep Ocean Disposal Site (SF-DODS). Alternate beneficial reuse wetland sites would need to be approved by the City.
- C. Not Suitable for Unconfined Aquatic Disposal (NUAD). Project dredged sediment that has been tested and determined by the DMMO to be Not Suitable for Unconfined Aquatic Disposal (NUAD) at SF-11. This material is approved for placement at the MWRP beneficial reuse wetland site as Foundation material.
- D. Dredging Boundary or Dredge Prism: Overall permitted dimensions of the dredging project, including allowable over depth, and/or any side slope box cuts, etc., but independent of how “pay depth” may be defined for that project. Disposal or fill volume calculations, environmental evaluations, etc. are to be based on these overall approved dimensions.

- E. Dredge Footprint: Areas that will be dredged within the Dredge Boundary for a particular episode.
- F. Dredge Unit (DU). A dredge unit is defined as an independent area within the overall project dredge boundary that has been characterized to determine disposal authorization for material within the dredge unit. The dredge unit(s) and differing disposal options are defined in the Project sediment characterization reports, agency permits, and dredge disposal determination documents included in Division 01 Section 01 1100 Summary of Work.
- G. Dredge Event or Dredge Episode. The Contract includes a single Dredge Episode No. 1 requiring dredging and disposal of both SUAD and NUAD material from within the Dredge Boundary. This Dredge Event will include one mobilization/demobilization effort.
- H. Required Dredge Depth (Project Design Depth or Elevation): Approved/authorized project depth not including any over depth allowance, any advance maintenance depth, or any side slope cuts, etc. The minimum elevation within the dredge boundary, above which the Contractor is required to remove all material.
- I. Allowable Over Depth/Over Dredge Tolerance: A specified depth below the Project Required Dredge Depth, from which material is permitted and authorized to be dredged. The purposes for an over depth tolerance are (A) to ensure that the project design depth is fully achieved, and (B) to ensure that potential environmental impacts associated with removal of substantial volumes of unauthorized and/or untested material are minimized, both while taking into account reasonable inaccuracy/imprecision of the dredging process. It is NOT mandatory that all material be removed from the allowable over depth tolerance.
- J. Permitted Depth/Permitted Dimensions: The “permitted” dimensions typically refer to the overall dredge boundary (i.e., the design depth and the agency permit over depth tolerance).
- K. Dredge Debris. Debris is defined as any dredged materials that do not pass through a grid opening sized 12 inches square. Debris shall not be disposed of at any aquatic or beneficial reuse disposal site. Debris shall be properly disposed of only at an approved recycling or landfill facility.
- L. Excessive Dredging. Dredging performed below the allowable over depth/over dredge tolerance or otherwise outside the permitted dredge boundary. Excessive Dredging volume will be deducted from the total volume dredged and payment will not be made for Excessive Dredging.
- M. Required Dredge Volume. The volume of dredge material above the

Required Dredge Depth.

- N. Maximum Pay Depth (Pay Elevation): The required design depth, plus one foot of over depth /over dredge allowance for which the Contractor will be paid for. Sections allowing 1-ft over dredge are noted in Section 1- Section 7A. The required design depth, plus two foot over depth/over dredge allowance for which the Contractor will be paid for. Sections allowing 2-ft overdredge are noted in Sections 8 and Section 9. The purpose is to provide financial incentive to ensure the project's design depth is fully and efficiently achieved, while allowing for reasonable inaccuracy/imprecision in the dredging process.
- O. Maximum Pay Volume (Pay volume/pay material). Volume of dredged material above the Maximum Pay Depth.
- P. Paid Over Depth/Over Dredge Volume. Difference between the Maximum Pay Volume and Required Dredge Volume.
- Q. No Pay Volume. Volume of dredged material below the Maximum Pay Depth/Pay Elevation.

1.1 DESCRIPTION

- A. The Berkeley Main Channel and Marina Harbor dredge boundary encompasses a total area of approximately 69.8 acres of open waters within the Bay as shown in the Project Dredging Plan (DR-001, DR-002) and Cross Sections (DR-004 to DR-007). Dredging is necessary to provide safe navigational access through the channel and harbor.

In conjunction with the DMMO, the City completed the required chemical and biological laboratory analysis to characterize the suitability of the proposed dredge material for in- water and beneficial reuse wetland site disposal. Based on the site characterization reports, the DMMO issued the City a dredge material disposal determination letter authorizing dredge sediment from Main Channel and Marina Harbor Dredge Boundary as either 1) SUAD for disposal at the San Francisco SF-11 site (SF-11) or placement at the Cullinan Ranch Restoration Project (CRRP) or Montezuma Wetlands Restoration Project (MWRP), or 2) NUAD at SF-11, or placement at CRRP or MWRP as cover, but suitable for placement at the MWRP as foundation material. Dredge Plan DR-003 presents dredge material disposal requirements for the Main Channel and Marina Harbor Dredge Units:

<u>Channel and Harbor Dredge Units Comprising SUAD Dredge Material</u>			
SECTION AREA		DESIGN DEPTH (FT, MLLW)	DISPOSAL SITE
1A	BM-DU1	-8	SF-11, SF DODS MWRP COVER
1B	BM-DU1	-8	SF-11, SF DODS MWRP COVER
1C	BM-DU1	-8	SF-11, SF DODS MWRP COVER
2	BM DU2	-8	SF-11, SF DODS MWRP COVER
2A	BM DU2	-8	SF-11, SF DODS MWRP COVER
2B	BM DU2	-8	SF-11, SF DODS MWRP COVER
4	BM DU3	-8	SF-11, SF DODS MWRP COVER
6A	BM DU3	-8	SF-11, SF DODS MWRP COVER
7	BM DU2/DU3	-10	SF-11, SF DODS MWRP COVER
7B	BM DU2/DU3	-10	SF-11, SF DODS MWRP COVER
8	BM DU3	-12	SF-11, SF DODS MWRP COVER
9	BM DU3	-12	SF-11, SF DODS MWRP COVER

