

Project No. C16678.02

April 25, 2011

Town of Harwich
Attn: Mr. James Merriam, Town Administrator
Harwich Board of Selectmen
732 Main Street
Harwich, MA 02645
VIA EMAIL: jmerriam@town.harwich.ma.us

Re: Bids for the Allen Harbor Dredging Project

Dear Mr. Merriam and the Harwich Board of Selectmen:

Attached please find our estimate for Engineering Services, Project Status Update and estimates from outside contractors to perform Bio-Assay testing for offshore disposal of dredge material from Allen Harbor.

Based on the estimates from the two contractors, we feel that EnviroSystems, Inc. (ESI) has given the most reasonable estimate for services regarding the Bio-Assay testing required for offshore disposal.

We are proceeding as you directed with the process of applying to the necessary permitting agencies for offshore disposal of dredge material from Allen Harbor.

Thank you for your time and thank you for allowing us to work with you on this important town project.

Very truly yours,

COASTAL ENGINEERING CO., INC.



Roy E. Okurowski, P.E., C.H.
Marine Division Manager

REO/mek

Enclosures

Cc: Robert Cafarelli, Town Engineer
Tom Leach, Harbormaster

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Attn: Mr. James Merriam, Town Administrator
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VIA EMAIL: jmerriam@town.harwich.ma.us

Re: Permits for Offshore Disposal of Allen Harbor Dredge Material

Dear Mr. Merriam and the Harwich Board of Selectmen:

As a follow up to our meeting on Friday, April 15, 2011 regarding offshore disposal of dredge material, we are pleased to provide this proposal for engineering services regarding the permitting requirements for this project.

Scope of Services

Task 1 – Preparation of Request for Project Change to the existing Environmental Notification Form (ENF)

- Prepare necessary forms to be submitted to Massachusetts Environmental Protection Agency (MEPA)
- Prepare required notification for newspaper
- Schedule on site meeting and MEPA review
- Attend and conduct MEPA review meeting
- Address comments raised as a result of MEPA review

Task 2 – Army Corps of Engineers Filing

- Provide plans and sample analysis.
- Request sampling plan.
- Collect additional samples.
- Prepare chain of custody and submit sample to lab analysis.
- Prepare sample for Bio-Assay Analysis.
- Review and answer Army Corps of Engineers' comments.

Task 3 – Water Quality Filing

- Prepare and submit a letter requesting an amendment to the existing Water Quality Certificate.

Please also refer to the attached timeline for the offshore disposal permit.

Due to the inherent complexity and unpredictability of the permitting approval process, we propose to provide the above professional services on a time and expense basis to be invoiced at our standard professional rates. The budget estimate for Tasks 1 and 2 includes the basic services for data collection, design and plan preparation, preparation and filing of permit applications, and attendance at one MEPA review meeting. For your budget planning purposes, we suggest a budget of approximately \$15,000 for Tasks 1 and 2, with deliverables to include the preparation and filing of plans and permit applications to the referenced agencies. If additional construction inspections are required or requested, they will be billed separately at our standard professional rates.

Reimbursable Expenses: Our estimate does not include reimbursable expenses (filing fees, mailing fees, advertising fees, recording fees, etc.), and preparation for and attendance at additional public hearings, if required. For this type of project, out of pocket expenses can be estimated at \$1,500. Additional field surveys beyond the original scope, if required, such as wildlife surveys and environmental consultants and studies are normally performed by others, and are not included in this scope of services.

Permitting Note: Servicing of the Notice of Intent (NOI) application is based on basic correspondence required to file applications, follow up on permit status, and client communication. Additional correspondence required for supplemental information or plan revisions is not included in this estimate. Also not included are any services for additional filings that may be required (such as a Chapter 91 License application, which may be required should the survey indicate that the proposed structure is below the Mean High Water).

There may be additional permitting requirements that would require additional services. For example, the Army Corps of Engineers may request an Essential Fish Habitat. These additional services, if required, are not part of our scope of services. In addition public hearings are charged at a three-hour minimum with the allowance for one hearing with MEPA included in this proposal. In regards to outside contracting for Bio-Assay services, we have attached two cost estimates: 1). John Williams, Aquatec Biological Sciences, and 2). Petra Karbe, EnviroSystems, Inc. (ESI) for your review.

