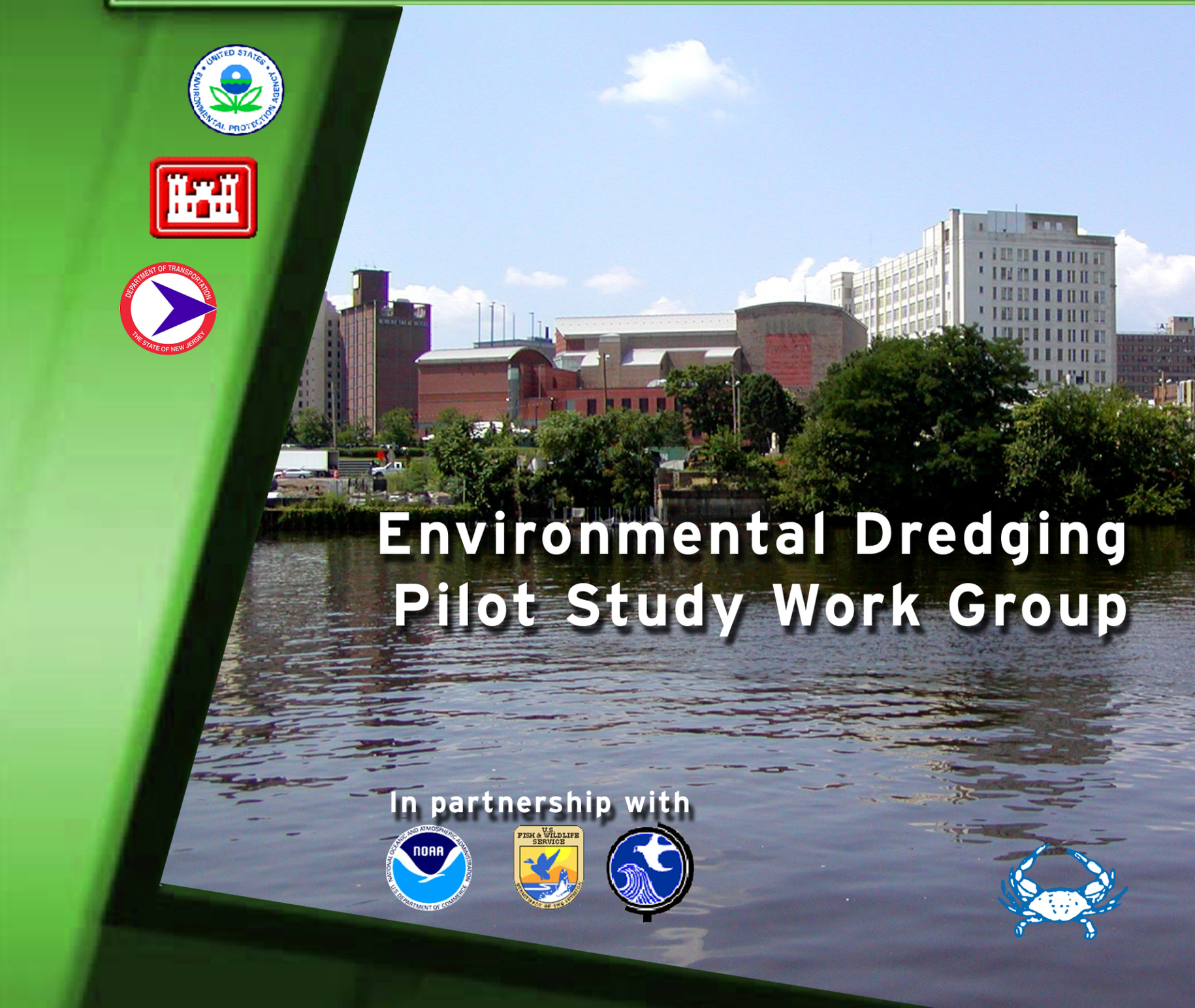
Lower Passaic River Restoration Project



Environmental Dredging Pilot Study Work Group

In partnership with

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
ATTENTION OF

March 2009

LOWER PASSAIC RIVER RESTORATION PROJECT
DRAFT ENVIRONMENTAL DREDGING PILOT STUDY REPORT

In December 2005, approximately 4,000 cubic yards (cyd) of contaminated sediment were removed from a 1.2-acre area in the Harrison Reach just west of the New Jersey Turnpike Bridge over a five-day period. The primary goals of this pilot study were to (1) evaluate dredging productivity and equipment performance (2) measure the amount of sediment that is resuspended and subsequently transported downstream as a result of a dredging operation; and (3) evaluate sediment decontamination technologies. As a result of comments received regarding data requests made by the Cooperating Party Group (CPG) in December 2007, the attached material is provided. This information has been incorporated into the Final Environmental Dredging Pilot Report.

A total of 31 data requests have been addressed and are organized into the following categories:

Equipment Specifications	Decontamination Technology
Clamshell Bucket	Bathymetric Surveys
ClamVision® and Accuracy	Crew Experience
Production Logs	Debris Records
Delay-Related Events	Other Requests
Dredged Material	

Data requests were fulfilled by re-printing information from existing documents, gathering new subcontractor material, or contacting subcontractors and presenting their verbal responses in tabular format (Data sources are provided for each comment response). The remaining CPG comments will be addressed in the final version of the *Environmental Dredging Pilot Study Report*.

For questions contact:

Lisa Baron
Project Manager, Harbor Programs Branch
917-790-8306
Lisa.a.baron@usace.army.mil

or

Peter Weppler
Chief, Coastal Ecosystem Section
917-790-8634
Peter.m.weppler@usace.army.mil

Equipment Specifications

Equipment Specification Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
1	The technical specifications of the dredging equipment used for the EDPS, including attendant plant (barges, tugs, support vessels) are not provided in sufficient detail to make complete assessments of dredging performance.	Technical specifications on the dredging equipment	Provided in binder.
2	The dredge technology details described below are not provided in either the draft EDPS Report or the Contractor submittals. Dredge equipment information. Key information on the dredge equipment is not provided, including: crane model and capacity of the derrick barge; dredge brake (free fall) control; dredge barge size (length x beam x depth); and spud number, size and control mechanism(s).	Technical specifications on the dredging equipment	Provided in binder.
3	The dredge technology details described below are not provided in either the draft EDPS Report or the Contractor submittals. Tug support information. Two tug boats were reported to be used during the EDPS for barge movements, and attendant plant support. The specifications including draft, horsepower, screw configuration and other operating parameters of the tugs were not included in the draft EDPS Report.	Technical specifications on the tug boats	Provided in binder.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Technical Specifications on Dredging Equipment

Sources: Communication between David Foster (Malcolm Pirnie, Inc.) and Steven Radel (Jay Cashman, Inc.) and Ray Bergeron (Cable Arm, Inc.)

Jay Cashman, Inc. Final Completion Report (December 2005)

Technical Specifications on Dredge Equipment

Vessel Type	Vessel Name	Length	Width or Beam	Depth	Gross Tonnage	Year	Other Specifications
Rinse Tank Barge		90 feet	30 feet	not available	not available	not available	No technical specifications available (communicaton with Steve Raedel); rinse tank was custom welded (rinse tank dimensions= 18 feet long × 14 feet wide × 9 feet deep) to fit the environmental (8 cubic yard) clamshell bucket.
Hopper Barge ("scow")	SEI 3000	260 feet	52.6 feet	12 feet	1375 tons	1982	Refer to attached brochure.
Hopper Barge ("scow")	SEI 3003	260 feet	52.6 feet	12 feet	1375 tons	1982	Refer to attached brochure.
Guide Barge	SEI 32	250 feet	38 feet	10 feet	855 tons	not available	Refer to attached brochure Spud Number = Three (50 feet).
Dredge	Wood I	134 feet	50 feet	11 feet	681 tons	not available	Refer to attached brochure. Crane Model = 2400 Lima Crane Boom = 100 feet / 120 feet Cable size = 1.5 inch Linepull = 136,000 pounds Spuds = Three (30 inch × 90 feet) Spud Wells = Three (32 inch) Winches = 60,000 pounds/linepull 250 Horsepower
Crew Boat & Tug Boat	Alex D	38 feet	14 feet	6.5 feet	26 tons	1982	Refer to attached brochure 500 Horsepower Twin Screws.
Tug Boat	Dorothy	100	not available	not available	not available	1951	Refer to attached brochure. 1800 Horsepower Single Screw
Tug Boat	Vernick	100	not available	not available	not available	not available	According to Jay Cashman, Inc., the Vernick tug boat has the same specifications as the Dorothy tug boat.
Tug Boat	Uncle George	66 feet	24 feet	6.5 feet	91 tons	not available	Refer to attached brochure 3400 Horsepower Twin screw Conducted initial movement of equipment.

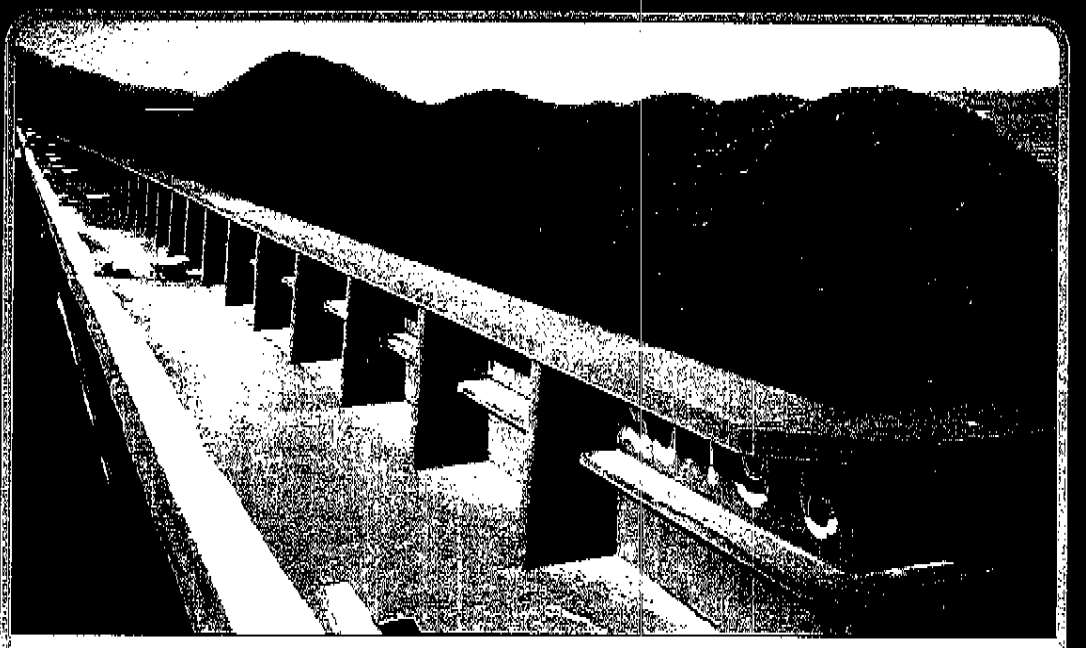
** Follow-up communication with Steve Raedel (Jay Cashman, Inc.) in October 2008: To the best of Jay Cashman, Inc.'s knowledge, the dredging and support equipment delivered to the project site met the 2-foot minimum hull clearance as required by the contract specifications (Section 201.04).

Supportive Material on Equipment Specifications

Source: Brochures and other material provided by Jay Cashman, Inc. (as received)

Scow Dimensions

SEI 3000



TYPE:	**Hopper Barge**
CLASS:	**Inland**
STERLING #:	**09-077**
LENGTH:	**260'**
BEAM:	**52.6'**
DEPTH:	**12'**
GROSS TONNAGE:	**1375**
NET TONNAGE:	**1375**
YEAR BUILT:	**1982**
COMPARTMENTS:	**12**
BULKHEADS:	**(2) Longitudinal**
	(6) Transverse
SPUD WELLS:	**None**
SPUDS:	**None**
CAPACITY:	**3000 Tons**

OTHER: **Vessel is fitted with a bow rake and square stern.**

STERLING EQUIPMENT

www.sterlingequipment.com

62 Nay Street | East Boston, MA 02128 | Ph. 617-561-4469 | Fax. 617-561-0049

SEI 3003

TYPE:	Hopper Barge
CLASS:	Inland
STERLING #:	09-094
LENGTH:	260'
BEAM:	52.6'
DEPTH:	12'
GROSS TONNAGE:	1375
NET TONNAGE:	1375
YEAR BUILT:	1982
COMPARTMENTS:	12
BULKHEADS:	(2) Longitudinal
	(6) Transverse
SPUD WELLS:	None
SPUDS:	None
CAPACITY:	3000 Tons
OTHER:	Vessel is fitted with a bow rake and square stern.