<u>Channel and Harbor Dredge Units Comprising NUAD Dredge Material</u>			
SECTION AREA		DESIGN DEPTH (FT, MLLW)	DISPOSAL SITE
3	BM DU3	-8	MWRP FOUNDATION
5	BM DU3	-8	MWRP FOUNDATION
6	BM DU3	-8	MWRP FOUNDATION
7A	BM DU3	-10	MWRP FOUNDATION

Documents in Section 00 1100 Summary of Work include Main Channel and Harbor sediment characterization reports, DMMO suitability determination letter, agency permits obtained for the Project and electronic copy of the 2022 Hydrographic Survey shown in Project Plans. The City will provide any historical Pre-Dredge Survey and any other available information. A pre-dredge survey and Dredge Operations Plan template to be provided by the Contractor following Contract Award, which are to be submitted to the agencies for approval prior to dredging.

The Marina shall remain fully operational and the Contractor shall conduct his/her work in such a manner to assure minimal interference with Marina Operations. Channels must not be blocked and boat traffic must be allowed to continue with few interruptions.

When required by the Contractor, boats within the work areas will be moved by the City. City to designate temporary berthing for boats during dredging. The Contractor shall give the City ten (10) calendar days notice and coordinate work schedule with the City. The Contractor shall also notify the U.S. Coast Guard ten (10) calendar days prior to the start of any work.

The Contractor shall observe the rules and regulations of the State of

California and agencies of the United States Government prohibiting the pollution of the waters of the Bay by dumping refuse, rubbish, debris, etc., and the menace to navigation, by permitting piles and timbers to go adrift in navigable waters.

Should the Contractor, during the progress of the work, lose, dump, throw overboard, sink or misplace any materials, plat, machinery, or appliances, which are declared by the U.S. Coast Guard or U.S. Army Corps of Engineers to be dangerous to or obstruct navigation, he/she shall recover and remove same at once, without expense to the City. The Contractor shall give notice with description and location of such obstructions to the City Representative.

## 1.2 RELATED SECTIONS

- A. Section 00 1100 Summary of Work
- B. Section 01 3119 Project Meetings
- C. Section 01 3300 Submittals
- D. Section 01 4100 Regulatory Requirements
- E. Section 01 4200 References and Definitions
- F. Section 01 4500 Testing and Inspections
- G. Section 01 5200 Temporary Facilities
- H. Section 01 5526 Project Cleaning

## 1.3 WORK INCLUDED

- A. The Work under this Section consists of providing all labor, dredge plant, tools, equipment, supplies, and materials necessary to dredge, transport, and dispose of NUAD and SUAD dredged material from Main Channel and Harbor dredge boundary.
- B. Elevation Control: Primary elevation control consists of the vertical distance above or below 0' MLLW.
- C. Vertical Datum: elevations in the Construction Documents are referenced to Mean Lower Low Water (MLLW) Datum.
- D. Horizontal Datum: elevations in Construction Documents are referenced to NAD83 Projected to State Plane Coordinate System California, Zone 3.
- E. The Contractor shall conduct Work in such a manner to ensure minimal interference and will maintain complete communication with City and nearby operations (Harbor Docks A-O and Main Channel). Harbor Docks and Main



Channel must not be blocked without prior authorization, and vessel traffic must be allowed to continue with no interruptions.

- F. The Contractor shall be subject to the following Work conditions:
1. Dredging and in water disposal of dredged material shall only be performed from August 1, 2024 through November 30, 2024.
  2. The Work to be conducted is in proximity to existing docks. The Contractor shall inform the City ten (10) calendar days prior to initiation of dredging to allow coordination with existing uses.
  3. Dredging may be conducted during daylight hours, five days a week, working hours from 7 a.m. to 5 p.m., Monday through Friday. No weekend or holiday work will be permitted, unless approved by the City Project Manager on the Marina Harbor. Dredging may occur 24 hours a day 7 days a week Monday through Sunday on the Main Channel with City approval.
  4. At the end of each Working Day, the Contractor shall position the equipment and barges such that interference with vessel traffic will be avoided. All equipment shall have sufficient lighting to allow for navigation.
  5. The Contractor shall provide transportation to and from the dredging operations and equipment for the City and other regulatory agencies' representatives as required. Contractor shall provide the City Representatives access onto its dredging plant when requested.
  6. Dredging operations shall cease immediately whenever violations of requirements are detected. Operation shall not resume until methods of compliance are approved.
  7. Should the Contractor, during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, plant, machinery, or appliance, which in the opinion of the City may be dangerous to 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 City and when required, shall mark or buoy such obstructions until the same are removed. Should Contractor refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the City, and the cost of such removal may be deducted from any money due or to become due the Contractor or may be recovered under 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 Sections 15, 19, and 20 of

the River and Harbor Act of March 3, 1899.

8. If any exceedances of water quality compliance criteria are exceeded at the Project compliance boundary during NUAD dredging activities, the City will work with Contractor to implement contingency measures, including deployment silt curtains.

#### 1.4 SUBMITTALS

- A. The Contractor shall be required to submit QC reports on a daily basis to the City Representative. The reports shall document dredging and disposal operations for all shifts in the last 24-hour period. Each report shall contain descriptions of areas dredged, quantities of material removed, effective and non-effective working time, names of each piece of Contractor and Subcontractor plant on the job, names of all personnel on job and full descriptions of any accidents. Upon issuance of the Corps dredging permit, the Contractor shall include other reporting requirements as required by the permit. The Quality Control Report shall be filled out for each day that the Contractor's plant is on site, whether or not it is working.
- B. Contractor to provide a new hydrographic survey which is to be included in the Dredging Plan Operations Plan (DOP).
- C. Ten (10) calendar days after Notice to Proceed, Contractor shall submit an electronic copy of the DOP to the City for review.
- D. Contractor to provide a new pre-dredge hydrographic survey. The Contractor DOP submittal shall include, but not be limited to, all information listed below and required by the USACE. Allow up to sixty (60) calendar days for City and USACE review and approval. No dredging Work shall begin until receipt of USACE approval of the DOP and dredge episode authorization letter.
  1. Cite the USACE, BCDC and RWQCB project permit numbers and incorporate list of permit constraints and restrictions.
  2. Contractor's business name, telephone number, dredging Site representative(s) and 24-hour emergency contact information (name, position, phone number). Include a project management responsibility matrix or organizational chart.
  3. Schedule and sequencing of SUAD and NUAD dredging including:
    - a. SUAD start date, work hours per day and work days per week, sequencing and duration for dredging SUAD dredge units.
    - b. NUAD start date, work hours per day and work days per week, sequencing and duration for dredging NUAD dredge units (Cap