Survey Note: In reference to field data collection this estimate assumes that suitable/accurate survey control (bounds, monuments) exists in close proximity to the subject parcel, a suitable/accurate survey plan showing the subject parcel is available, and that this information is determined to be reliable for the basis of our survey. If these conditions do not exist, additional services and fees may be required to complete the described scope of services. If further registry research or field survey is required, we will notify you prior to proceeding any further with the project.

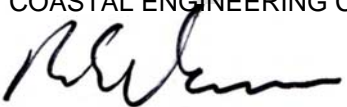
Our services will be invoiced monthly on a time and expense basis. In the event that unforeseen circumstances arise that would significantly increase the cost, we would contact you and review all expenses at that time. The conditions under which our services would be provided are delineated on our "Standard Conditions for Engagement", dated January 1, 2011, is enclosed.

As per your instruction on Friday April 15, 2011, we are proceeding with the services as outlined above.

If you have any questions, please do not hesitate to contact me.

Very truly yours,

COASTAL ENGINEERING CO., INC.



Roy E. Okurowski, P.E., C.H.
Marine Division Manager

REO/mek

Enclosures:

Cc: Robert Cafarelli, Town Engineer
Tom Leach, Harbormaster

COMPENSATION FOR ENGINEERING SERVICES: Fees for engineering services performed by Coastal Engineering Co., Inc. (CEC) for the CLIENT are based upon the time worked on a given project and are billed according to CEC's current fee schedule. CLIENTS are advised that all fees are subject to increases and can vary due to complexity and staff demand. Fee estimates for professional services are budget estimates prepared to the best of CEC's ability based on facts available at the time of submission and are subject to revisions from time to time by CEC.

TRANSPORTATION: Time and travel expenses incurred, when travel is in the interest of the project, will be charged for in accordance with CEC's fee schedule.

SUBCONTRACT SERVICES: CEC may engage subcontractors and/or other professionals to perform required services such as soil borings, drilling, construction, etc. That subcontractor's charge plus a service charge will be added to CEC's fee.

REIMBURSABLE EXPENSES: Expenses will be billed at CEC's cost plus a service charge. Examples of expenses ordinarily charged to CLIENT are printing and reproduction, special fees, permits, and licenses.

PAYMENT: Invoices will be rendered monthly or as work progresses. Invoices are due and payable upon receipt. Amounts over 30 days past due are subject to a service charge of 1.5% per month (18% annually). The CLIENT agrees to pay reasonable attorney's fees and any collection fees incurred in the collection of any amount owed hereunder and not paid when due.

CHANGE OF SCOPE: If, during the performance of services under this Agreement, a change in the Scope of Services is requested on the basis of an oral or written order by the CLIENT or CLIENT's Agent, or is required in CEC's sole discretion by circumstances to address contingencies, or CLIENT requests revisions of the plans, CEC will perform such additional services in accordance with its fee schedule. CEC reserves the right, at its discretion, to issue a Change Order to this Agreement. However, a Change Order is not required prior to rendering such services and the CLIENT agrees to pay for such additional services.

SUSPENSION OF SERVICES: If the CLIENT fails to make payment of invoices when due, CEC may suspend performance of services under this Agreement. In the event of a suspension of services, CEC shall have no liability to the CLIENT for delay or damage caused by such suspension of services or for any consequential damages.

TERMINATION PROVISION: This Agreement may be terminated by either party upon five (5) days written notice in the event of breach of performance of terms and conditions of this Agreement by the other party through no fault of the terminating party. CEC shall be compensated for services performed up to the time of termination.

INSURANCE: CEC is covered by Worker's Compensation Insurance and Public and Professional Liability Insurance. CEC will furnish certification upon request.

RIGHT OF ENTRY: Unless otherwise agreed, the CLIENT furnishes right-of-entry on the land for CEC to make measurements, soil tests, or other required explorations. CEC will take reasonable precautions to minimize damage to the land from the use of equipment, but CEC has not included in its fee the cost of restoration from damage that may result from its operations. If CEC is required to restore the land to its former conditions, the cost of doing so will be added to its fee.