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SEI 32

TYPE:	**Spud Barge**
CLASS:	**Inland**
STERLING #:	**09-104**
LENGTH:	**250'**
BEAM:	**38'**
DEPTH:	**10'**
GROSS TONNAGE:	**855 (Approximately)**
NET TONNAGE:	**855 (Approximately)**
YEAR BUILT:	**Unknown**
COMPARTMENTS:	**14**
BULKHEADS:	**(13) Transverse**
SPUD WELLS:	**(3) 20.5" Round**
SPUDS:	**(3) 50'**

OTHER: **All welded steel former railroad car float, with flat deck, parallel straight sides with armor plating, and raked bottom plating at each end. The bottom has slight deadrise. The deck has a 5" concrete surface.**

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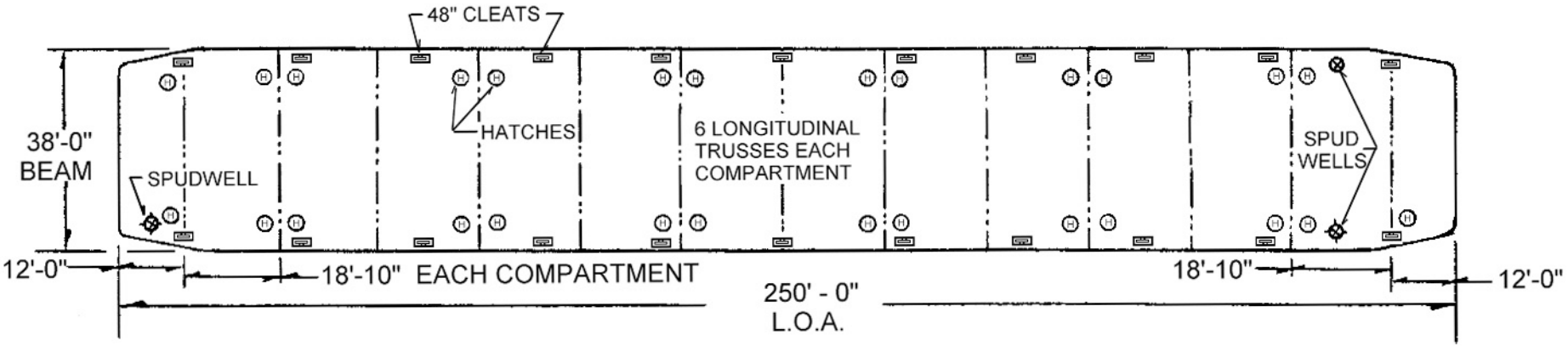
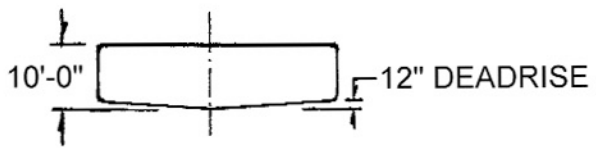
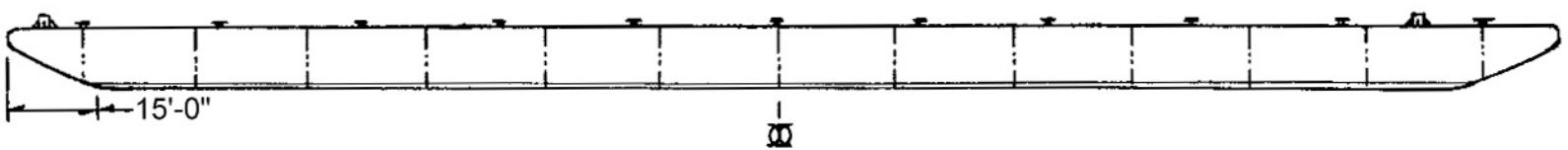
SPUD BARGE SEI 32





MIDSHIP SECTION



WOOD I

The Wood 1 is suitable for maintenance and capitol projects, such as pier dredging, channel maintenance and deepening, and pipe line crossings.

TYPE:	**Bucket Dredge**
CLASS:	**Inland**
STERLING #:	**09-013**

APPLICATIONS:

- **Open Channel Excavation**
- **Pier & Dock Excavation & Trenching**
- **Maintenance Dredging**
- **Rock & Hard Material Removal**

OPERATION:

- **15 & 18 yd. buckets for mud excavation.**
- **10 yd. bucket for firmer materials.**
- **6 yd. bucket for sand and hard materials.**

The dredge works in conjunction with Cashman's fleet of 2,000 - 3,500 yd bottom dump barges & split hull dumpers on projects involving off-shore disposal. The dredge features GPS positioning equipment.

STERLING EQUIPMENT

www.sterlingequipment.com

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WOOD 1

OPERATING SPECS

LINEPULL @ PARAM: 212 Fpm
DIGGING DEPTH: 60'-120'
LINEPULL: 136,000 Lbs
STALLPULL: 150,000 Lbs
FUEL CAPACITY: 4,000 Gal
FRESH WATER: 10,000 Gal

DIMENSIONS

LENGTH: 134'
BEAM: 50'
DEPTH: 11'
DRAFT: 6'
LOADLINE DRAFT: 3.5'
GROSS TONNAGE: 681
NET TONNAGE: 681

OTHER:

Crew day room and shop area. Precision dredging using GPS positioning system.

EQUIPMENT & MACHINERY SPECS

CRANE: 2400 Lima Crane
Boom 100' / 120'
CABLE SIZE: 1 1/2"
SPUDS: (3) 30" x 90'
SPUD WELLS: (3) 32"
SPUD WINCHES: 60,000 Lbs. / Line Pull
FLEETING WINCHES: 32,000 Lbs. / Line Pull
GENERATORS: (2) 35 Kw
HPU: 250 Hp

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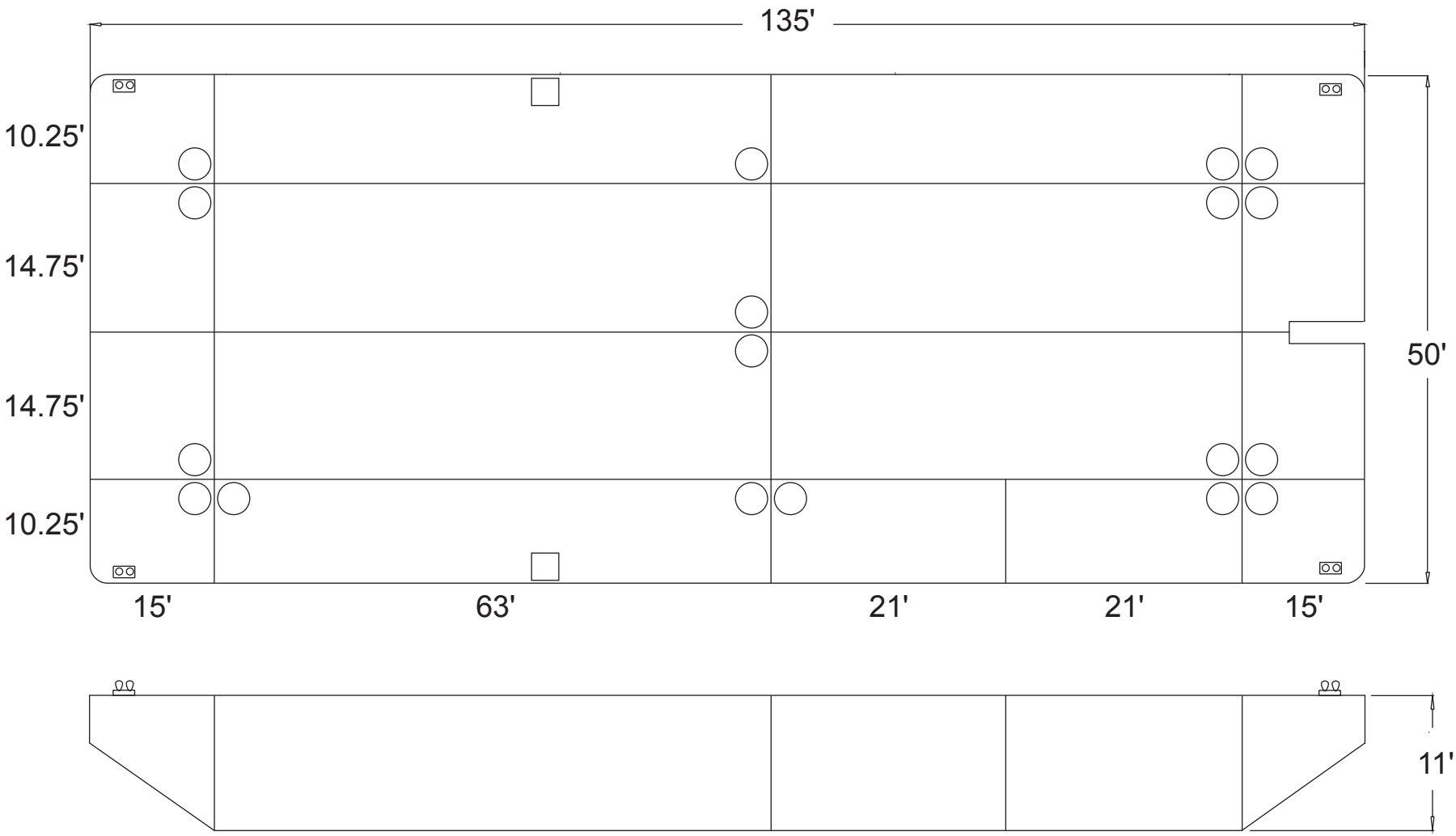
WOOD 1



10-003

TYPE: **Lima 2400B**
Crawler Crane
SN/3445-4A

DESCRIPTION: **120' boom, 3rd drum set-up for clamshell. Bucket sizes from 6 Yd. heavy to 14 Yd. rehandling. Cable size: 1 1/4"**

See Spec Sheet

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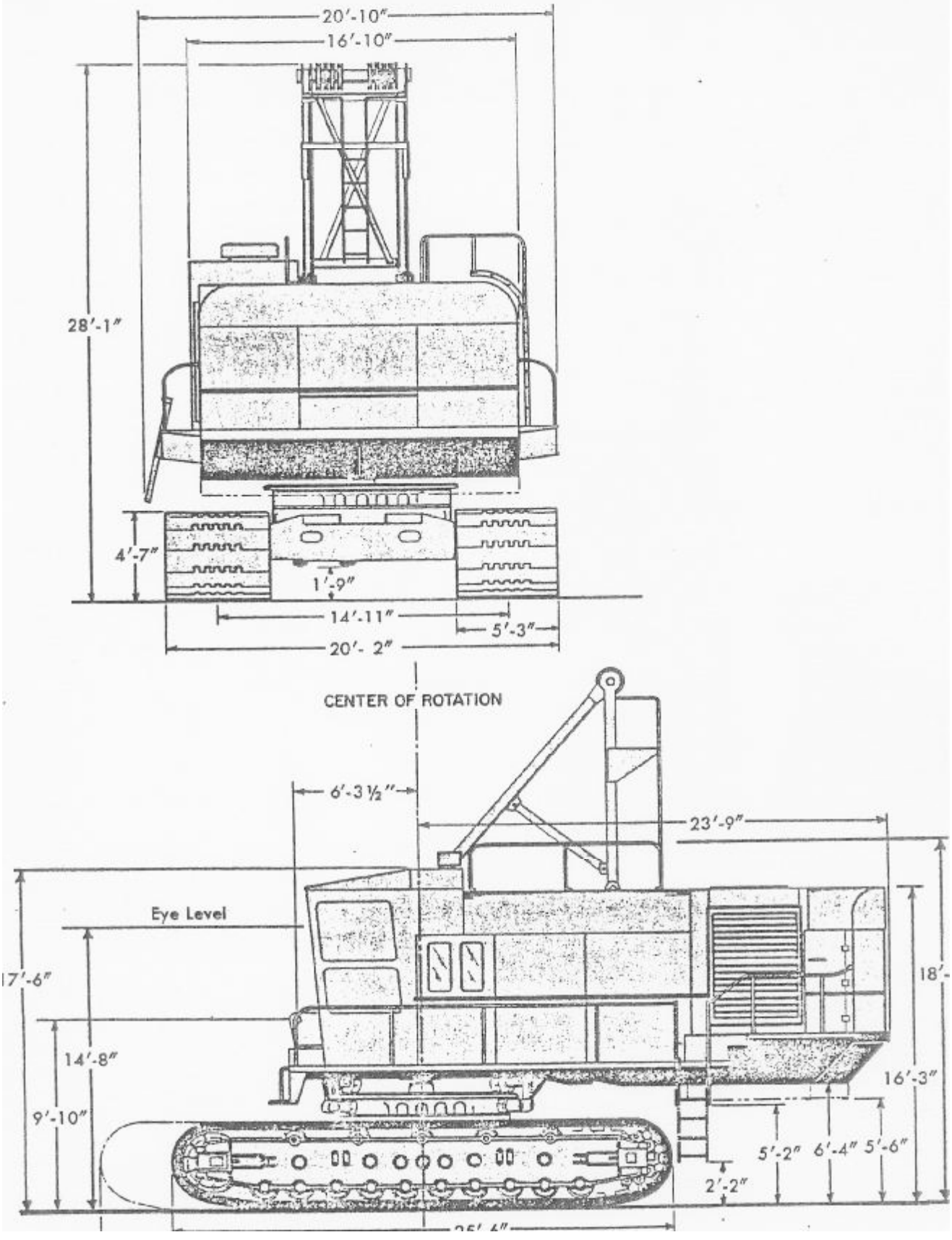
OVERALL DIMENSIONS



Capacities given in tables below are based on 66-2/3% of tipping load and machine equipped with: Long crawler, Standard dragline-clamshell boom, Standard 40'-0" mast, pendent suspension of boom to mast. Maximum counterweight (52,000 lbs.). Minimum working radius with mast and pendent suspension 59'-0" with 80'-0" boom to 94'-0" with 150'-0" boom. For clamshell operation from 20° to 80° boom angle requires use of pendent and slings, omitting mast. Clamshell boom over 120'-0" length requires addition of center boom suspension.