- boundary).
- c. If proposing concurrent SUAD and NUAD dredging, specify how site equipment and controls will be performed to ensure segregation of SUAD and NUAD dredging and minimization of resuspending contaminated sediment on SUAD areas.
4. Proposed equipment and method of dredging including proposed dredge cuts. The equipment description should contain at a minimum the type, name or number, capacity, overall dimensions, radio call signs, and other relevant specifications. Include a schedule for equipment inspection and example of equipment inspection form.
  5. The method and equipment to be utilized to transport the dredged material to the designated disposal site(s). Provide barge measurement and loading curves and certificate of seaworthiness, certified by a licensed naval architect or marine inspector.
  6. Barge Delivery Plan including
    - a. Types of barges used for delivery.
    - b. Schedules and sequencing of delivery of equipment to be used for SUAD and NUAD dredging.
  7. The method and equipment to be used for dredging position control, indicating how horizontal and vertical position control will be maintained, and personnel responsible of dredge positioning system setup, operation and maintenance.
  8. The method and equipment used for determining the positioning by electronic methods of the dredge plant and dump scow(s) during dredging and disposal operations.
  9. Dredging and disposal quality control documentation procedures including the following forms to be developed by Contractor and required during performance of all dredging operations.
    - a. Dredge Operations Daily Reports. Equipment operators shall fill out a Daily Dredging Operations Report for each calendar day's activity on each dredge plant being operated. The Daily Dredging Operations Report will include the number of scows loaded each day, an estimate of the amount of material being transported in each scow to the disposal site, and the method used to estimate that quantity including daily progress surveys. Forms shall be filled out completely and legibly, including signatures, using black or dark blue ink. An electronic copy of the forms shall be submitted to the City by 12:00 noon the day following the date shown on the reports. The Dredge Operations Daily Report shall be filled out for each calendar day even

when the equipment is not working. Progress payments for dredging will not be made until a complete set of Dredge Operations Daily Report covering the payment period are in the City's possession and are deemed acceptable by the City.

- b. Vessel Traffic Control Log. Contractor shall submit the Vessel Traffic Control Log to the City on a weekly basis.
  - c. Disposal Site Verification and Disposal Log. For disposal of SUAD material at designated disposal site(s), the Contractor shall maintain a Disposal Site Verification and Disposal Log and provide weekly electronic submittals each Monday to the USACE with copy to the City. Contractor shall follow all procedures outlined in this section and in the USACE permit, to be provided to the selected Contractor with the Notice of Award.
10. Security and safety methods to keep the public away from and clear of all dredging and disposal activities including compliance with appropriate U.S. Coast Guard rules.
  11. Spill Prevention and Response Plan per Section 01 57 20 Temporary Controls.
  12. Solid Debris and Waste Management Plan including the following and to conform to Section 01 5720 Temporary Controls:
    - a. Source and expected type of debris.
    - b. Debris retrieval and separation method.
    - c. Debris disposal method and location.
    - d. Schedule for disposal operations.
    - e. Debris containment method to be used, if floatable debris is involved.
  13. Silt Curtain Control Plan including the following:
    - a. The type and make of materials and parts proposed for silt curtain system.
    - b. Contractor drawings, including manufacturer sketches, showing layout of silt curtain system, dimensions, and depictions of how system will be deployed and operated during dredging activities.
    - c. Anchoring plan, if applicable.
    - d. Methods and procedures for Contractor inspection, maintenance, and repair of silt curtain system.
  14. Safety and Emergency Response Plan.
  15. Notice to Mariners.

16. The Contractor shall not receive a dredging Notice to Proceed until the DOP described above has been approved by the USACE, BCDC, and Regional Board. Any changes to the DOP shall be updated and submitted to the City as the dredging work proceeds.

- E. Special Notices: The Contractor shall provide immediate electronic notification with documentation of Work stoppages and slowdowns that may affect the dredging operation plan.
- F. Existing Conditions Record: Prior to commencement of Work, the Contractor and the City shall jointly conduct a visual survey the area adjacent to the Project Dredge Boundary making permanent note and record of such existing damage to the piles, or other existing features. This record shall serve as a basis for determination of subsequent damage to structures, conditions or other existing improvements due to the Contractor's operations. All parties making the survey shall sign the official record of existing damage. Damage of any nature to the existing features within the surveyed area, not noted in the original survey but subsequently noted, shall be reported immediately to the City. The record shall include a photographic record which contains, at a minimum, photographs of existing features, location of photograph(s) taken, and description of the condition. The record shall be submitted to the City prior to start of dredging.

## 1.5 SITE CONDITIONS

- A. The Contractor shall conduct a Site inspection and shall be responsible for reviewing all the contract documents, including reference documents and appendices, making an independent assessment of the conditions affecting the Work.

The material to be dredged is believed to be soft sediment, however the City does not guarantee the nature of the material. Debris, rubbish, and other articles typical of historic pier and berthing areas may be encountered and will become the property of the Contractor and shall be removed and disposed of in accordance with these Specifications. The Contractor shall be responsible to know and understand the following:

1. The nature and location of the Work.
2. The general and local conditions, particularly those bearing upon disposal of materials, handling and storage of materials, availability of labor, water, electric power, and uncertainties of weather, tidal stages, or similar physical conditions at the Site.
3. The conformation and conditions of the ground.
4. The character of equipment and facilities needed prior to and during the

execution of the Work.