OWNERSHIP OF DOCUMENTS: All documents, including original drawings, estimates, specifications, field notes, and data, are and shall remain the sole and exclusive property of CEC as instruments of service and CLIENT shall have no right to such documents. The CLIENT may, at his/her expense, obtain record print drawings, which the CLIENT will use solely in connection with the project to which this Agreement applies and not for the purpose of making subsequent extensions or enlargements thereto.

USE OF DOCUMENTS: Services performed and documents prepared by CEC under this agreement shall be for the benefit of CLIENT only and may not be relied upon by any third party(ies) unless specifically agreed to in advance by CEC and CLIENT.

USE OF STAKES: CLIENT, CLIENT's contractor, or any third party may not use stakes or other markers set at the site by CEC before obtaining verification from CEC that the stakes or other markers were set for the intended purpose and are in place to the accuracy appropriate for the intended use.

ELECTRONIC FILES: Electronic files are transmitted for informational purposes only and at the request of the CLIENT or CLIENT's agent. CEC's official product is limited to its signed and sealed hard copy of plans, specifications, and/or studies. The CLIENT agrees to hold CEC harmless for any damages from inappropriate or illegal uses by third parties from any electronic transfer of information by CEC requested by the CLIENT or CLIENT's agent.

CONSTRUCTION SERVICES: On request, CEC can provide personnel to observe construction in order to ascertain that the construction, in general, is being performed in accordance with CEC's plans and/or specifications. CEC shall under no circumstances be a guarantor of any contractor's means and methods of work and shall bear no responsibility with respect to the performance of such construction. The CLIENT and CLIENT's agent will continue to be responsible for the accuracy and adequacy of all construction performed.

INDEMNIFICATION AND LIMITATION OF LIABILITY: CEC agrees to indemnify and hold CLIENT harmless against damages and liability resulting from the negligent acts, errors, or omissions of CEC. The CLIENT agrees to limit CEC's liability, resulting from errors and/or omissions in engineering design information furnished to the CLIENT, to those portions of the design prepared by CEC and in an amount not to exceed CEC's fee. The CLIENT agrees to require a like limitation from any contractor engaged to perform work for which CEC has provided reports, plans, and/or specifications. The CLIENT shall further indemnify and hold CEC harmless from any liability resulting from the acts, errors, or omissions of the CLIENT or CLIENT's agents, contractors, or assigns. Such indemnification shall include the cost of defense including without limitation attorney's fees, arising in any way with claims connected with any such liability excepting only such liability as may arise out of CEC's sole negligence in performance of services. CLIENT agrees that any and all damages arising from negligent act, error, or omission shall be made against CEC directly and shall not be made personally against any of its directors, officers, agents, or employees.

CONSEQUENTIAL DAMAGES: Notwithstanding any other provision hereof, CEC shall not be liable to the CLIENT for any incidental, indirect, or consequential damages arising out of or connected in any way to the services rendered hereunder, including, but not limited to, loss of use, loss of profit, loss of business, loss of income, or loss of reputation.

STANDARD OF CARE: CEC's professional services will be performed in accordance with the generally accepted engineering practices, skill, and care used by similar members of the engineering profession practicing under similar circumstances at the same time and in the same locality. CEC makes no warranties, express or otherwise, in connection with CEC's services hereunder.

Timeline for Allen Harbor Offshore Disposal Permit – CEC Project No. C16678.02

Date:	Item:
ASAP	Submit existing plans and analysis for Army Corps of Engineers (ACOE) review
By May 25 th	Review comments and respond to comments from ACOE project engineer. Provide additional data if requested.
By May 25 th	Submit plan and application to ACOE for Individual Permit (I.P.) review. Address comments from ACOE Joint Process (J.P.) meeting.
By May 25 th	Submit Notice of Project change form to Massachusetts Environmental Protection Agency (MEPA). Address comments from MEPA as a result of request.
By June 10 th	Notify Ken Chin of project change to offshore disposal. Provide Ken with documents per his request
By June 10 th	Collect additional samples per ACOE request. Submit sample to Alpha lab for analysis. Submit sample to Bio-Assay lab for analysis
By June 8th	Publish advertisement in Environmental Monitor. Schedule MEPA review and on site meeting.
By June 25	Conduct MEPA on site meeting.
By August 25	Permit in hand.



