



## State of New Jersey

DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT  
CN 820  
TRENTON NJ 08625-0820

CHRISTINE TODD WHITMAN  
*Governor*

FRANK McDONOUGH, ESQUIRE  
*Director*  
*Maritime Resources*  
(609) 984-6694

August 27, 1997

Lillian Borrone  
Port Authority of NY/NJ  
1 World Trade Center  
34th Floor South  
New York, NY 10048

Re: Joint Plan Expenditures

Dear Ms. Borrone:

In accordance with our discussion, please accept this letter as a formal request to draw against the Joint Plan funds for the following projects.

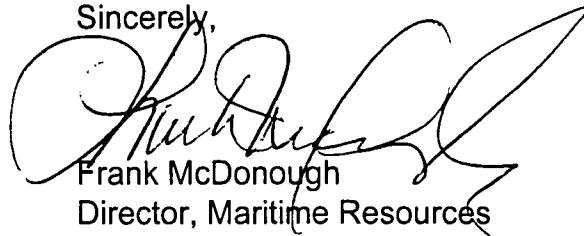
Please authorize payment to Northstar Marine Inc. in the amount of \$3,980.00 plus accrued interest, if any, for the provision of a workboat for the geological survey conducted in Newark Bay. As you may recall, New Jersey agreed to fund the platform for these surveys out of the Joint Plan in order to further dredging projects in the Kill van Kull and Newark Bay. I have enclosed a copy of the invoices.

Under the Joint Plan the New Jersey Department of Transportation in concert with the Sediment and Dredged Materials Technology Institute is directed to develop construction standards for the use of dredged materials in transportation projects. SDMTI has submitted a proposal for the project. I have enclosed a copy. We have reviewed the proposal, find it sufficient in all aspects. I recommend that the Port Authority enter into an agreement with the Institute. We request authorization of an allocation from the Joint Fund not to exceed \$117,000 for the project.

Lillian Borrone  
Page two

As always, thank you for your assistance.

Sincerely,



Frank McDonough  
Director, Maritime Resources

enclosures

FMM/mlw

# GAHAGAN & BRYANT ASSOCIATES, INC.

601 Smiths Bridge Road, Wilmington, DE 19807-1323  
(302) 652-4948 • Fax (302) 655-9218

June 9, 1997

THE PORT AUTHORITY  
OF NEW YORK AND NEW JERSEY  
**RECEIVED**  
**JUN 12 1997**  
ENGINEERING DESIGN DIVISION  
GEOTECHNIC SECTION

The Port Authority of New York & New Jersey  
One World Trade Center, Room 72 E  
New York, NY 10048

Attn: Mr. Raymond E. Sandiford  
Asst. Chief Geotechnical Engineer  
(212) 435-8250

Ref: PA Agreement # 415-96-126  
Vendor #GA01547

Sub: Invoice No. 512

Gentlemen,

To invoice you for providing a 50 ft. workboat for a geological survey in Newark Bay, per the attached invoice from Northstar Marine, Inc..

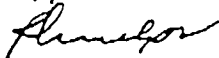
Total Amount This Invoice

\$3,980.00

Sincerely,

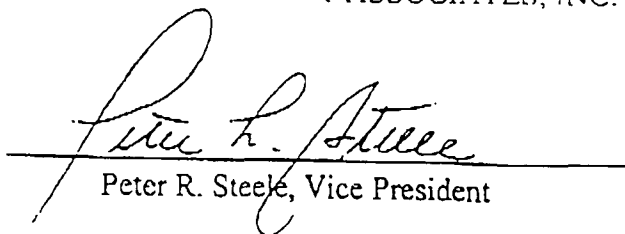
GAHAGAN & BRYANT ASSOCIATES, INC.

Approved:



P. DUNLOP

CHARGE - ECI - E-4-1.

  
Peter R. Steele, Vice President

PRS/sml

3802 WEST BAY TO BAY BOULEVARD  
SUITE 8-22  
TAMPA, FL 33629-8828  
(813) 831-4408  
Fax (813) 831-4216

33 COMMERCIAL BOULEVARD  
NOVATO, CA 94949-8113  
(415) 883-7883  
Fax (415) 883-1509

5757 WOODWAY DRIVE  
SUITE 112  
HOUSTON, TX 77057-1599  
(713) 287-2785  
Fax (713) 287-2950

900A-O YELLOW BRICK ROAD  
BALTIMORE, MD 21237-5608  
(410) 682-5595  
Fax (410) 682-2175

772 C TUNA STREET  
P.O. BOX 3183  
SAN PEDRO, CA 90731  
(310) 521-5210  
Fax (310) 547-0834

# INVOICE

JUN 03 1997

INVOICE# 4463  
ACCT# GAHA  
DATE: 6/02/1997

Northstar Marine Inc.  
8300 Landis Ave.  
Sea Isle City, NJ 08243  
Phone: (609) 263-2222 Fax: (609) 263-8880

Bill To:  
Gahagan - Bryant & Assoc.  
601 Smiths Bridge Rd.  
Wilmington, DE 19807