5. All other matters which can affect the Work.

- B. The Contractor shall further be responsible to know and understand the character, quality, and quantity of surface and subsurface materials to be encountered by inspecting the Site, reviewing exploratory investigative data available from the City, and information presented by the Contract Drawings and Specifications. Failure to become acquainted with all the available information will not relieve the Contractor from responsibility of properly estimating the difficulty or cost of performing the Work. The foregoing statement of potential conditions on Site is for information only and may not be relied upon to reflect actual conditions encountered on the Site.
- C. The Contractor may anticipate underground obstructions such as abandoned, timber pile stumps, and debris related to former docks. No extra payment will be allowed for the removal, replacement, repair or possible increased cost caused by such underground obstructions. Any such obstructions indicated on the Drawings show only the approximate location and shall be verified in the field by the Contractor. The Contractor shall have full responsibility to anticipate and locate all underground obstructions.
- D. The Contractor is responsible for contacting all agencies and utility companies having jurisdiction or services in the project area for additional information.
- E. Contractor shall review any City utility maps and any City utility drawings available at City's offices to ensure that no utilities are in the area affected by the dredge operations prior to commencing with the dredging. It is the Contractor's responsibility to investigate and confirm if utilities are in the areas to be dredged and to protect all utilities from damage. If utilities are located in an area that could be affected by the Work, Contractor shall verify location of such utilities and exercise caution when working around these utilities. If required, Contractor shall arrange for utility disconnection as required by public or private utility companies.
- F. The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the City by written notice of:
  - 1. Subsurface or latent physical conditions at the Site differing materially from those indicated in the Contract Documents; or
  - 2. Unknown physical conditions at the Site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents.

- G. The City will promptly investigate conditions, and if they find that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for performance of the Work, an equitable adjustment will be made and the Contract Documents will be modified by a Change Order. Claims by the Contractor shall not be allowed unless a written notice is given to the City, and provided that the City determines the facts so justify, consider any such claims asserted before the date of final payment.

#### 1.6 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall not close or obstruct navigation ways, channels, roadways, or sidewalks without proper permits. Contractor shall not interfere with the use of or access to adjacent buildings, property or other City property or operations throughout the progress of the Work. No additional compensation will be paid by the City for disruptions to dredging operations caused by vessel traffic if any.
- B. Contractor shall confine all operations to the Work limits of the project. Contractor shall inspect and document the condition of existing and other facilities adjacent to their Work areas prior to any dredging and disposal activities. Contractor shall protect all existing facilities from damage and notify City of any damage that occurs. Contractor shall repair or replace damaged items to the satisfaction of the City at no additional expense to the City.
- C. Contractor shall be responsible for disposing of abandoned utilities encountered during demolition.

Contractor shall coordinate with the City, for completion and clean-up of Work Site, construction access and parking locations.

#### 1.7 PERMIT REQUIREMENTS

- A. Contractor is advised that the Project regulatory agency permits, and authorizations include conditions for marine debris removal, dredging and aquatic dredge material disposal, within the Bay. The Contractor shall review and comply with applicable conditions and conforming to the requirements of the regulatory agency permits, and any other federal, state, county or local agency code, ordinance, or regulation that may apply. Listed below are applicable Project permits and authorizations included in Section 01 11 00 "Summary of Work" and
- B. Contractor shall follow state and local code requirements for control and disposal of debris, which shall be at a licensed and approved off-site location.
- C. Contractor shall comply with the requirements detailed in the USACE

approved Dredge Operations Plan including:

1. Notifications to Start or Suspend Work.
  2. Solid Debris and Waste Management Plan.
  3. Disposal Site Verification and Disposal Log.
- D. The Contractor is responsible for securing and paying for all permits and licenses in connection with operating his equipment, floating or otherwise.
- E. During dredging, the Contractor will implement construction best management practices to capture debris and to minimize potential water quality impacts from other types of construction-related discharges. The Contractor shall conduct all operations in compliance with the agency permits referenced in this section and in Section 01 41 00– Regulatory Requirements, including compliance with the water quality criteria required under the project Water Quality Monitoring Plan. The Contractor shall conform to the permit requirements including but not limited to the following:
1. Dredging shall be limited to the dredge boundary, design depths and over-dredge depths as defined in the Dredging Plans.
  2. No overflow or decant water shall be discharged from any barge, with the exception of spillage incidental to clam shell or excavator dredge operations.
  3. No dredging shall occur outside the side slopes noted in Project Plans.
  4. The Contractor shall immediately notify the City of any barge or fuel spills or adverse condition associated with dredging.
- F. Fines imposed by any Regulatory Agency caused by the Contractor, due to negligence or wrongdoing on the part of the Contractor, in the execution of the Dredging Work shall be paid by the Contractor.
- G. The Contractor shall be prepared for and allow for regulatory agency inspections at any time during performance of the Work.
- H. Contractor shall comply with all Coast Guard regulations and display the proper signals during both daytime and nighttime operations.
- I. All vessels operated for disposal of dredged material are required to participate in and comply with the Coast Guard's Vessel Traffic Control



Service (VTCS). Five minutes before each departure of dredged material from the Site, the Contractor shall notify the VTCS by radio of the time of departure from the Site, departure from the disposal Site, and return to dredge Site.