Price estimate for Allen Harbor, MA Dredge Material Assessment

Prepared for: Roy Okurowski, P.E., C.H., Coastal Engineering Co., Inc.

Prepared by: John Williams, Aquatec Biological Sciences, Inc., Williston, VT 05495

Date: April 22, 2011

Phone: 802-860-1638

Contacts: Philip C. Downey, Ph.D., Director (pdowney@aquatecb.com)

John Williams, Manager Environmental Toxicology and Chemistry
(jwilliams@aquatecb.com)

Estimated Costs for Assessment of Harbor Sediments

Specific Task	One sample Cost*	Each Additional Sample Cost
1. Project Management and Reference Sample Collection	\$ 5,000	\$ 500
2. Bulk Chemistry	\$ 4,300	\$1,020
3. Whole Sediment 10-d Acute Toxicity Testing	\$ 4,222	\$1,940
4. Elutriate/Site Water Preparation and Chemical Analysis	\$10,257	\$4,953
5. Suspended Particulate Phase Toxicity Testing	\$ 2,393	\$1,790
6. Two Species Bioaccumulation	\$ 9,644	\$5,192
7. Bioaccumulation Tissue Chemistry Analysis (2 species)	\$24,890	\$7,100
8. Final Report/Waste disposal	\$ 2,500	\$ 500
Total Cost:	\$63,206	\$22,995

*The cost for one test sample (Harbor composite) includes all QC plus all analyses for reference site sediment. For the biological studies, laboratory controls are included. Please note that this includes all possible analyses. If the target analyte list is reduced or additional tasks (i.e., Suspended Phase or Bioaccumulation) are not required, the costs would be reduced correspondingly.

Aquatec Biological Sciences, Inc. (Aquatec) can also provide consulting support (e.g., communications with Corps of Engineers and development of a Sampling and Analysis Plan) at a cost plus basis. Aquatec reserves the right to revise costs based upon any changes in the anticipated scope of work or the final scope of work.

John Williams

Aquatec Biological Sciences, Inc. (Tox Bids 2011/Costing for Coastal Engineering Allen Harbor Dredging 042211)



QUOTATION

EnviroSystems, Inc.
 One Lafayette Road
 P.O. Box 778
 Hampton, NH 03843-0778
 603-926-3345

No.: 043464

Quote Date: March 31, 2011

Prepared By: Petra Karbe

Company: Coastal Engineering Company, Inc.

Address: 260 Cranberry Highway
Orleans, MA 02653

Contact: Don Munroe

Phone: 508-255-6511 Ext 526

E-Mail: dmunroe@coastalengineeringcompany.com

TASK DESCRIPTION	Total Costs for	
	One Sample	Two Samples
Marine Sediment Evaluation - Allen Harbor, Harwichport, Massachusetts		
REFERENCE SITE SAMPLE COLLECTION		
Collection of sediment and water from the Massachusetts Bay Disposal Area Reference Site	\$900	\$900
SEDIMENT BIOLOGICAL TESTING		
10-Day solid phase sediment assay with the amphipod, <i>Ampelisca abdita</i> or <i>Leptocheirus plumulosus</i>	\$2,750	\$3,450
10-Day solid phase sediment assay with the mysid shrimp, <i>Americamysis bahia</i>	\$2,250	\$3,250
WATER COLUMN TESTING - Suspended Particulate Phase Assays		
96-Hour suspended particulate phase assay with the mysid shrimp, <i>Americamysis bahia</i>	\$950	\$1,750
96-Hour suspended particulate phase assay with the minnow, <i>Menidia beryllina</i>	\$950	\$1,750
48-Hour <i>Arbacia punctulata</i> larvae suspended particulate phase assay	\$1,150	\$1,950
Bulk Sediment Chemistry		
Analysis of composite bulk sediment twelve (12) samples for chemical compounds specified by US Army Corps of Engineers, New England District, 2004 Regional Implementation Manual (RIM) criteria and October 15 2004 Corps memo. Costs include RIM specified QA/QC analyses; duplicate, matrix spike, matrix spike duplicate, laboratory control sample, laboratory control sample duplicate and standard reference material. Number of samples evaluated as required, may be limited to 2 samples. Costing for bulk sediment based on initial sample cost of \$3,000 and additional samples at \$750.		
Trace Metals; As, Cd, Cr, Cu, Pb, Hg, Ni, Zn	\$3,000	\$3,750
PCB Congeners; individual and total by NOAA summation		
Pesticides		
PAH Compounds		
Total Organic Carbon; in duplicate		
Moisture Content		
Preparation of Bulk Sediment Chemistry Electronic Data Deliverables (EDD) package and accompanying EDD Checker		