SERVICE ADDRESS:  
NY/NJ Port Authority  
Newark Bay,

\*\*\*\*\*  
Provide 50' workboat w/operator to work with NJ Geological Survey  
in Newark Bay area.  
=====

Date	Qty/Ref	Description	Amount	Total
5/27/1997	1 DAY	Daily rate, 50' workboat w/operator	\$ 1,250.00	\$ 1,250.00
5/27/1997	2 HRS	Additional hrs. For 5/27	\$ 115.00	\$ 230.00
5/28/1997	1 DAY	Daily rate, 50' workboat w/operator	\$ 1,250.00	\$ 1,250.00
5/29/1997	1 DAY	Daily rate, 50' workboat w/operator	\$ 1,250.00	\$ 1,250.00
Total .....			\$	\$ 3,980.00

Terms: Net 30 days

\*\*\*\*\*  
A late fee of 1.50% per month will be charged on overdue invoices.

# **SCOPE OF WORK**

(revised as of 7/18/97)

## **Use of Dredged Materials as Fill In Transportation Related Projects**

**Submitted by:**

**The Sediment and Dredged Materials Technology Institute**

**A New Jersey Academic Research Consortium of  
Stevens Institute of Technology, New Jersey Institute of Technology and  
Rutgers University**

**Project Manager**

**George P. Korfiatis Ph.D., Director  
Center for Environmental Engineering  
Stevens Institute of Technology  
Hoboken, NJ 07030, Tel 201-216-5348, fax 201-2168303**

**Submitted to:**

**The New Jersey Department of Transportation  
Division of Project Management  
1035 Parkway Ave.  
CN 600  
Trenton, NJ 08625-0600**

**July 18, 1997**

## SCOPE OF WORK

### Project Objectives

The objective of this project is to provide testing and consultation services to the NJDOT associated with the utilization of treated sediment in transportation related projects. Such services include: review of existing test results and performance monitoring, performance of the necessary engineering and environmental testing associated with evaluating the potential use of cement stabilized dredged materials as fill in transportation related projects and providing assistance to NJDOT in developing design and material properties standards. Two potential uses for the resulting material will be investigated: Structural fill (for bridge construction, roadway embankment, etc.) and non-structural fill (slope flattening and infield fill, noise wall berms, landscape applications, etc.).

### Scope of Services

The overall scope of our services is to assist NJDOT in using treated dredged materials in roadway construction applications and developing guidelines necessary to enable field applications. This will be achieved through close cooperation between the different participating parties, task forces and their respective members. The main thrust of the proposed work will be the development of pertinent standards, procedures and protocols to enable the reuse of treated dredged material as fill in transportation related projects. This will entail a careful study of treated and untreated dredged materials' engineering properties, environmental behavior, and the economic considerations as outlined in the following sections.

#### *Task I-1 Engineering Properties*

*Sub-Task I-1.1: Characterization of Untreated Dredge Material:* The Port Authority, US Army Corps of Engineers and other entities have been studying and testing harbor dredged materials for some time. As a result a partial testing and engineering material characterization database already exists with Port Authority. The limitations are that only a few locations in the harbor have been sampled and tested and additional information that may be available through the Army Corps and other entities has not been brought together into a single database. Consequently, it is proposed that all existing literature on the engineering properties will be compiled into a single data base, preferably in a binary format (computer disk), to facilitate end use and dissemination. The properties that will be included in this database are as follows:

1. Particle Size Distribution
2. pH
3. Solid Content
4. Moisture Content (both based on weight and volumetric)
5. Hydrocarbon presence
6. Heavy Metals

7. Organic Content
8. Consolidation Characteristics
9. Hydraulic Conductivity/Permeability
10. Atterberg Limits

This work has been already initiated with the close cooperation of Dr. Peter Dunlop, the Port Authority's chief geotechnical consultant. Finally, it is also proposed to concurrently pursue the mineralogical characterization of dredged materials by means of X-Ray Diffraction analyses on representative samples.

*Sub-Task I-1.2 : Develop Engineering Performance Criteria for Potential Uses:*

Traditional methods of specifying materials as fill for construction may not be applicable to the proposed treated dredged material end uses. Consequently, in order to evaluate material performance in reuse applications, it will be necessary to develop a set of non-traditional testing processes. The task group has already established a preliminary list of testing procedures which may be needed to evaluate the material engineering properties:

1. Atterberg Limits
2. Particle Size Analysis
3. Organic Content
4. Compaction Characteristics
5. Unconfined Compression
6. Cone Penetration
7. Direct Shear
8. Consolidation

There are a number of steps that must be taken to refine the above list into a practical form which may then be applied to the present work. First, it will be necessary to establish threshold performance values for each test listed for the proposed uses both as structural as well as non structural fill. If no definitive information on threshold values is available it will be necessary to perform some additional testing and/or conservatively estimate these properties. At the present time, it may be prudent to also define the anticipated effect of varying field conditions, such as water content, on both the engineering properties and environmental behavior of the treated sediment as a function of the anticipated end use. Overall, upon completion of this task a comprehensive test protocol will be developed, which will be then used to evaluate the engineering performance of the treated dredged material.