WORKING CAPACITIES — TYPE 2400 DRAGLINE

Load Rad.	BOOM LENGTHS AND BOOM ANGLES															
	80'-0"	∠	90'-0"	∠	100'-0"	∠	110'-0"	∠	120'-0"	∠	130'-0"	∠	140'-0"	∠	150'-0"	∠
60'	41,900	49														
65'	41,900	44	41,650	50												
70'	41,900	39	41,650	46												
75'	41,900	33	41,650	42	41,375	48										
80'	41,900	23	41,650	37	41,375	44										
85'			41,650	29	41,375	39	38,325	45								
90'					41,375	35	38,325	42								
95'					38,600	29	38,325	38	35,550	43						
100'							35,825	33	35,550	40	33,050	42				
105'									33,300	36	31,050	38				
110'									31,300	32	29,200	34				
115'											27,525	30	28,950	40		
120'													27,275	37	27,000	42
125'													25,750	33	25,500	39
130'													24,325	29	24,075	35
135'															22,800	32

WORKING CAPACITIES — TYPE 2400 CLAMSHELL - CRANE

Load Rad.	BOOM LENGTHS AND BOOM ANGLES															
	80'-0"	∠	90'-0"	∠	100'-0"	∠	110'-0"	∠	120'-0"	∠	130'-0"	∠	140'-0"	∠	150'-0"	∠
45'	100,750	62	100,450	66												
50'	88,050	58	87,750	62	87,450	65	87,150	67								
55'	78,050	54	77,750	58	77,450	62	77,150	65	76,850	67	76,550	69				
60'	69,950	49	69,650	54	69,350	58	69,050	62	68,750	64	68,450	66	68,150	68	67,875	70
65'	63,375	44	63,075	50	62,775	55	62,500	59	62,200	62	61,900	64	61,600	66	61,325	68
70'	57,625	39	57,325	46	57,050	51	56,750	56	56,475	59	56,175	61	55,875	64	55,600	66
75'	52,800	33	52,525	42	52,250	48	51,950	52	51,675	56	51,400	59	51,125	61	50,850	63
80'	48,650	23	48,375	37	48,100	44	47,825	49	47,550	53	47,300	56	47,025	59	46,750	61
85'			44,725	29	44,450	39	44,175	45	43,900	50	43,650	54	43,375	57	43,100	59
90'			41,650	22	41,375	35	41,100	42	40,825	47	40,575	51	40,300	54	40,025	57
95'					38,600	29	38,325	38	38,050	43	37,800	48	37,525	51	37,250	54
100'					36,100	23	35,825	33	35,550	40	35,300	45	35,025	49	34,750	52
105'							33,575	28	33,300	36	33,050	42	32,775	46	32,525	50
110'							31,575	22	31,300	32	31,050	38	30,775	43	30,525	47
115'									29,475	27	29,200	34	28,950	40	28,700	44
120'									27,800	21	27,525	30	27,275	37	27,000	42
125'											26,000	26	25,750	33	25,500	39
130'											24,600	20	24,325	29	24,075	35
135'													23,100	25	22,800	32

NOTE: In order to maintain normal operating speeds under simultaneous hoisting and swinging conditions, the loaded clamshell bucket weight should not exceed 38,000 lbs.

ALEX D

TYPE:	**500 Hp Twin Screw Crewboat**
CLASS:	**Coastwise C.O.I**
STERLING #:	**12-011**
LENGTH:	**38'**
BEAM:	**14'**
DEPTH:	**6.5'**
GROSS TONNAGE:	**26**
NET TONNAGE:	**17**
YEAR BUILT:	**1982**
ENGINES:	**Twin Detriot Diesels 6V71N**
GENERATORS:	**8 Kw Northern Light Generator**
STEERING STATION:	**Main Pilot House**
ELECTRONICS:	**(2) Base Mounted Marine VHF** **(1) Electronic GPS Chart Plotter** **(1) Hailing System** **(1) Radar** **(1) Depth Finder** **(1) Standard GPS**
OTHER:	**Used as a survey boat. Outfitted with triple beam survey equipment mounted on bow.**

STERLING EQUIPMENT

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The Dorothy Elizabeth

The *Dorothy Elizabeth*, originally the *Mobil 11*, is an 1800 horsepower single screw "Classic" steel tug.

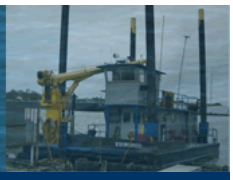
Built in 1951, she is 100 feet long with a single deck, curved stem, and elliptical stern.

This picture, taken by Steve Munez at the 2006 NYC Tug Boat Race, shows the *Dorothy* "ahead full" with flags and "crew members" as decoration.

Click on the image to see an enlargement.

166 Bayou Bouef Road
Amelia, La. 70340
Phone: 985-631-9604 Fax: 631-2905

Keith Kraemer - Owner Randal Andras - Owner



GENERAL CHARACTERISTICS

- Dimensions……..…..66’ X 24’ X 6.5’
- Draft……..…..5’ Normal
- Gross Tonnage……..…..91 Tons
- Net Tonnage……..62 Tons
- Official # …… 536877

POWER & PROPULSION

- Main Engines……(2) Caterpiller D353
- Generator……..…..(2) Norpro.30 KW
- Gears & Clutches……..…..Twin Disc
- Ratio……5 to 1
- Free Running Speed……10 Knots
- Rated Horse Power……900 H. P.

ELECTRONICS

- Radar……Furuno Model1942 Mark 2
- VHF……..……(2)Standard Horizon
- Fathometer……Garmin 2600
- GPS……..……Map Navigator
- I. D. System ……AIS Nauticast X Pack
- Celluar Telephone……..…..Nextel

LIQUID CAPACITIES

- Ships Water…… …2,000 Gallons
- Fuel Capacity……12,000 Gallons
- Lube Oil…… ……..…..55 Gallons

PASSENGER / CREW ACCOMMODATIONS

- (1) 4-Bunk State Room
- (1) 2-Bunk State Room

Clamshell Bucket

Cable Arm Clamshell Bucket Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
4	The dredge technology details described below are not provided in either the draft EDPS Report or the Contractor submittals. Cable Arm clamshell bucket information. The technical specifications and operator manuals were not included in the draft EPDS Report. The specifications of the bucket used to conduct the EDPS are important to the dredging performance evaluation. The weight of the bucket, its condition pre- and post-dredging, and the year of manufacture are relevant to performance of the dredge and were not contained in the draft EDPS Report.	Technical specifications and operator manual	Provided in binder.
5	For instance, the Cable Arm environmental bucket is advertised as achieving level cuts. The ability of the bucket to actually achieve level cuts was not discussed in the draft EDPS; therefore, we conclude that this performance feature was not measured or assessed. It seems that the relatively light weight of the bucket, and the crude crane derrick used for it control (a Lima 2400) would only allow the bucket to settle and close on the prevailing slope of the area.	Assessment on level cut performance features	Level cut performance features were not documented on the Lower Passaic River. Technology fact sheet provided in binder.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Cable Arm Clamshell Bucket Specifications

Sources: Communication between David Foster (Malcolm Pirnie, Inc.) and Steven Radel (Jay Cashman, Inc.) and Ray Bergeron (Cable Arm, Inc.)

Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Bucket)"

Website: www.aboutremediation.com

Cable Arm Clamshell Bucket Specifications

Bucket Feature	Specification or Description	Source
Equipment	Weight of Bucket = 19,000 pounds	Communication with Ray Bergereon (Cable Arm, Inc.)
	Year of Manufacturing = 2005	Communication with Ray Bergereon (Cable Arm, Inc.)
	Serial Number: SN05406	Communication with Ray Bergereon (Cable Arm, Inc.)
	Overlapping side plates = 25°	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
	Vent covers to allow water to pass through on descent, reducing downward pressure, and preventing water from getting through during life to reduce washout.	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
Instrumentation and Positioning	Differential Global Positioning System	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
	Pressure Transducers (± 0.001% of target depth)	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
	Echo Sounders	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
	WINOP Dredge Positioning Software coverts Global Positioning System longitude/latitude satellite signal into the local work site coordinate system in real time.	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
	Volume and vertical controls	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
	Bucket closure alarms	Cable Arm, Inc. "Contaminated Sediment Removal (Using Mechanical Clamshell Buckets)"
Performance	Average cycle= 20 cycles/hour	www.aboutremediation.com
	Level Cut Action = ± 3 inches	Communication with Ray Bergereon (Cable Arm, Inc.) Refer to attached fact sheet for more information.

Cable Arm Clamshell Bucket Operator Manual

Sources: Communication between David Foster (Malcolm Pirnie, Inc.)
and Steven Radel (Jay Cashman, Inc.) and Ray Bergeron (Cable Arm, Inc.)
Standard Operating Procedure No. CA-99-02

Cable Arm Environmental Low Turbidity Dredging Procedure with Clamvision

SOP CA-99-02

1.0 Low Turbidity Dredging

1.1.0 Verify barge on target position (DGPS or survey)
1.2.0 Set boom angle "Y" (as per XY footprint map)
1.3.0 Open "decontaminated bucket" (yellow indicator light "ON")
1.4.0 Rotate crane to starting "X "position (as per XY footprint map or WINOPS bucket pattern)
1.5.0 Lower bucket at a rate not to exceed 1 foot per second (machine capability) **AVOID SPLASHING**
1.6.0 Stop lowering bucket when penetration displays 6 ft
1.7.0 Hold position for 5 seconds (allow echo sounder display to stabilize)
1.8.0 Lower (1 ft/sec) until desired penetration or final depth (do not exceed final depth as specified)
1.9.0 Close bucket (red indicator lights "ON")

[If red lights do not come "ON"]

1.9.1 Loosen & tighten closing line repeatedly
1.9.2 Open bucket slightly and lift about 1 ft and then close
1.9.3 Place bucket on bottom and slowly open to discharge sediment in original area.
1.9.4 Mark area using WINOPS' target software tool
1.9.5 Reposition a few degrees from original swing position and repeat steps (1.5.0 - 1.9.0)

1.10.0 Lift bucket out of water just below rubber flapper vents
1.11.0 Allow water to drain
1.12.0 Rotate (swing) partially submerged bucket toward receiving scow
1.13.0 Lift and swing over scow
1.14.0 Open bucket completely (yellow indicator light "ON") and discharge all contents (use vibrators if available)
1.15.0 Close bucket (red indicator lights "ON") and move above wash tank
1.16.0 Open bucket (yellow light "ON) and immerse completely into wash tank
1.17.0 Move bucket up and down to rinse internal walls and corners (bucket vibrators and or spray equipment)
1.18.0 Lift bucket 2 feet above wash tank
1.19.0 Close bucket (red indicator lights "ON")
1.20.0 Swing to next position (as per bucket footprint map) and repeat steps (1.1.0 – 1.19.0)

Level Cut Performance Features

Source: Level Cut Technology Fact Sheet www.cablearm.com/env/envlevelcut.html

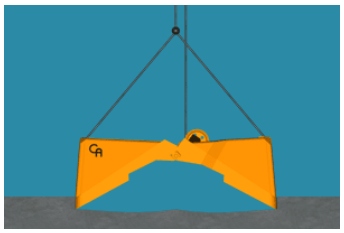
Level cut performance features were not documented on the Lower Passaic River. Level cut technology fact sheet is available from Cable Arm website.

Environmental
Features
. Level-Cut
. Overlap Sides
. Closing System
. Venting System
. Rubber Seals
Add-ons
Photos
Navigational
Bulk Material
ClamVision

Level-Cut® Technology

In environmental dredging it is essential to remove contaiminated sediment in a uniform fashion. Our environmental clamshells feature a patented Level-Cut® footprint to make this possible.

Canada's Environmental Technology Verification program has verified our level-cut abilities. view fact sheet



As the clamshell closes, the sides draw together and the pivot point lifts, leaving a large rectangular footprint that is very close to level.

Each successive bite then overlaps the previous bite to ensure complete sediment removal.

Level-Cut® Video

See our patented Level-Cut technology in action. You will need RealPlayer.