#### 1.9 PROTECTION OF FACILITIES

- A. At all times, the Contractor shall be solely and completely responsible for the condition of the job Site, including safety of persons, boats, docks, and all property, and for all necessary independent engineering reviews of these conditions.
- B. The Contractor shall take care to ensure the integrity and freedom from damage of all buildings, curbs, fences, gates, floats, piles, boats, and other facilities near the Site. Any damage caused by the Contractor's operations to any existing City property shall be repaired or replaced in kind to the satisfaction of the City at no cost to the City.
- C. The Contractor shall erect and maintain temporary lights, navigation lights, barricades, warning signs, buoys and guards necessary to protect the public from property damage or injury in accordance with applicable rules and regulations.
- D. During the dredging operations, the Contractor shall take all necessary measures to protect all boats and other facilities in the vicinity of the Work Site. The Contractor, at Contractor's own expense, shall always have personnel available to immediately wash off or clean as necessary any dredged material dropped, splashed or otherwise deposited on any boat.
- E. Contractor shall wash down and hose off all materials dropped on the boats, sidewalks, and street areas immediately and leave such facilities in the same condition as they were at the start of Work. Contractor shall inspect the above facilities at the end of each Workday and clean off any materials missed as Work progressed. Clean up shall be to the satisfaction of the City.
- F. The Contractor shall keep all pavements and areas adjacent to and leading from the Site clean and free of mud, dirt, and debris at all times.
- G. The Contractor shall not close or obstruct sidewalks, roadways, channels or navigation ways without proper permits and authorization in writing from the City.
- H. Contractor shall not tie, moor, connect or come into contact with the City's facilities, including all docks, etc., with any of the Contractor's equipment unless specifically required for disconnection, transportation, and reconnection of existing facilities. All the Contractor's equipment, boats,

barges, scows, etc., shall be kept clear of the existing facilities, with the exception of any personnel carrying skiff or work boat, as approved by the City.

- I. Coast Guard regulations as minimum requirement for lighting of floating equipment.

#### 1.10 QUALITY CONTROL

- A. The Contractor shall staff the Project with a qualified Project Manager who is experienced in a project of this nature. All submittals shall be reviewed, and quality checked by the Project Manager prior to sending them to the City.
- B. The City's Inspector will inspect the Work periodically. The Contractor shall, without additional compensation, provide complete cooperation and unrestricted access for inspection including transport to the dredge and scow via Contractor's crew boat.
- C. It is the Contractor's responsibility to comply with all contract requirements. The City's Inspector will review dredging operations to verify that the dredging, transport and disposal of dredged material comply with the Contract Documents and permit conditions.
- D. The Contractor shall make their daily reports, dredge logs, electronic positioning data, disposal site logs, soundings and other records available to the City's Inspector when requested. A copy of all reports and records submitted by the Contractor will be retained on Site for inspection by the City.

#### 1.11 PREPARATION

- A. The City has obtained the necessary permits and approvals for disposal at the designated disposal site(s).
- B. Contractor shall comply with all specifications and prepare necessary forms consistent with the "Information to Bidders and General Specifications" for dredging and disposal.
- C. Contractor shall notify the Coast Guard of planned dredging operations in enough time to allow publication in the Local Notice to Mariners, Weekly Supplement.
- D. Prior to start of dredging, submit schedule of hours of operations for approval by the City if differ from proposed schedule in Dredge Operations Plan.

Contractor is required to submit electronic notifications to the USACE, with a copy to the City, when a dredge episode commences, suspends (suspension is

when the dredge contractor leaves the site for more than 48 hours for reasons other than equipment maintenance), or restarts. Each notification shall be submitted as indicated in the permit under US Army Corps of Engineers, Operations and Readiness Division, 1455 Market Street, 16th Floor, San Francisco, CA, 94103-1398 and shall include the following project information:

1. USACE permit number.
2. Dredge Episode No
3. Commencement or Suspension Date.
4. Permittee: City of Berkeley, 2180 Milvia Street, Berkeley CA 94704

## **PART 2 PRODUCTS**

**Not Used**

## **PART 3 EXECUTION**

### **3.1 GENERAL**

- A. **Dredge Limits:** Dredging shall be carried to the limits, lines, depths, and tolerances indicated on the Contract Drawings, or as directed by the City. Dredging outside the limits shown will not be paid for and reinstatement of over-excavated material may be required as directed by the City at the Contractor's expense. The Contractor will be responsible for any fines or penalties imposed by regulatory bodies for any Work outside of the authorized dredge prism or for improper disposal of dredged materials.
- B. **Side Slopes:** The side slopes shall be dredged to the limits as shown on the Contract Drawings. The Contractor is directed to Paragraph 3.09 Over-dredge and SideSlopes.
- C. **Existing Structures:** When dredging adjacent to existing structures caution shall be exercised so as not to over-dredge and endanger the stability of the structures or slopes. The Contractor shall be held responsible for any damage to existing slopes and adjacent structures. Where the slope material or other material outside of the prescribed limits of dredging is removed or disturbed as a result of the dredging operation, said materials shall be reinstated as directed by the City at the Contractor's expense.
- D. **Sloughing:** All material that sloughs into dredged areas from outside the dredging limits shall, prior to acceptance and at no additional cost to the City, be removed to the required dredge elevation.
- E. The Contractor shall comply with all permit conditions, as set forth in the permits.
- F. **Trash, debris, and other miscellaneous man-made and natural objects**

encountered during dredging shall be removed and placed in a separate barge or other conveyance and disposed of outside the limits of Work at a land disposal site in accordance with local, state and federal laws and regulations. No additional compensation will be made to the Contractor for excavation, removal and disposal of trash and debris.

- G. The Contractor shall operate and maintain proper lighting and signals during both daytime and nighttime operations on all floating equipment, ranges, markers, and buoys in accordance with U.S. Coast Guard requirements. The Contractor shall be responsible for all damage resulting from negligence or failure in this respect.
- H. The Contractor shall comply with all permit conditions, as set forth in the permits, regarding participation in the Coast Guard's VTCS.