*Sub-Task I-1.3: Perform Engineering Properties Tests:* Upon receiving some additional amounts of the treated dredge sediment, an evaluation of the treated product will be performed based on the engineering performance test protocol developed in sub-task I-1.2. On the basis of the executed testing protocol the overall engineering behavior of the sediment will be evaluated and the potential for reuse will be assessed as a function of the type of transportation-related application.

### ***Task I-2 Environmental Behavior***

*Sub-Task I-2.1: Develop Test Protocols:* Based on the final list of end uses, and in close collaboration with the NJ DEP, a list of testing protocols will be developed in order to evaluate the environmental impact of the reused dredged material. Initial contacts have already been made with NJ DEP officials and the development of the testing protocols has been effectively streamlined. Overall, it seems that DEP will require testing for any potential contaminants including dioxin and any other leachates. The final form of the test being a function of the type of dredged material end use.

*Sub-Task I-2.2: Conduct Environmental Testing:* Following the completion of sub-task I-1.6, the treated dredge sediment will be tested according to protocols developed in sub-task I-2 in order to determine its field environmental behavior.

*Sub-Task I-2.3: Develop Fate and Transport Protocol:* Environmental fate and transport protocols will be developed for each of the anticipated end uses. These protocols will include general guidelines for assessing the potential environmental impacts resulting from the use of dredged materials in transportation related projects.

### ***Task I-3 MOU Assistance***

SDMTI will provide assistance to NJDOT, during the duration of this project, in developing any necessary Memoranda of Understanding with NJDEP or other agencies for the beneficial use of contaminated sediment in transportation related projects

### ***Task I-4 Economic Analysis***

An economic evaluation of the dredge-derived construction material will be performed for each type of proposed end use. Comparative economic and cost-benefit analyses will be performed to evaluate the competitiveness of such materials in the market place. A market analysis will be performed for each transportation related end use in New Jersey.

## **COORDINATION AND COLLABORATION**

All tasks of this project will be coordinated with NJDOT and in particular with the Specialty subgroups (Environmental, Engineering Properties, Economic Feasibility). We anticipate maintaining regular coordination with these groups and reach agreement before testing protocols are implemented. In addition, the SDMTI project manager will work closely with the NJDOT project manager to coordinate the project efforts with efforts of other agencies including but not limited to the Army Corps of Engineers, NJDEP, NJTA, New Jersey Transit, and USEPA. Such coordination will help avoid duplication will benefit the project and will facilitate dissemination of the project findings. NJDOT shall make the final decisions on this coordination, as well as, decisions in releasing any



statements regarding Capital Projects or delivery of the overall Capital Construction Program.

### Budget

The services described above will be provided to NJDOT for a duration of 12 months. The approximate budget for this period is presented below:

#### PROJECT BUDGET FUNDING REQUEST For 1 Year (1997-1998)

Use of Funds	Costs
<b>Salaries</b>	
1. Program Management	5,000
2. Senior Engineering Staff	20,000
3. Laboratory Assistant	12,000
4. Administrative Assistant	2,000
<b>Subtotal</b>	<b>39,000</b>
Benefits (32% on 1, 2, and 4)	8,613
Graduate Laboratory Assist. Benefits	7,500
<b>Total Salaries + Benefits</b>	<b>55,113</b>
<b>Materials and Supplies</b>	<b>6,000</b>
<b>Equipment</b>	<b>0</b>
Analytical Laboratory (external)	0
<b>Miscellaneous</b>	
Travel	1,000
Office Materials and Supplies	800
<b>Total Direct Costs (STEVENS)</b>	<b>62,913</b>
<b>Subcontracts</b>	
NJIT	25,000
<b>Indirect Costs</b>	
General Overhead (Stevens)	29,369
<b>Total</b>	<b>117,282</b>

# FAX

Date: 9-3-97

Number of pages including cover sheet: 10

**To:**

Lingard Knutson

Port Authority of New York and  
New Jersey

Phone: 212-435-6622

Fax phone: 212-435-3577

CC:

**From:**

Frank McDonough

Director

Phone: 609-984-6694

Fax phone: 609-777-4097

E-mail-cemmcdo@commerce.state.nj.us

**REMARKS:**     Urgent     For your review     Reply ASAP     Please comment

Per our conversation I have attached the letter to Lillian and George Korfiatis. FMM

**\*\* CONFIRMATION REPORT \*\***

TRANSMISSION  
TRANSACTION(S) COMPLETED

NO.	DATE/TIME	DESTINATION	DURATION	PGS	STATUS	MODE
029	SEP. 3 9:41	912124353577	0° 03' 15"	011	OK	N ECM

**New Jersey Maritime Resources** 20 West State Street, PO Box 837, Trenton, NJ 08625-0837

# FAX

Date: 9-3-97

Number of pages including cover sheet: 10

To:

Lingard Knutson

Port Authority of New York and  
New Jersey

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Director

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E-mail: cemmcd@commerce.state.nj.us

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