Low Bandwidth Video

High Bandwidth Video

Level Cut Technology Fact Sheet

www.cablearm.com/env/envlevelcut.html

ClamVision® and Accuracy

ClamVision® and Accuracy Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
6	The dredge technology details described below are not provided in either the draft EDPS Report or the Contractor submittals. Cable Arm ClamVision® system. Photos of important component details such as boom tip beacon, boom angle sensors, bucket open/close sensor and wire counter sensors are necessary for the reader to understand the dredge positioning system and its limitations. These were not included in the draft EDPS Report. In addition, technical specifications and operator manuals, the condition of the sensors pre- and post-project, and a description of any difficulties were not included in the draft EDPS Report.	Photographs, operator manual, condition of sensors, and description of difficulties	Provided in binder.
7	The dredge technology details described below are not provided in either the draft EDPS Report or the Contractor submittals. GPS positioning system. The RTK GPS system components used for positioning of the dredge barge and Cable Arm ClamVision© system are not discussed. System performance measurements and frequency of measurements were not provided in the draft EDPS report or appendices.	GPS specifications	RTK GPS positioning system not used during the project. A functional GPS equivalent was used. Refer to attached brochure or operator manual.
8	Installation and operation manuals, photos of the system components, calibration records of the horizontal and vertical accuracy of the system (if they were produced) should be provided for review as part of the draft EDPS Report.	Operation manual, photographs, calibration records	ClamVision® operator manual and photographs are provided in binder. Calibration records are not available.
9	Typically the ClamVision® system records the bucket close location as an XY location determined by the GPS beacon located at the boom tip. Because the bucket is hanging more than 100 ft. below the boom tip, sway and rotation of the bucket cables can actually offset the bucket grab several feet horizontally from the recorded position. The draft EDPS Report should include a correlation between the ClamVision® bucket plots and the daily multibeam surveys in an attempt to assess horizontal accuracy. The draft EDPS Report also did not provide daily logs and calibration records of the electronic positioning system to validate system performance.	GPS calibration records and horizontal accuracy	The horizontal positioning of the bucket was not measured because horizontal accuracy was not an objective of the Pilot Study.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

ClamVision® Operator Manual

Source: Cable Arm, Inc. "ClamVision® Installation Guide" Version 2.6

ClamVision® Positioning System

Installation Guide

Contents

This guide contains information about the installation and configuration of the ClamVision® positioning system. It provides a basic outline to hardware and software setup as well as suggestions for mounting components and making connections. Operating temperature for ClamVision System is -50°F to 104°F.

Installation Practices

A Cable Arm Clamvision® installation consists of four "phases". They are usually completed in order for convenience and efficiency.

Phase 1 – Mount all hardware. Find adequate locations for the components with attention to climate, i.e. moisture, dust, etc. Areas chosen should be safe and protected from daily work hazards as well.

Phase 2 – Route and run all wires and cables. After all devices are mounted properly, system wires and cables should be run securely, keeping them away from any harmful situations, such as excessive heat or moving machinery.

Phase 3 – Add power to the system. Any power connection must be tested to ensure component safety and cleanliness of signal.

Phase 4 – Configure Clamvision® software. This includes taking specific physical measurements of the dredge, machine, and distances from certain GPS components. For more detailed software setup see the ClamVision® User Guide.

Note: Some devices may require configuration that is not discussed in this guide. A ClamVision® positioning system is comprised of many devices and come with their own manuals. Cable Arm, Inc. will include these manuals in the system portfolio that is put together and kept with the system. Often, a standard installation has to be changed to fit a specific crane or office setup. Extra wires and components are included for such customizations.

1. MOUNTING

Plan the location of monitors and other devices to be mounted so that they are not in harm's way, in a location that allows the device to work to the best of its ability, and is easily accessible. In some cases, the hardware will not have a specific place or method to be mounted. At this time it is helpful to think about wire routing possibilities. This section discusses best practices for mounting monitors, waterproof enclosures, antennas, and other hardware in the ClamVision® system. While these suggestions have proven helpful to us, creative alternatives can be explored.

A. Monitors

There are a minimum of two LCD monitors used in a ClamVision® system; one by the computer, ”office side”, and one in the crane, “machine side”. Additional monitors may be incorporated into the system in places such as the captain’s office, winch operator’s station, or tug boat. The LCD screen must be located in a dry place, as it is not waterproof. In the office side the monitor should go next to the computer. Since crane cabs vary the monitor for the machine will most likely need a custom mount. Most LCD monitors have four screw holes in the back panel that can be utilized. The location of this monitor is subject to operator preference.

A.Wireless Enclosures

The wireless transmitters and receivers used in a ClamVision® system need *line of sight* to work properly. This means no physical obstructions between the two devices. To achieve *line of site* certain devices are placed in a weather tight box mounted to the roof of the machine and office. On the office side this box should be mounted high enough to get good *line of sight* to the machine at all times while still easily accessible. This box will be stationary sending signals to and receiving signals from the machine. Since the machine is rotating, all four sides of its box should remain free from obstruction so the signal can be sent and received

from any angle. Notice the hole with a stress relief at the bottom of the enclosure should point down.

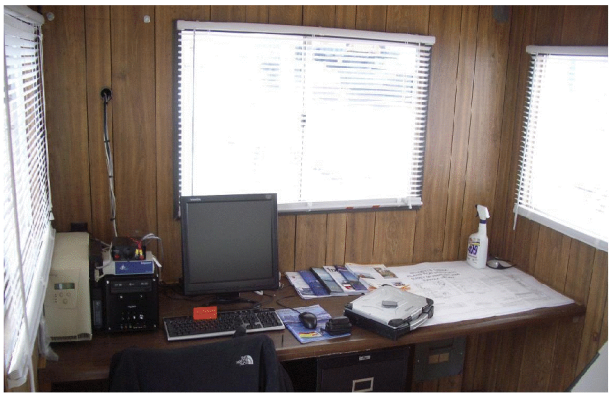
C. Other Equipment

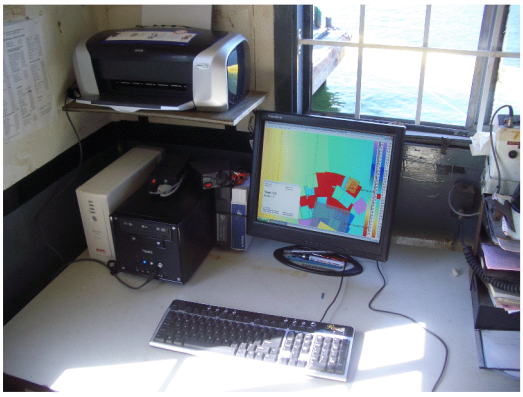
1a. Office side – In the office side most hardware can be organized on a desk or table:

1. **Set up battery backup unit.** Units may be shipped with battery disconnected. Consult the operator's manual for your specific unit. This unit can be placed on a desk or the floor, if this area is safe and dry. A surge protector may be plugged into the battery backup if outlets are scarce.
2. **Set up the computer.** Place it on a flat surface with the LED lights on the front visible. Plug the power cord into the battery backup. Do **not** turn the computer on until all physical connections are made.
3. **Plug in the keyboard and mouse.** These items plug into the back of the computer into their color coded ports.

4. **Plug in the monitor.** The monitor power cord plugs into the battery backup. The video cord connects to the back of the computer.[1]
5. **Connect the serial to USB converter.** This unit plugs into any USB slot in the back of the computer.
6. **Plug in 12 Volt power supply.** The Radioshack 13.8 V DC plugs into the battery backup. Do not turn on until all physical connections are made.
7. **Mount barge GPS receiver.** Be sure to read the barge receiver manual for proper mounting procedure.
8. **Set up tide gauge radio**. This unit should be placed near the computer. The power leads connect to the 12v supply. Use a serial cable to connect the tide radio to the USB to serial converter. Record the port number for software setup.

   Be sure to secure all items so they cannot fall or get damaged.





1b. Machine side - On the Machine side it is important to keep units away from wet places and as safe as possible. With safety in mind, the location is up to the installer. From a troubleshooting standpoint, however, it is best to have everything close to each other for easy access. Items that need to be secured include a Cable Arm keypad, radios, and power supplies.

1. Place the keypad in the cab within reach and visible to the operator.

[1] See section 2a on cabling

2. Depending on the complexity of the system, radios may be mounted in the weatherproof box, inside the cab, or both. This is due to RF interference when multiple sets of radios are used. Remember that the radios have LED's and should be visible from their mounted position.

3. Power units such as voltage converters or switch mode converters should be placed as close to the batteries as possible. We all know that most battery compartments are not the model of cleanliness and are certainly not dry. Keep the power units close to the batteries without putting the unit in any danger. In a central location, relative to the components mounted in the cab, fasten two terminal strips that will be used for power distribution.

D. Antennas

1. There are a few different antennas used in a ClamVision® system. First is the GPS antenna. The GPS antenna, along with its receiver, is used to position the boom tip as well as the barge it sits on. The boom GPS antenna should be mounted on the tip of the boom so that the phase center of the antenna is directly over the holding line. At different boom angle settings the holding line will come off of the shive at different angles. To solve this problem a gimble/pendulum mount is recommended. This mount should be as accurate as possible since no offset can be added in the software. When mounting the boom antenna,

also run the Boom GPS cable while the boom is down.[2] Barge GPS mounts differ depending on what type of GPS is used. In some cases the position of the antennas affects the accuracy of the GPS receiver. Refer to the receiver's manual for proper antenna mounting procedures or call Cable Arm Inc. Generally GPS antennas should be at least three feet away from electronics and other antennas. They must also have a clear 360° view of the horizon and be accessible.

2. Radio antenna placement is the key to achieving optimal signal quality. Cable Arm uses 900 MHz omni-directional fiberglass antennas. They should be at least three feet away from electronics and other antennas, including GPS antennas, as well as metal poles or walls. Additional antennas should not obstruct *line of sight* of previously installed antennas.

2. Cabling

Before starting, check to be sure that the wires are in good condition. They should be free of cuts, kinks, chafes, or poorly made connectors. All wires should be run in a safe path away from moving parts or anything that can damage or sever them. It may be easiest to route one type of wire at a time. For instance, run data wires between devices. Then route all video cables. Next run all coaxial antenna cables. Lastly, complete power connections. For convenience each type of wire is color coded.

A. Video Cables- green

Video cables (VGA cables) are used to get video signal from the computer to the wireless video transmitter and from the wireless video receiver to the operator's LCD monitor. On the machine side one male to male VGA cable will be routed from the video receiver in the weatherproof enclosure on top of the cab to the LCD monitor inside the cab. This is the only video cable required crane side.

[2] See section 2c. on coaxial cables

In the office there are two ways to set up the video system. In a basic system there is one office monitor. When multiple monitors are required a VGA splitter is used. Be sure that the resolution of the computer is at 1024x768.

Without using a VGA splitter, start by connecting a 25' male to female video cable between the computer and the video transmitter. The male end connects to the video card in the back of the computer. The female end of the cable connects to the blue male pigtail of the video transmitter. Now take a male to male cable and connect one end to the port on top of the video transmitter. The other end connects to the monitor near the computer.

A VGA splitter is used when a rig needs monitors in other places in addition to the ones in the machine and by the computer. When using a VGA splitter follow the instructions above until you connect the monitor. Instead of connecting to the monitor, connect to the *computer port* of the VGA splitter. The monitor will then connect to any *monitor port* of the VGA splitter. Any extra monitors will be connected to the VGA splitter using a VGA cable.

B. Data- blue

A minimum of **five** data cables are used in this system. Cable Arm-made DB-9 serial cables use pins 2, 3, and 5 only and are built specifically with regard to gender and length.

1. In the office one data cable connects the barge GPS (usually port A) to the USB to serial device.
2. The second cable connects the boom tip GPS radio to the USB to serial device.
3. The third data cable connects the tide data radio to the USB to serial device.
4. On the crane one data cable connects the keypad to the boom tip GPS receiver.
5. The final data cable connects the keypad to the boom tip GPS radio.

C. Coaxial- yellow

The cable connecting the boom GPS antenna to the boom GPS receiver is labeled *BOOM GPS*. It will be TNC male to TNC male using LMR400. One end of this cable has a thinner cable, rg-58, attached. This is used for the gimble/pendulum mount at the boom tip. For the boom GPS radio use a cable marked *BOOM GPS RADIO,RPSMA to N with RG-58*. RTK systems additionally employ a differential radio pair. This radio uses a different connector than the boom GPS radios and will be labeled *DIFFERENTIAL RADIO, SMA to N with RG-58*. Cables for barge GPS may not be labeled but are RG-58 TNC to TNC cables. Connect appropriate devices to their antennas.

D. POWER- red

Running power is the last step in cabling. On the office side, the computer, monitor, video splitter, battery backup, and 12V power supply use AC power. Refer to 1a Office side in the mounting section of this guide. This leaves the enclosures, barge GPS, and tide radio to connect to power. Run a length of power cable from the terminal blocks in the waterproof enclosure to the 13.8V supply. Also connect the power cables from the GPS and tide radio to the supply.