BIOLOGICAL TESTING COSTING SCHEDULE

Costing for the bioassays and associated chemical support is based on a composite sample. Sample analysis includes costs associated with analysis of the individual sample, plus costs for analysis of the associated laboratory control and Reference Site samples.

TASK DESCRIPTION - DETAIL AND SUPPORT

TASK: SEDIMENT BIOLOGICAL TESTING

The 10-day benthic sediment assays conducted using the amphipod, *Ampelisca abdita*, and mysid shrimp, *Americamysis bahia*, will follow guidance criteria specified by the EPA and Corps of Engineers (EPA 1994) and the New England District Regional Implementation Manual (US ACE 2004). The actual species to be used in the testing will be as specified in the Corps Sampling Plan. If warranted, the Corps will allow use of a second amphipod, *Leptocheirus plumulosus*, in place of the *Ampelisca*. This change is usually made based on sediment grain size distribution or availability of *Ampelisca*. Assays will be conducted in a static renewal test mode utilizing five (5) replicates per treatment (proposed dredged sediment). Test temperatures will be $20 \pm 1^\circ\text{C}$ and salinity will be $30 \pm 2\text{‰}$. Prior to the start of assays involving amphipods, ammonia levels in the sediment pore water will be measured. Ammonia is a non conservative pollutant present in some sediments. If unionized ammonia levels exceed 0.2 mg/L, half the level determined to be acutely toxic to *A. abdita*, the sample will be "washed" to reduce ammonia levels. After standing for 24 hours, ammonia levels will be checked to document a <0.2 mg/L unionized ammonia level. Pore water ammonia will also be monitored at the end of the assay. Statistical analysis will include comparison of survival organisms exposed to the treatments and Reference Site sediment. Costs include preparation of sediments, pore water ammonia analysis, and conduct of reference toxicant tests.

TASK: WATER COLUMN TESTING

Acute exposure assays conducted with the mysid shrimp, *Americamysis bahia*, and minnow, *Menidia beryllina*, will follow protocol developed by the U.S. Army Corps of Engineers and EPA presented in *Evaluation of Dredged Material in Waters of the U.S. - Testing Manual*, EPA-823-B-94-002 (EPA 1994) and EPA Region I and New England Division of the Corps of Engineers Regional Implementation Manual (2004). Assays will be conducted utilizing a 96-hour exposure period in a static non-renewal test mode. A minimum of three (3) test concentrations will be evaluated for each suspended particulate phase elutriate. Each concentration will incorporate five replicates with 10 organisms per replicate. Test temperature will be $20 \pm 1^\circ\text{C}$ while salinity will be held at $30 \pm 2\text{‰}$. Statistical analysis will include computation of LC-50, EC-50 and IC-25 values as appropriated include preparation of elutriate solutions and reference toxicant evaluations.