The Contractor shall provide a positioning system for horizontal control capable of functioning during all waterborne activity hours. The Contractor shall establish and maintain all survey monuments, shore stations and control points necessary to operate the waterborne positioning system. The City shall be given free access to monitor positioning and measuring activities on the Contractor's positioning system. The Contractor shall provide copies of calibration, positioning and measuring data and results to the City upon request. The Contractor shall place and maintain the positioning system and all gauges, range lights, buoys and other markings required to ensure the accuracy of the surveys. The Contractor shall submit a description of the positioning system equipment, including accuracies, to the City for review and acceptance. The Contractor shall take necessary measures to confirm that the selected system is always operational during dredging and can operate under the conditions present at the dredging site.

### 3.2 EQUIPMENT

- A. The Contractor's equipment shall be of suitable size and capacity to meet the productivity, tolerance and schedule requirements of the Work, and shall be kept in good working condition in order to efficiently perform the Work.
- B. All dredging under this contract shall be performed using a mechanical type dredge.
- C. All floating attendant plant shall be kept in good working condition.
- D. If an electric dredge is to be used, the Contractor shall make all arrangements and pay all costs associated with installing, removing and operating the electrical service for the dredge.
- E. If a diesel dredge is to be used, Contractor shall observe all applicable standards and regulations regarding air quality emissions and fueling of dredge and other attendant plant.
- F. Water and dredged material shall not be permitted to overflow or spill out of

scows. Failure to repair leaks or change the method of operation which is resulting in overflow or spillage will result in suspension of dredging operations and require prompt repair or change of operation to prevent overflow or spillage as a prerequisite to the resumption of dredging.

- J. Silt Curtain: Dredging operations shall be conducted using equipment and procedures designed to minimize water turbidity. If any exceedances of water quality compliance criteria are exceeded at the Project compliance boundary during NUAD dredging and material placement activities, the City will work with Contractor to implement contingency measures, including deployment silt curtains. The Contractor as directed Silt Curtain used during NUAD dredging construction paid for under Bid Item 7 Turbidity Curtain Allowance
1. The Contractor shall be responsible for design, procurement, installation, operation, inspection, maintenance, and repair of silt curtains as required. Provide daily inspection of the silt curtain systems to ensure they are properly installed and effectively containing suspended sediment.
  2. This silt curtain can be either a floating silt curtain or a rigid frame silt curtain, at the Contractor's discretion. Whichever silt curtain is employed, it shall be installed so as to completely surround the active NUAD dredging area where the dredge bucket is moving dredge material through the water column. The curtain shall be supported by floats at the top and weighted at the bottom and shall extend at least above the seabed surface, whichever is shallower. It shall be installed, managed, and moved such that minimal dispersion of suspended sediment in the water column occurs.
  3. The silt curtain is not required to surround the Contractor's equipment, only the area where the dredge bucket or material placement bucket is moving dredge material through the water column.
  4. Should the City indicate that the silt curtains are not effectively containing suspended sediment, are damaged, or are improperly installed, the Contractor shall take immediate action to repair the silt curtains, adjust use of the silt curtains, or take any additional actions necessary to comply with water quality requirements and permit conditions at no extra cost to the City.

### 3.3 SURVEYING

- A. Project Plans specify the Main Channel and Harbor dredge boundary, coordinates and the descriptions of horizontal and vertical control within the project area. Horizontal control data is shown on the drawings for purposes of preparing the layout. The Contractor is responsible for the review of Project Plans and layout of the Work. The Contractor shall be responsible, by utilizing this data, to dredge within the dredge prisms that are shown on the Project Plans and Contractor's Dredge Operations Plan.

- B. Horizontal and Vertical Control: All dredge control and positioning for this project shall be accomplished by means of dredge mounted GPS controlled positioning systems. The Dredge Positioning shall consist of, as a minimum, a Differential GPS positioning system, an onboard computer with MS windows, an azimuth determination system (GPS or electronic compass), a depth-sensing device for the 'bucket', and positioning system software. The operator shall have a full "heads up" computer monitor display within easy view for control of his work. The software shall be industry standard such as "Dredge Pack" package as manufactured by Hypack, "WinOps" as manufactured by Lyman Burke Associates, Trimble or approved equal. Positioning systems shall be Differential GPS with sub-meter accuracy, and one second or less update capability. The Operator's display shall have an outline of the project area and the limits of the dredge units. The dredging areas shall be sectioned into individual cuts, which represent the real swing width of the dredge, and shall be stationed at a minimum of 25-foot increments along the direction of dredge travel. The true horizontal and vertical position of the dredge bucket shall be visible in real time on the display, and the depth of the bucket shall also be displayed. The on-board computer shall have the ability to store real-time dredge positions – this data shall be made available to the City on CD ROM or USB drive format as requested.
- C. The Contractor shall establish reference points (benchmarks) used as the basis for the horizontal and vertical control systems. The Contractor shall be responsible for maintaining and replacing reference points if damaged.
- D. The Contract completion time will not be increased due to Work delays that result from the failure of the Contractor to maintain, repair or replace the established baselines, ranges or gages.
- E. Prior to the commencement of dredging, the Contractor shall demonstrate to the City that the positioning system has been properly calibrated and shall proof all azimuth and offsets by checking against the stationary position of the dredge utilizing conventional land survey methods. Mean horizontal deviation shall be [one meter] or less, maximum vertical deviation shall be [0.2 feet]. No dredging will be allowed to commence until the Contractor's dredge positioning system is approved by the Contractor QC personnel, and is operational, calibrated and properly functioning. If during dredging operations, the system should malfunction, dredging operations shall cease until such a time that the system is repaired and back in proper operation.
- F. Quality Control Post Dredge Surveys: The Contractor shall employ a competent, qualified, licensed hydrographic surveyor to perform Quality Control Post Dredge Surveys. The surveyor shall be subject to the approval of the City. Hydrographic surveys shall be conducted using Class 1 hydrographic survey methods and accuracies outlined in the U.S. Army Corps of Engineers' HYDROGRAPHIC SURVEYING MANUAL (EM 1110-2-1003). Quality

Control Survey shall be performed using precision equipment accurate to 0.20 feet and include a minimum of four (4) representative cross sections showing elevations. The following post dredge bathymetric surveys will be submitted to the City for review and acceptance.