The power for all components on the machine is 12v DC converted from the batteries. Check the label on the converter to make sure that the unit matches the power system used on the machine. For example if the crane uses a 24v battery system you would need a 24v to 12v converter. Assuming there is a 24v system, run a wire from the batteries to the terminals on the power converter labeled 24v and Ground without connecting the 24v line. By not connecting the 24v line right away other power wires can be run and connected before a final power and polarity check is done. Included in the system is an on/off toggle switch. If installed, it must be placed on the 12v line between the batteries and power converter. Then from the 12v and ground terminals in the power converter run another wire to the power distribution blocks mounted in the cab. Determine and label which block is power and ground.

Use the remaining power wire to run power from the distribution blocks to all other devices on the machine. Some devices used in this system are equipped with AC plugs. These plugs will be cut to make use only of the jack that fits into the device itself. Have all power cords unplugged from their devices and connect the 24v line to the converter. Now with a multimeter check the voltage and polarity at the power distribution blocks and each plug. The tubular power jacks have 12v in the middle (inside) and ground on the outside.

3. Hardware Configuration

Unless preconfigured by Cable Arm the GPS and radios will need to be programmed. These instructions will be step by step so please follow the order. You will need the X-CTU software CD provided with the Maxstream radios, a terminal program such as HyperTerminal, and a laptop with a serial port. Most new laptops do not come with serial ports. Therefore a USB to serial converter is needed. If you are not familiar with HyperTerminal refer to pages 30-31. Port settings for all XStream are 9600, 8, none, 1, none. Some units may default to 19200 baud rate.

Radio Configuration

1. Use the included X-CTU software CD to install X-CTU.
2. Connect a boom tip radio to your computer. Then power the radio on.
3. Open X-CTU. Under the *PC Settings* tab highlight the com port that the radio is connected to and select the port settings listed above. Click *Test / Query.* If the software is unable to communicate with the radio, check connections, power, and port settings.
4. When connected select the *Modem Configuration* tab and click *Read.*
5. Under *Networking* click *DT- Destination Address* and change it to any random number between 0 and 9999. Record the number.

6. Now select *HP-Hopping Channel* and pick between 0 and 6. Record the number.
7. Lastly under *Serial Interfacing Options* set the *Interface Baud Rate* to *3-* 9600.
8. Complete this process for the second radio using the same numbers that were used for the first. Be sure the first radio is powered off while programming the second.

To test the radio link, a **range test** should be preformed:

1. Place a serial loopback on the crane side boom tip GPS radio. The loopback is a red double gendered DB9 connector that is included with the radio.
2. Open X-CTU on the office computer. Under the **Range Test** tab click **Start.** Let it run for a few minutes and observe the percentage of good *packets* vs. bad *packets*. The higher the percentage, the better the radio link. If everything looks good, then move on to programming the GPS.
3. If the Range test fails then switch the hopping channel in X-CTU to a different number. If a solid link cannot be established after reviewing settings and antenna placement contact Cable Arm for advanced assistance.

GPS Configuration

Barge GPS receivers need to display three pieces of information: position, heading, and speed. The following is a list of commands to be entered in order with a terminal program to configure the GPS. All commands are to be followed by pressing ***ENTER***. If entered correctly you will receive an acknowledgement of ***<OK***. Save the configuration before powering down the unit. Upon power up

allow a few minutes for the GPS to acquire satellites before any valid information displays.

	Action	Command
1	Stop data	$joff
2	Position	$jasc,gpgga,1
3	Heading	$jasc,hpr,5
4	Speed	$jasc,gpvtg,1
5	Baud Rate	$jbaud,9600
6	Save Config	$jsave

The boom tip GPS information uses position only. Use the order above omitting steps 3 and 4 to program the boom tip GPS. Make sure the configuration is saved before powering off the unit.

At this point the hardware should be installed and powered. You should have video in the crane cab and all data from the crane should show in a terminal program on the office side. If this occurs then software configuration is the next step. If this is not the case then troubleshoot by revisiting each part of the system, verifying sound hardware installation and solid wire connection.

4. Software configuration (Basic clamshell)

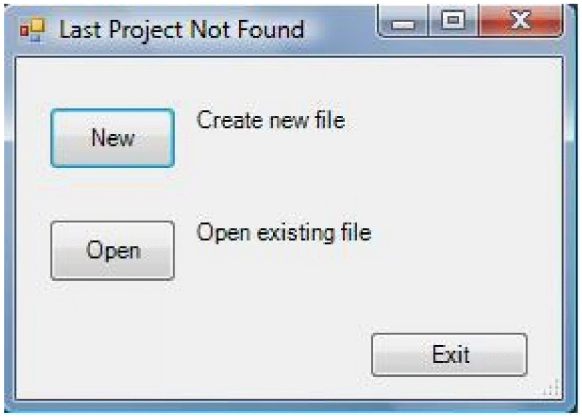
The software needs to be configured to match the layout of your equipment and job. This means that accurate measurements, drawings, and survey files need

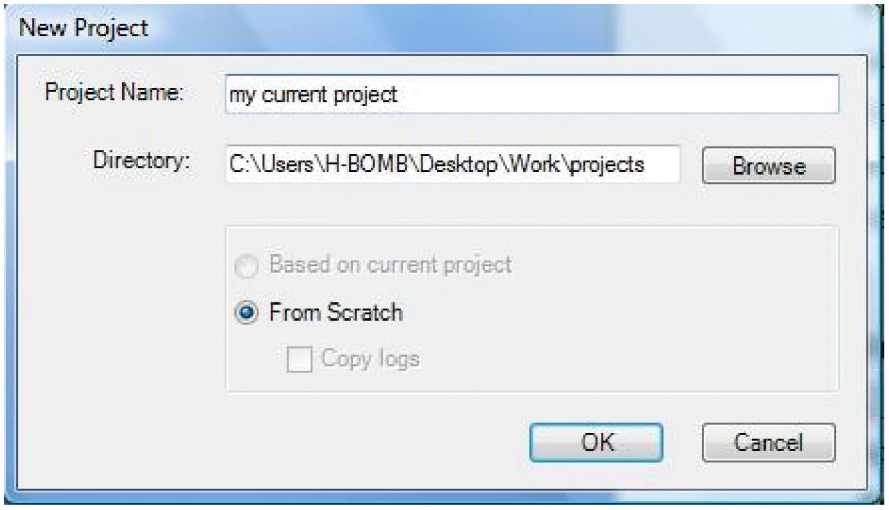
to be loaded into the software. This section will summarize the minimum setup of software needed for the hardware to interact correctly with it. This section does not cover ClamVision® concepts, terminology, or additional tools available. For a full description of ClamVision® and its features refer to the ClamVision® user guide.

1. First, in the computer, close all programs and open ClamVision®. Make sure the Hardware lock, blue ClamVision® key, is connected to the computer.

2. When ClamVision® opens for the first time it directs you to start a new project or open an existing one. Select *New* to create a new project file.

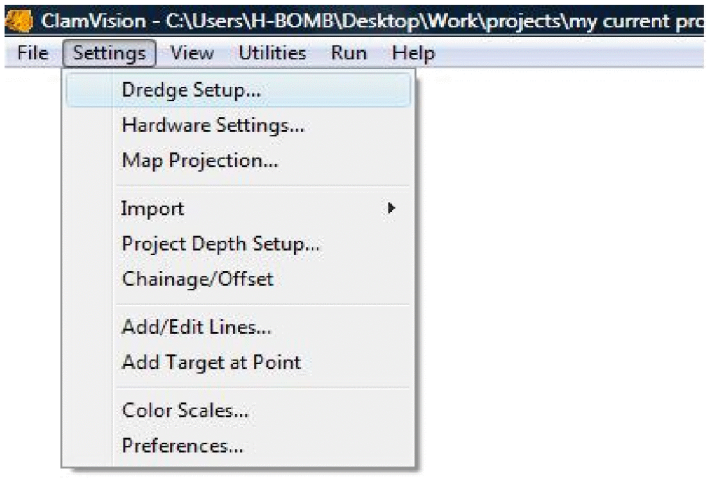
3. In the *New Project* box, type the name of the project and browse to the desired location you want the file to be kept on the computer. Cable Arm creates a projects folder on the hard drive. Using this folder makes it easier on Cable Arm for troubleshooting although it really doesn't matter where they are stored. Click *OK.*



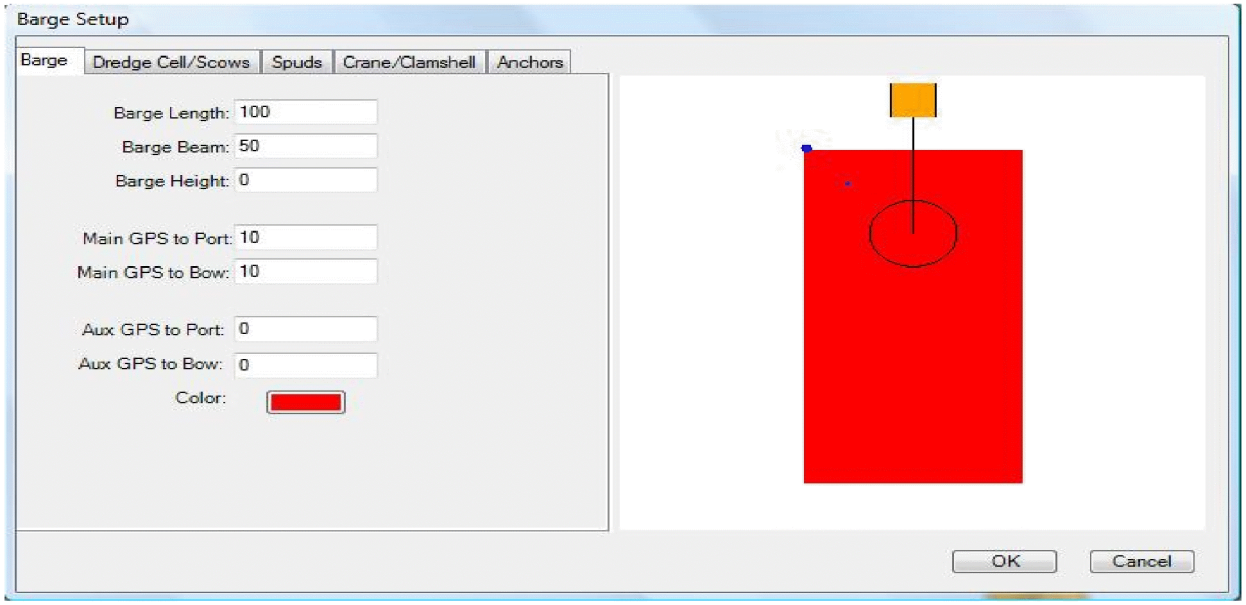


4. Along the top left of the screen below the title bar, there is a list of menus where the settings and features can be accessed (Above). All essential

settings in the software are under the **settings** menu (below). Left click on the **settings** menu to display a list of submenus.

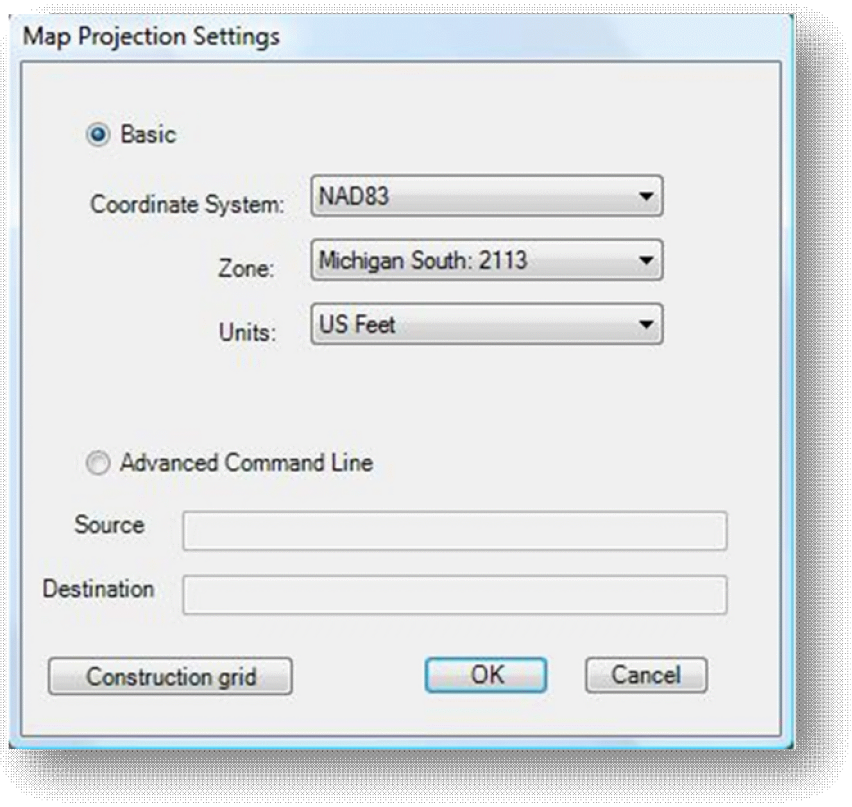


5. Now click **Dredge Setup**. The Barge Setup box is organized with tabs. Start with the *Barge* tab and enter all measurements. The Aux GPS to port and Aux GPS to bow should be left at zero when using a position/heading GPS. Enter values that apply to your equipment under all tabs. All measurements should be taken using the same units used for survey, in **Map Projections**. When finished click OK.