The sea urchin, *Arbacia punctulata* embryo/larvae assays will follow guidance criteria specified by the EPA and Corps of Engineers (EPA 1994). Assays will be conducted as 48 to 72 hour static acute tests utilizing five concentrations with five (5) replicates per concentration. The actual duration of the assay will be determined to be a time at which the majority of the test organisms have reached to pleutus developmental stage. Test temperatures will be $20 \pm 1^\circ\text{C}$ and salinity will be $30 \pm 2\text{‰}$. Statistical analysis includes computation of LC-50, EC-50 and IC-25 values as appropriate. Costs provided includes, preparation of suspended particulate phase test solutions and conduct of reference toxicant evaluations.

TASK: ELUTRIATE ANALYSIS

Elutriate analysis is carried out in accordance with the New England District Regional Implementation Manual (2004) and U.S. Army Corps of Engineers and EPA presented in *Evaluation of Dredged Material in Waters of the U.S. - Testing Manual*, EPA-823-B-94-002 (EPA 1994). Samples are prepared based on a 4 part water to 1 part sediment and are mixed for 30 minutes in a non contaminating, glass, vessel. After mixing the sample is allowed to settle for 60 minutes. The resultant supernant is siphoned from the container and prepared for analysis. The entire sample is centrifuged to remove suspended particulate material. The parameter list for the elutriate analysis is specified by the Corps and may be altered based on the findings of the bulk chemical analysis. Chemical analysis for each parameter must be carried out, in triplicate, in both

the elutriate solution plus the blank preparation water. Detection limits for the individual parameters are specified in the Regional Manual (2004). Data generated from the analysis will be entered into the currently approved version of the Electronic Data Deliverables (EDD) package as specified by the RIM.

TASK: BIOACCUMULATION EVALUATION

The 28-day bioaccumulation evaluations will be conducted using the worm, *Nereis virens*, and bivalve clam, *Macoma nasuta*. Assays will be conducted in a flow-through test mode with each treatment incorporating five (5) replicates. Tests will be conducted with both species maintained in separate test vessels. Each replicate will have a minimum of 20 organisms for each species. It is possible that in some cases EnviroSystems will request that the Corps of Engineers and EPA approve an increase the number of test organisms per replicate. This will be based on the size of the test organisms, most notably the clam. Statistical analysis will include comparison of survival organisms exposed to the treatments and Reference Site sediment. Costs include preparation of sediments, assays and final report.

TASK: TISSUE BIOACCUMULATION ANALYSIS

Costing for analysis of tissue samples to determine body burdens for selected pollutants are included in this pricing package. Protocol for tissue analysis must follow that specified by the EPA and Corps of Engineers (EPA 1994). The number of tissue samples that are generated as part of an assay are detailed in the following table. Detection limits for the compounds required as part of the bioaccumulation analysis will meet those specified in the Region Implementation Manual (2004). In addition to providing summaries and statistical analysis of the data, data will be presented in an electronic deliverables package that meet specifications presented in the 2004 Regional Implementation Manual.

	Number of Sediment Samples				
	1	2	3	4	5
Number <i>M. nasuta</i> tissue samples	13	18	23	28	33
Number <i>N. virens</i> tissue samples	13	18	23	28	33
Number tissue samples	26	36	46	56	66
Required QC Samples*	12	12	18	18	24
Total Samples to be Analyzed	38	48	64	74	90

Required QC for each 20 samples; duplicate, matrix spike, matrix spike duplicate, laboratory control sample, laboratory control sample duplicate, SRM

Costs provided include tissue preparation for subsequent analysis, all required QA/QC analysis (duplicates, matrix spikes and matrix spike duplicates), statistical analysis of the data and inclusion of tissue data in the report. The potential target compounds required by the New England District as part of the tissue analysis include all compounds identified in the sediment samples as part of the bulk sediment chemistry. In the case of PCBs, the Corps requires congener analysis. Data generated from the analysis will be entered into the currently approved version of the Electronic Data Deliverables (EDD) package as specified by the RIM.

RECOMMENDED SAMPLE VOLUMES AND HOLDING TIMES

Matrix	Volume Required	Holding Time
Project Site Sediment	30 gallons per sample	8 weeks
Reference Sediment	25 gallons	8 weeks
Site Water	15 gallons each sample site	14 calendar days
Reference Site Water	30 gallons	14 calendar days

ESI will provide appropriate sample containers for sediments and water.