1. Post-dredge bathymetric survey verifying SUAD area dredge depths achieved . Surveys shall provide calculated final dredging volumes (cubic yards), and the volumes of sediment placed per disposal site location.
  2. Post-dredge bathymetric survey verifying NUAD dredge boundaries, depths achieved and the calculated final dredging volumes (cubic yards).
  3. At completion of all dredging, the Contractor shall submit a Post-dredge bathymetric survey of the entire project site for inclusion in the Post Dredge Completion Report.
- G. The Contractor shall provide and be responsible for all additional survey and layout Work required for the correctness of all final grades and lines.

### 3.4 DREDGING

- A. The Contractor shall commence dredging operations after all necessary permits and other authorizations have been obtained and after receipt of written notification by the City to proceed with the Work.
- B. During the dredging, a steel grid "grizzly" with twelve-inch square maximum openings shall be placed over the hopper of the dump scow for material processing. All dredged material shall be dropped onto the grid. Details of the "grizzly" will be included in the DOP, subject to USACE approval.
- C. Solid debris, man-made objects and dredge material remaining on the grid shall be removed for subsequent off-loading to an upland disposal site by the Contractor.
- D. The Contractor shall cease operations immediately if adjacent piers, riprap or structures appear to be in danger. The Contractor will notify the City and will not resume operations until directed to do so by the City.
- E. The Contractor will notify the City of any unforeseen conditions.
- F. The Contractor will, to the City's satisfaction, repair all damage caused by the dredging operations and restore the Site to its previous condition at no cost to the City. The City will inspect the facility prior to and after completion of dredging episodes to determine if any damage was caused by the Contractor's operations. The City will estimate the cost of repairs and either bill Contractor or deduct the amount of the cost of repairs from a payment to the Contractor.

- G. Dredging shall be conducted in such a way that the Main Channel and Harbor dredging leaves a surface below the required dredge elevations and within the allowable overdepth tolerance. The Contractor shall take all reasonable precautions and measures necessary to minimize turbidity and disturbances to the environment.
- H. All materials dredged shall become property of the Contractor and shall be removed from the job Site and disposed of in a legal manner by the Contractor at the approved dredge disposal sites.
- I. Depth of dredge shall be based on MLLW datum.
  - 1. Contractor shall dredge to the elevations shown on the Project Plans and shall remove all sloughed materials that fall into the finished dredged areas. The City will pay for sloughing to a maximum slope of four feet horizontal to one foot vertical from the design dredge depths, not from the elevation of any over-depth dredging done by the Contractor. If the contractor elects to dredge below the design depths as shown on the plans, additional sloughing beyond the maximum limit stated above shall be removed from the dredged areas and disposed of at no cost to the City.
  - 2. The Contractor is responsible for dredging as required to address any under dredging and for corrective actions to remove high spots, at no additional cost to the City.
  - 3. Any over dredging in excess of the allowable as specified above, will be deducted from quantities and no payment will be allowed, therefore.
- J. If the Contractor discovers significant underwater obstructions (excluding trash, debris, and other miscellaneous man-made and natural objects encountered during dredging), the Contractor shall immediately give the City written notification of the existence of such obstruction. Where the City determines that the removal of the obstruction is essential to accommodate the project, the Contractor shall remove the obstruction. Payment for removing underwater obstructions not shown on the plans shall be made by extra work as provided for in the Standard Specifications.
- K. Contractor shall provide industry standard sound suppression systems for all equipment.
- L. Contractor shall record and maintain Electronic Positioning Data Records as part of the Disposal Site Verification Logs. These records are to be submitted weekly to the City and the USACE.
- M. Contractor shall maintain strict overflow control in accordance with the following requirements. No material shall be permitted to overflow or spill



from the barge, bins, or scow during transportation from the dredging site to the disposal site.

- N. If it is determined that the Site was not dredged in accordance to the Contract Documents, the Contractor shall perform any work necessary to comply with the Contract Documents, at no additional cost to the City.

### 3.5 DISPOSAL OF DREDGED MATERIAL

- A. All dredge materials shall be transported from the dredge site to the designated disposal site. The material shall be disposed of per approved Dredge Operations Plan, USACE dredge episode authorization, and project permit provisions. Any material deposited other than in the places designated or approved by the City will not be paid for and the contractor may be required to remove such misplaced material and deposit it where directed at Contractor's own expense.
- B. Contractor shall record and maintain electronic positioning records of the dredge and dump scow(s) during the entire dredging operations at the site, disposal site and enroute to and from disposal site. Contractor shall prepare daily Disposal Site Verification and Disposal Logs and provide electronic submittals on a weekly basis each Monday to the USACE, with a copy to the City. Electronic Positioning Records shall conform to all requirements in effect at the time of dredging, as set forth in the USACE Permit.
- C. The Contractor shall comply with all permit conditions regarding overflow requirements.
- D. Any dredged material that escapes or is lost at any time while loading or transporting may be required to be retrieved, and disposed as directed by the City, at the Contractor's expense. Likewise, any material disposed of in an area other than that designated under the specifications and approved Dredge Operations Plan, unless approved in writing by the City, shall be retrieved and disposed as directed by the City, at the Contractor's expense.

### 3.6 INCREASED OR DECREASED QUANTITIES

- A. City's estimate of quantities is approximate only and will be used as a basis for comparison of bids.
- B. Quantities shown are estimated from the soundings taken by the City of the Site in December 2022 and shall be considered approximate. Exact quantities shall be determined by a new pre-dredge Bathymetric Survey which is to be provided by the Contractor and a future Post-Dredge Quality Control Bathymetric survey performed prior to dredging deemed complete by Contractor and the City.