When all the measurements have been entered under all tabs you should be able to see spuds and the machine in their actual places on the barge .

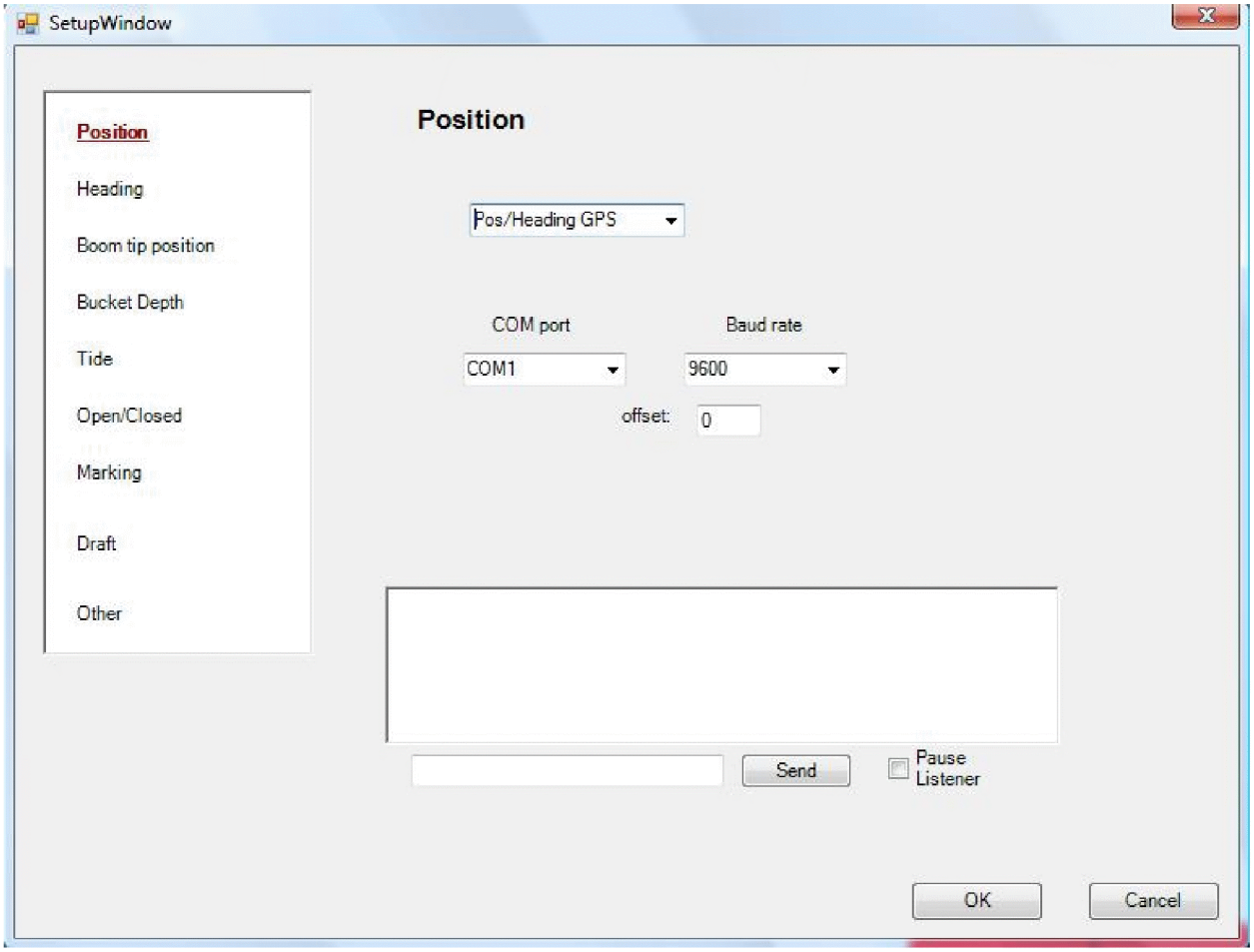
6. The next step is to tell the software where you are in the world. To do this the map projections must be set. Under the **Settings** menu, select **Map Projection**. Verify with the surveyor the coordinate system, zone and units used. Set the fields accordingly and click **OK**. For basic operation the advanced command line is not



used.

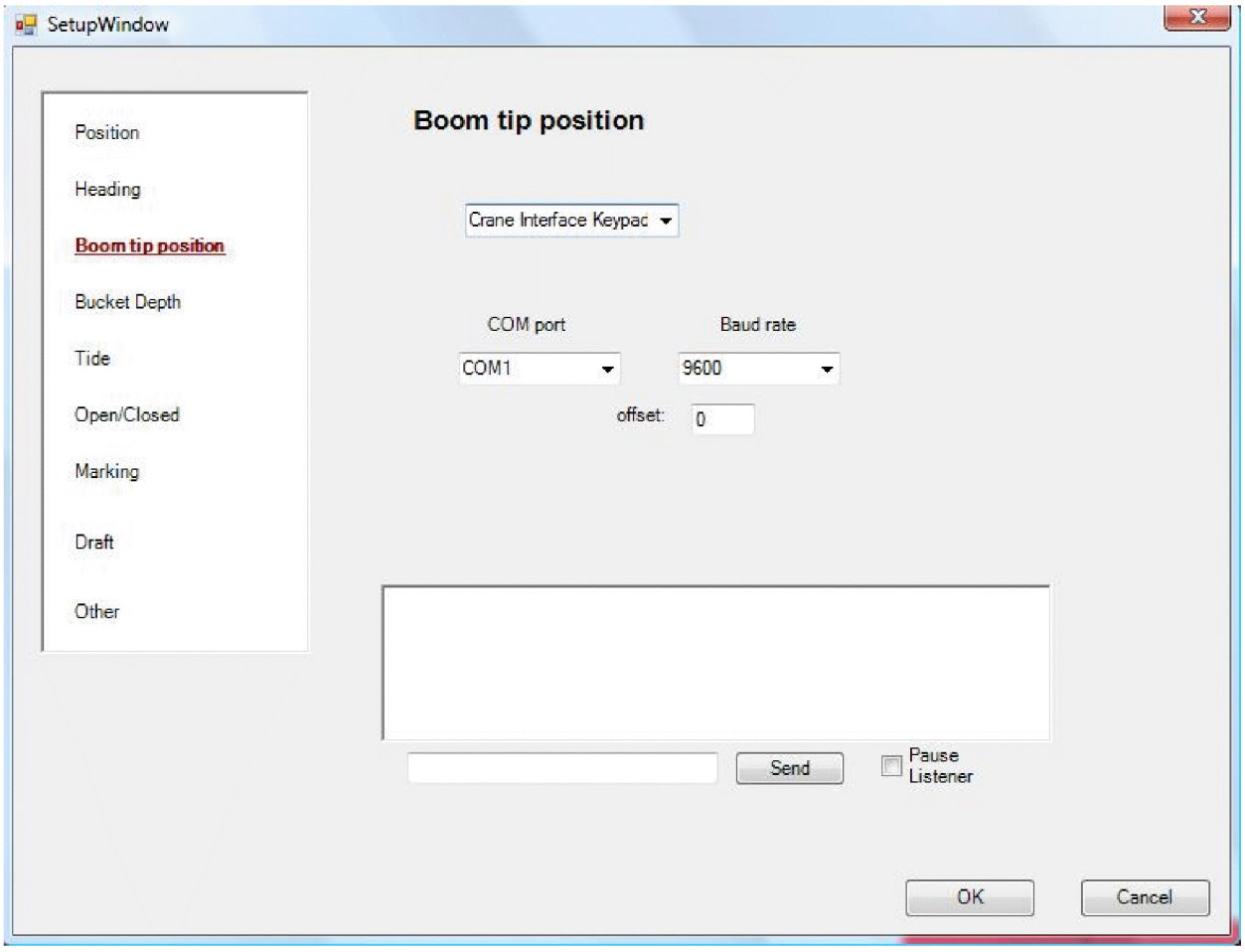
7. Now that the software and survey are on the same page, the information from the hardware can be set in ClamVision®. In the **settings** menu left click **Hardware Settings**. The Setup Window appears with *Position* selected on the left.
8. On the right side of the screen is the settings for the barge position GPS. The *position* setting is default to disabled. Click the down arrow to display a list of drivers. Select the **Position/Heading GPS** driver. Com port, baud rate, and offset settings appear under the driver drop down list. Select the proper com port for the barge GPS and set the baud rate to 9600. Information for the barge GPS will display below in the listener. A positive

or negative offset can be entered to adjust the heading of the barge due to possible mounting inaccuracies of the Barge GPS antennas. **Do not click OK**. If no information displays in the listener keep the settings and troubleshoot after setting up the software.



9. Along the left side skip Heading and click *Boom Tip Position*. Again the default setting is disabled. Click the down arrow to display the list of drivers. Select **Crane Interface Keypad**. Set the proper com port and baud rate (9600). **The offset for the Boom Tip Position does not work**. Boom Tip

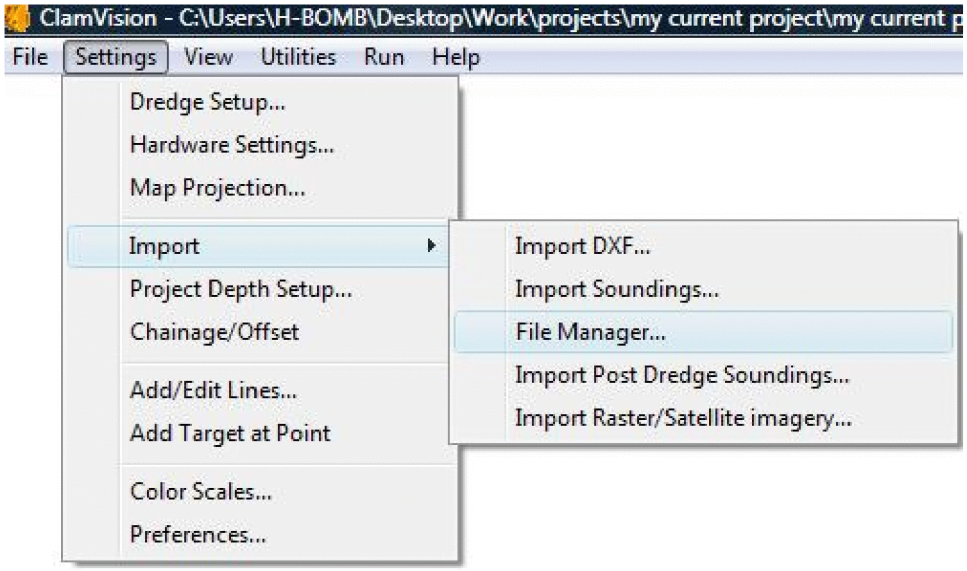
GPS information should display in the listener. **Do not click OK**.



10. On the left side of the screen click Tide. Select the driver that corresponds to the method of receiving tide. For example if you are using a Cable Arm Tide Gauge select **Cable Arm Tide Gauge** in the drop down menu. Set the proper com port and baud rate. If no digital tide gauge is used then a manual tide can be set. To utilize Manual Tide select **Manual Tide** in the driver drop down list. An additional menu at the top named *Manual* will appear to the right side of the Help menu.
11. Now click OK at the bottom right of the setup window. Assuming that all information from the devices is present, you will see the barge and bucket move to where the GPS says they are. If the barge moves off the screen go to **View>Autotrack**. This tells the software to keep the barge in view at all times.

The barge information, device information, and map projection information is now set in ClamVision®.

12. The next step is to load job specific background files into the software. Most commonly loaded are DXF and XYZ files. A DXF is a drawing of the jobsite or dredge limits. An XYZ is survey data or soundings. Either can be loaded into ClamVision® using the file manager. To open the file manager click **settings>import>file manager**.



13. The file manager is a good way to add, remove, and view background files. To load a DXF file click Add DXF.
14. Then browse to the location of that file on the computer.
15. To add survey data click **Add Soundings** and browse to the file. When a file is added its name appears in the window above the add buttons. Each file has a check box next to it. Be sure the box next to the file you are using is checked or it will not display on the work screen.
16. The color scale on the right of the work screen is used to represent the color coded survey bottom. The color scale can be modified to accommodate any situation.[3] A second color scale can be added for bite colors.[4] It is located to the right of the survey color scale.