### 3.7 MISPLACED MATERIAL

- A. Any material that is deposited elsewhere than in places designated or approved by the City will not be paid for and the Contractor may be required to remove such misplaced material and deposit it where directed at the Contractor's expense. Misplaced excavated material may constitute a violation of applicable federal, state, and local statutes, ordinances or regulations, and the Contractor shall be liable for any civil and/or criminal penalties imposed by these statutes by reason of such violation.
- B. In the event any leaks occur in any scows used on the project, the Contractor shall immediately discontinue dredging operations until such leaks are corrected or remedied at the Contractor's expense. The Contractor shall also, at its expense, recover and remove any material misplaced or discharged by such leaks, or breaks.

### 3.8 SHOALING

- A. If, before the contract is completed, shoaling occurs in any section previously accepted, including shoaling in the finished basin, re-dredging at Contract Price, within the limit of available funds, may be performed subject to agreement of both the Contractor and the City.

### 3.9 OVERDREDGE AND SIDE SLOPES

- A. Over-dredge allowance shall be as shown on the Contract Drawings.
- B. Side Slopes
  1. Material removed within limits approved by the City, shall provide for final side slopes not steeper than those indicated on the Contract Drawings and will be measured and paid for at the Contract unit price.
  2. Side slopes are given for measurement and payment purposes only and are not necessarily the angle of repose of the existing soil. Sloughing side slopes shall not be the basis for claims against the City.
  3. Measurement for payment will be to the limit of dredging in section sub-areas as shown on the Contract Drawings and paid on Actual Quantities.
- C. Excessive Dredging: Material taken from beyond the limits shown on the Contract Drawings will be considered as excessive dredging and may be subject to fines imposed by regulatory agencies. The imposed fines will be the responsibility of the Contractor, and the City may withhold the amount of such fines from progress payments or the final payment.

### 3.10 SITE CLEANUP

- A. Upon acceptance of the Work, the Contractor shall remove all equipment including temporary buoys/markers, ranges, anchors, and all other materials used in the Work.
- B. The dredging area, staging areas, and any streets, parking lots, or property used in connection with the dredging operation shall be cleared of all obstructions and debris and left in as good a condition as existed prior to commencing the Work.

### 3.1 NONCOMPLIANCE

- A. The City will notify the Contractor in writing of any noncompliance with the foregoing provisions. Such notice, when delivered to the Contractor or their authorized representative at the Site of the Work, shall be deemed sufficient for the purpose. Within 24 hours after the receipt of such notice, the Contractor shall mail, or personally deliver to the City, a complete proposal of the prompt correction of the noncompliance. The City will review the proposal and return it to the Contractor approved, subject to such changes or conditions as the City finds necessary to ensure correction of noncompliance. Immediately upon receipt of such approval, the Contractor shall begin the corrective work and shall carry it to completion. If the Contractor fails or refuses to submit its proposal or to proceed with the corrective Work, the City may suspend all or any part of the Work until satisfactory corrective action has been taken. No part of the time lost due to any such suspension shall be made the subject of a claim for extension of time, or for excess costs or damages by the Contractor. If the City so elects, the City may cause the corrective Work to be accomplished by others, in which event the cost thereof shall be chargeable against any monies otherwise due the Contractor from the City.

### 3.12 ENVIRONMENTAL LITIGATION

- A. If the performance of all or any part of the Work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the City, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a Subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a Subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the City in the administration of this contract. If the period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that

clause, subject to all the provisions thereof.

- B. The term "environmental litigation", as used herein, means a lawsuit alleging that the Work will have an adverse effect on the environment or that the City has not duly considered, either substantively or procedurally, the effect of the Work on the environment.

### 3.13 INSPECTION

The City will assign a City Representative to this work during all dredging operations. The City Representative shall notify the Contractor of observed deviations from plan dredge line, depth and coverage and will also ascertain that any materials not suitable for Alcatraz disposal will be disposed of at an upland site and paid at Contractor's own expense.

The Contractor will be required to furnish the following and include the cost in cubic yards of dredging:

- A. Furnish, on the request of the City Representative, the use of such boats, boatmen, laborers, and material forming a part of the ordinary and usual equipment and crew of the dredging plant as may be reasonably necessary in inspecting the work.
- B. Furnish, on the request of the City Representative, suitable transportation from all points on shore to and from the dumping grounds. The Contractor shall provide transportation to and from the dredge sites for the City Representative, and/or other designated City representatives.
- C. Furnish the City Representative with cell phone number or suitable device to maintain contact with the Contractor for the use if and when needed, in emergencies, and/or when transportation to the dredge or other equipment is needed.
- D. Furnish the City Representative with a life vest (Coast Guard Approved) for use during the inspection work.

### 3.14 FINAL EXAMINATION AND ACCEPTANCE

Dredging will be paid at the unit price bid therefore. Work includes moving equipment to, at, and from the various locations within the harbor; setting up dredging equipment; coordinating the movement of boats within the harbor; dredging; disposing of dredged materials; removing, clean up; and all related and incidental work and all activities as specified in this section.

Estimated quantities shown in the Schedule of Bid Prices are for the Contractor's estimating quantities only. Dredging work will be paid for at the unit price bid per cubic yard of material dredged. Final pay quantities will be based on the Contractor provided pre-dredge and post-dredge soundings to be performed by the Contractor.

The pre-dredge soundings will be made after the Award of the Contract, but before dredging work begins. The Contractor shall notify the City a minimum of 4 days prior to completing a dredge element so that the City can schedule the post-dredge survey. The post-dredge soundings shall be conducted not more than 5 days after the completion of a dredging element.

Should the Contractor wish to be present during the pre-dredge and/or post-dredge soundings, he will be given 24 hours' notice prior to either survey.

Should more than one post-dredge survey operation by the City's Surveyor be necessary by reason of work for the removal of shoals disclosed by the original post-dredge survey, the cost of such second and any subsequent post-dredge surveys will be charged against the Contractor. The rate for each day in which the Surveyor's plant is engaged in such sounding operations and/or is en route to or from the site, or held for the Contractor's convenience, at or near the site for these operations shall be \$5,000/day. A partial day of survey efforts by the Surveyor will be billed as a full day.

**END OF SECTION**