[3] See color scales section of ClamVision® User Manual
[4] One "bite" is one scoop of material with a clamshell bucket. See bite colors in ClamVision® User Manual

17. The final step in the basic setup of ClamVision® is the project depth. The system needs to know what grade is and Project Depth Setup is where you tell it. Select *dig to fixed depth* or *remove layer.* In both options you have the choice of entering a value or importing a design file. File formats include .DXF, .XYZ and .TXT.

Now that the hardware and software has been set up, it is important to test the accuracy of the system before starting a project. The best way to ensure the GPS unit(s) is functioning properly is to move the GPS antenna directly over a known point. Compare the readings from the GPS to the control point to see if the unit is running within specs. Aligning the bucket over each corner of the barge or spud is a good way to see if the barge, barge heading and boom tip GPS are in sync. If depth control is present find a reference to actual depth and compare to what the system displays. Use the *bucket depth offset* under **hardware settings>bucket depth** to adjust the readings. Calibration of a bucket depth sensor is outlined on page 29.

5. SYSTEM CALIBRATION

Before going to work, the different devices in a system need to be calibrated with the software. Calibration is a one-time thing with little maintenance. If the equipment has not been used for over a month, recalibration is recommended.

A. GPS

Gps receivers acquired from Cable Arm, Inc. will come programmed and calibrated. ClasmVision allows for some mounting inaccuracies.

1a. Boom Tip GPS- The GPS antenna needs to be mount directly over the holding line. There is no offset or setting in ClamVision to adjust the position of the GPS antenna.

1b. Barge GPS- Barge position can be done two different ways in ClamVision. The most modern is the position/heading smart antenna. This all in one unit needs to be orientated properly or inaccurate results will occur. ClamVision offers an offset to compensate for

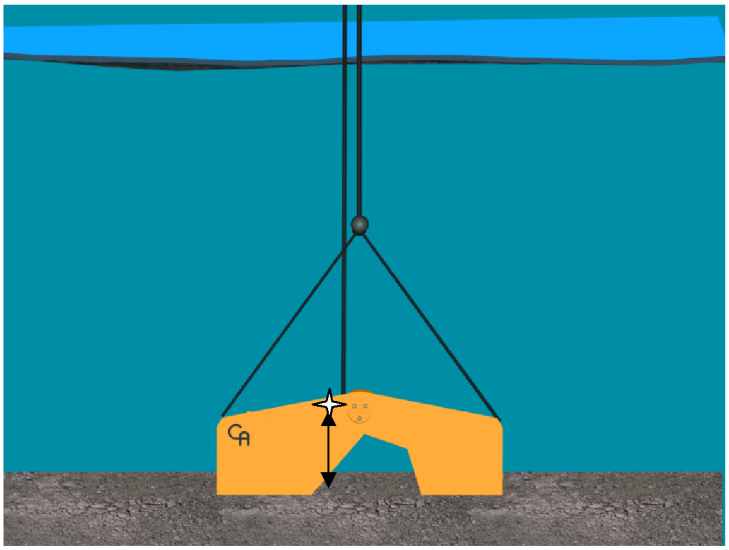
those mounting inaccuracies. Change the value in the **OFFSET** box to adjust the heading.

B. DEPTH

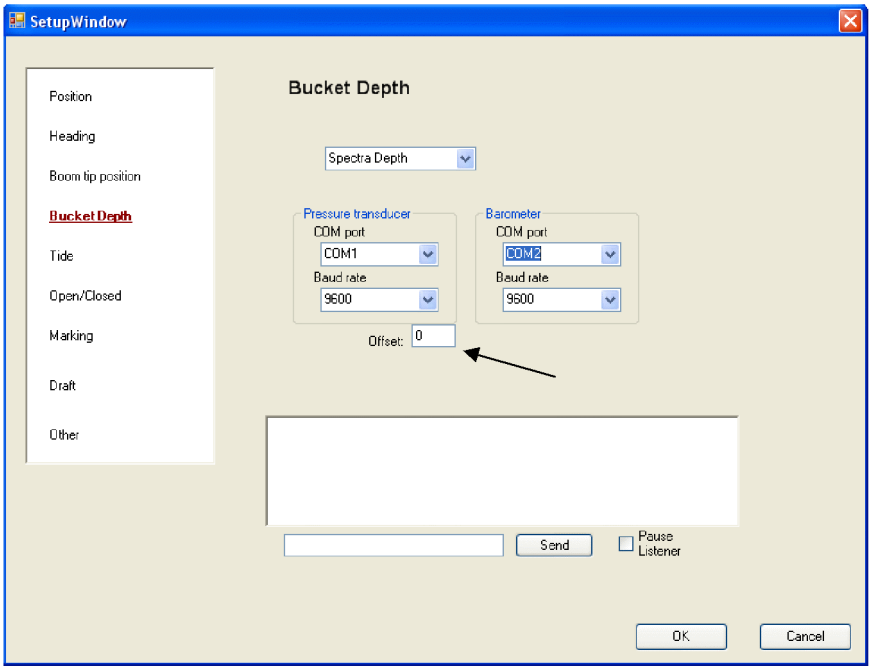
Cable Arm, Inc. offers two options for depth control. First is pressure depth. This method is the most accurate, +/-3in, but requires an imbulical to connect to the bucket. The pressure depth is recommended when accuracy is more important than production. The second method of depth control is a cable counting system. This system is less accurate but requires no attachments to the bucket. Cycle times will not be affected.

1a. Pressure Depth- The Spectre™ pressure/temperature sensor used to obtain accurate depth readings needs to be calibrated if moved from its mount on the bucket. If using a CableArm Level Cut™ bucket, calibration should be done with the bucket open. Others should be calibrated with the bucket closed.

1. Mount the sensor so that the threaded opening is pointing any direction but up. The sensor should be in the safest place possible.
2. Take a vertical measurement of the distance between the sensor and the cutting edge of the bucket.



3. In ClamVision™ disable the Tide driver through settings> hardware settings>Tide
4. Now select depth in hardware type. Below the com port settings there is an offset window. Enter the measurement from step 2 in this box. The value may be negative.

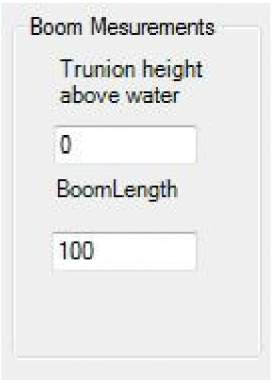


To verify accurate readings, mark 10' sections from the cutting edge of the bucket up to 30 or 40 feet. The sensor readings should match the marked intervals on the line. Make necessary adjustments to the offset value if needed. This process will also fine tune the barometer accuracy with the bucket sensor.

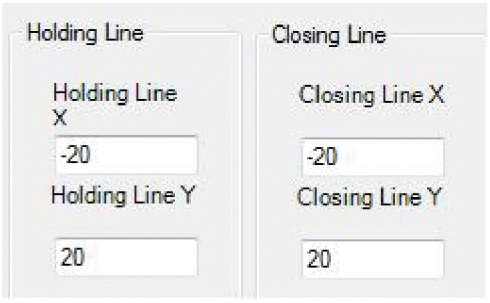
When a consistent and accurate reading is achieved calibration is finished. Remember that the bucket sensor only works when fully submerged underwater. Also remember to re enable the tide setting.

1b. Cable Counter Depth- Calibration of the cable counter depth system should be done once upon installation and again if any hardware is replaced. Under the UTILITIES menu open CABLE COUNTER CONFIGURATION.

1. First boom length and trunion height above water must be determined. This is the distance from the center point of the trunion to the end of the holding line and the trunion to the water line respectively.

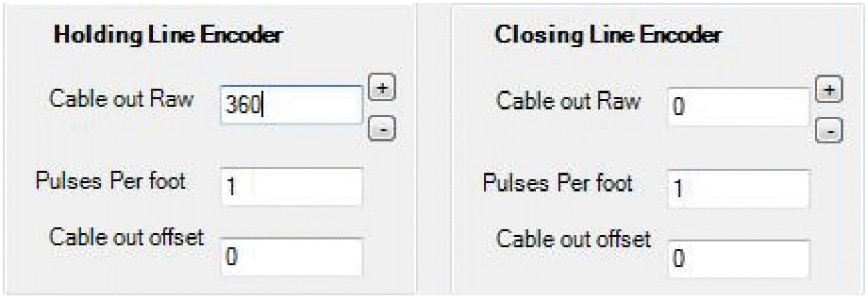


2. Next is the position where the holding line leaves the last pulley in the system in relation to the trunion point. An X value and Y value from the center point of the trunion is needed. The same measurements are needed for the closing line.



3. The boom angle must be determined either with the existing boom angle indicator on the boom or a separate angle measurement tool. After the angle is determined an offset can be set to match the sensor reading with the actual boom angle. The same process can be used for the deck angle. If an angle appears to be moving in the wrong direction the clockwise option can be used.
4. Next, the number of pulses generated from the encoder per foot of cable must be found. In ClamVision, set the pulses per foot to 1. Mark a distance (ex: 10 feet) on the cable. Zero the counters by power cycling them. Cable out raw should read 0. Move the cable the distance marked and divide the number in cable out raw by the number of feet marked on the cable, 10. This is the pulses per foot value. Use the same

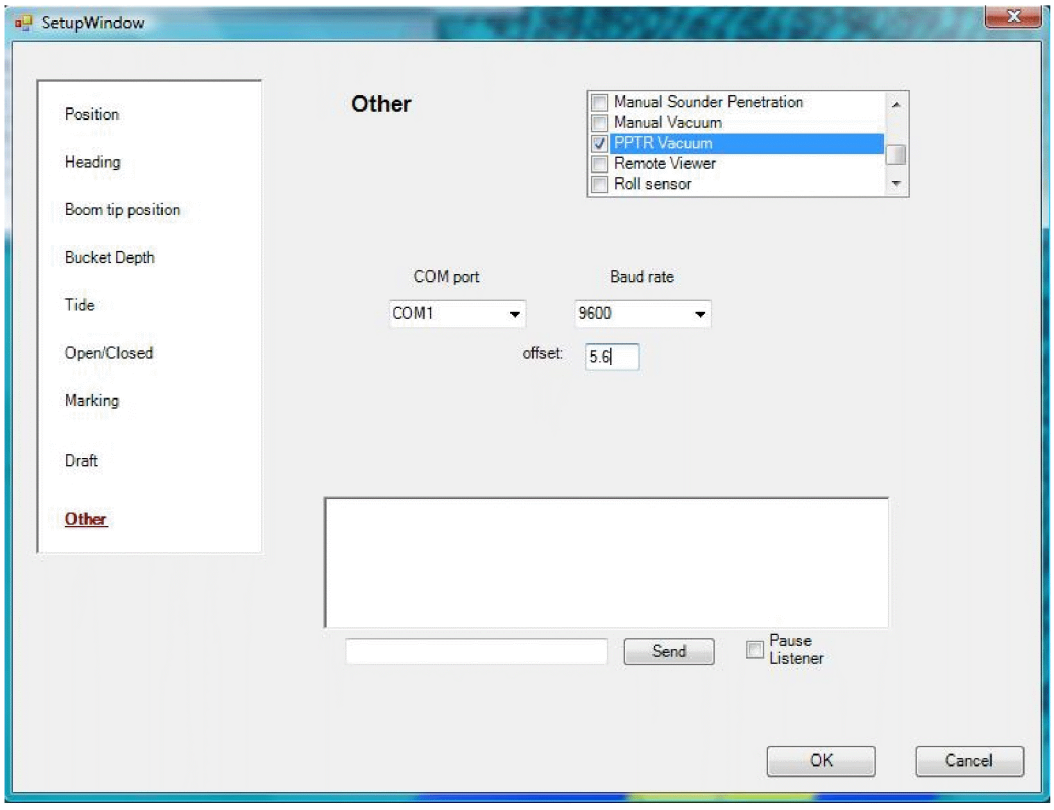
procedure for the closing line.



5. The last step is to zero the depth. With the bucket closed place the cutting edge at the waters' surface. Click the zero button either in cable counter configuration or on the keypad in the cab of the crane.

C. Others

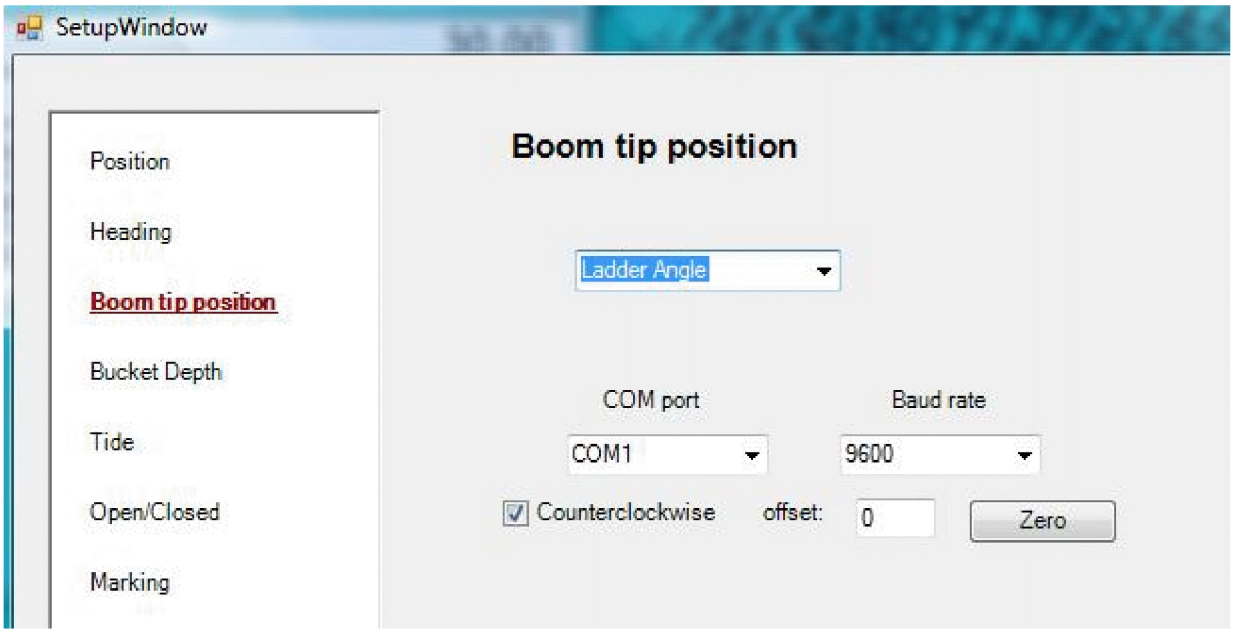
1a. Vacuum Sensors- Vacuum sensors are used in suction dredges to show the operator how much pressure is being used to suck material through the pipeline. Because it takes more suction pressure to move material than it does just water, the operator can determine if the cutter head needs to be lowered or raised. If the cutter head is too deep into material, access material can flow over the cutter head leaving it to be found by post dredge survey. The adverse is true with the cutter head being too high.



To calibrate the vacuum sensor adjust the offset in the field provided until the vacuum reading in ClamVision matches that of the physical gauge. The vacuum sensor info is located in **HARDWARE SETTINGS** then **OTHER.**

1b. Ladder Angle- ladder angle is used in suction dredges to measure the angle of the ladder. This combined with ladder length allows ClamVision to accurately show cutter head depth.

To calibrate the ladder angle, put the cutter head at the surface of the water. Click the **ZERO BUTTON.** Adjust the offset further if needed. Lower the ladder and match ClamVision readings to physical readings. If the ladder indicates in Clamvision that it is being raised when it is being lowered, check **CLOCKWISE** to reverse the angle output. Ladder angle settings can be found in **HARDWARE SETTINGS** under **BOOM TIP POSITION**.



1c. Draft- In **HARDWARE SETTINGS** under **DRAFT** use the offset box to enter a value that would correct the current reading.

1d. Tilt/Roll Sensors- In **HARDWARE SETTINGS** under **Tilt** or **Roll** use the offset box to enter a value that would correct the current reading.

1e. Cable Arm Tide Gauge- The tide gauge gives a tide reading on power up. Use the up/down arrows to set the correct tide.

6. TROUBLESHOOTING

PROBLEM	EXPLINATION	SOLUTION
BOOM TIP GPS TIMED OUT	NO DATA FROM THE BOOM TIP GPS RECEIVER TO THE COMPUTER	CHECK POWER ON ALL HARDWARE, CHECK DATA CONNECTIONS AT KEYPAD(SEE DATA SECTION ON CABLING), CHECK PROGRAMMING OF RADIOS AND GPS, CHECK HARDWARE SETTINGS IN CLAMVISION
NO BOOM TIP GPS SOLUTION	BAD OR INCOMPLETE DATA FROM BOOM TIP GPS TO COMPUTER	CHECK BOOM TIP ANTENNA AND ANTENNA CABLE, CHECK RADIO LINK, CHECK LOCATION OF BOOM TIP RADIO ANTENNAS. POSSIBLE OUTSIDE INTERFERENCE. POSSIBLE GPS RECEIVER ERROR
POS/HEADING GPS TIMED OUT	NO DATA FROM BARGE GPS TO COMPUTER	CHECK POWER,CHECK CONNECTION FROM GPS RECIEVER TO EDGEPORT/8, CHECK GPS PROGRAMMING AND MOUNTING, CHECK HARDWARE SETTINGS IN CLAMVISION POSSIBLE GPS RECEIVER ERROR
PORT OPEN FAILURE; CLOSE ALL PORTS	COM PORTS ARE FROZEN	RESTART THE COMPUTER
NO VIDEO IN OFFICE	NO SIGNAL FROM COMPUTER TO MONITOR	CHECK POWER. BE SURE THE CABLE FROM THE COMPUTER IS CONNECTED TO THE BLUE CONNECTOR ON THE TRANSMITTERS CABLE AND THE MONITOR TO THE PORT ON TOP OF THE TRANSMITTER. SET VIDEO RESOLUTION TO 1024X768. ***DO NOT UNPLUG POWER FROM UNIT!*** OUT OF RANGE. TURN TRANSMITTER ON FIRST THEN RECEIVER.
NO VIDEO IN CRANE	POSSIBLE SIGNAL INTERFERENCE	CHECK POWER. CHECK CONNECTIONS. SET VIDEO RESOLUTION TO 1024X768. POWER DOWN BOTH TRANSMITTER AND RECIEVER. WAIT TEN SECONDS THEN POWER UP TRANSMITTER.WAIT TEN SECONDS THEN POWER UP RECIEVER. ***DO NOT UNPLUG POWER FROM UNIT! USE THE AC WALL PLUG OR THE ACTUAL 12V SUPPLY.***

BARGE AND BUCKET IN WRONG POSITION IN CLAMVISION	BARGE HEADING MAY BE OFF, OR GPS POSITIONS DO NOT MATCH BACKGROUND FILES	MAKE SURE DATUM AND UNITS MATCH SURVEY. CHECK MOUNTING OF BARGE GPS RECIEVER AND ANTENNA(S). CHECK MEASUREMENTS IN DREDGE SETUP. ADJUST OFFSETS. POSSIBLE GPS RECEIVER ERROR.
BACKGROUND FILES WILL NOT IMPORT	CLAMVISION WILL THROUGH AN ERROR IF FILES ARE WRONG TYPE OR HAVE EXTRA INFORMATION IN THEM	MAKE SURE THE FILE IS A COMPATIBLE FILE TYPE. (Ex: .XYZ OR .DXF). FILES MAY NOT CONTAIN HEADERS OR FOOTERS. FILES MUST BE COMA DELIMITED. SOUNDING FILES MUST HAVE POSITAVE DEPTHS. FILES WITH MANY CIRCLES OR TEXT MAY HAVE ADVERSE AFFECTS ON CLAMVISION.
SURVEY COLORS ARE WRONG	IN ACCURATE REPRESENTATION OF SURVEY BACKGROUND	ALL DEPTHS MUST BE POSITIVE. CHECK COLOR SCALES
SYSTEM NOT MARKING BITES	WHEN THE MARKING BUTTON IS DEPRESSED BUT NO MARKS SHOW ON SCREEN	SET BOOM TIP GPS DRIVER TO *CRANE INTERFACE KEYPAD.* OPEN THE *SIMULATOR* UNDER THE *UTILITIES* MENU, THEN UNDER *BUCKET DEPTH* TYPE 0 AND LEFT CLICK *GO.*POSSIBLE BUTTON MALFUNCTION. MARK WITH KEYPAD
SOFTWARE ISSUES	SOFTWARE ISSUES	CONSULT SOFTWARE guide or call CABLE ARM, INC.

BUCKET TRANSDUCER TIMED OUT	NO DEPTH SENSOR COMMUNICATION TO THE COMPUTER	CHECK ENCODERS AND COUNTERS.CHECK HARDWARE SETTINGS, CHECK WIRELESS DATA LINK, CHECK IMBULICAL FOR TWISTS,SMASHES, CUTS, BREAKS
DEPTH READING DRIFTS	DEPTH VALUE STEADILY RAISES OR FALLS	REZERO THE TRANSDUCER. POSSIBLE DIRTY POWER. Call Cable Arm, Inc. for more info
SPERATIC READINGS FROM DEPTH SENSOR	WILL READ VERY HIGH NUMBERS FOR 1 TO 2 SECONDS THEN RETURN TO NORMAL	CHECK IMBULICAL FOR TWISTS,SMASHES, CUTS, BREAKS POSSIBLE SHORT CIRCUIT OR SENSOR MALFUNCTION
CANNOT FIND THE JOB	CANNOT SEE THE BCKGROUND FILES IMPORTED.	TURN OFF DEVICES THROUGH THE RUN MENU. ZOOM EXTENTS. CHECK MAP PROJECTIONS. ZOOM IN. IF MULTIPLE JOBS ARE ENTERED USE CENTER ON POINT.

ON THE WORK SCREEN		

Still having problems?

Call

Cable Arm, Inc.

Raymond Bergeron **734-676-6108**

Harrison Steves **734-752-8240**

Christian Steves **734-818-9785**

Kathleen Harrell **734-658-7537**

7. Bucket Depth System

Cable Arm Pressure Depth

Cable Arm uses pressure to control depth in real time. The following will explain how to setup depth control to an existing ClamVision® system. External antennas may come with the depth system but should only be used if necessary. Unpack the contents of the shipment and ensure that everything is there and in new condition. The efficiency of the install can be increased by reading through

the following before starting. Remember to turn power off before making connections. This guide will walk through the setup of the office side first then the crane.

For the office side you will need one data radio with antennas, one Barometer, and one DB-9 cable.

First mount the barometer near the 13.8V power supply and connect it to power. Plug the DB-9 pigtail from the barometer to an empty com port on the Edgeport/8. Record the com port number. Next mount the depth radio and external antenna if necessary. Use the DB-9 cable to connect the radio to an empty com port on the Edgeport/8. Record the com port number. Connect it to power. After completing all connections, turn the power on.

Turn the computer on and open ClamVision®. Under the *Settings* menu select **Hardware Settings**. Left click on **Bucket Depth**. In the dropdown box select **Spectra Depth**. Select the previously recorded com port for the barometer and pressure transducer. Both baud rates are 9600. When the rest of the hardware is setup correctly readings from the bucket sensor will display in the listener. Click **OK** at the bottom. Now under the **File** menu select **Save**. Now that depth is being controlled in ClamVision® the information on the screen can be modified to

accommodate. Refer to the sections on Bite Colors, Data Viewer, Operators Data View, and Project Depth Setup.

On the crane side you will need a pressure transducer, bucket embilical, upper shive, a cable reel, a slip ring, boom data line, RS-232/485 converter, null modem serial cable, and data radio w/ external antenna. ***All power to crane should be off while installing the depth system.***

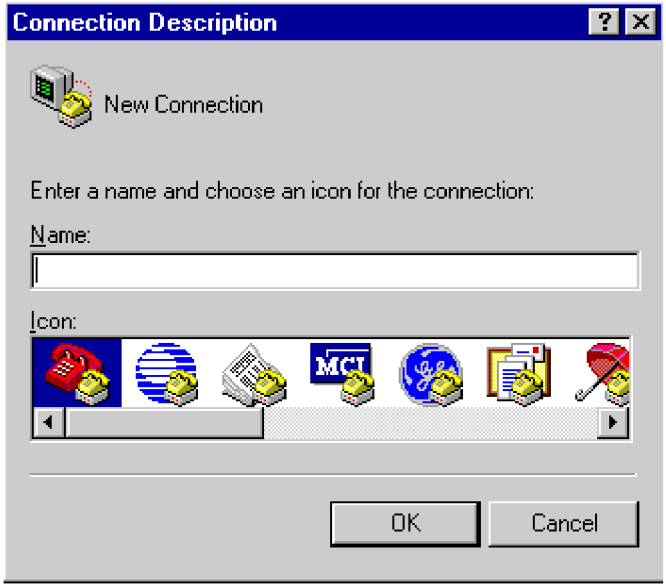
First mount the data radio and RS-232/485 converter inside either the inside the externally mounted enclosure or inside the crane cab. Configure the radio link using the Hardware configuration section of this guide. Use the Null modem serial cable to connect the data radio to the RS-232/485 converter. Next mount the cable reel no further than a quarter of the distance from the boom pin to the boom tip. Now run the boom data wire from the cable reel to the RS-232/485 converter. Follow the pin out guide for wiring. Now mount the slip ring on the cable reel in a way that allows only the movable side to spin. Next connect the slip ring to the bucket embilical and secure it to the cable reel. Wrap the imbilical aroung the wheel of the cable reel and tie off. Mount the upper shiv three quarters up the boom from the boom pin. Run the bucket embilical through the upper shive and secure it to the bucket. Mount the transducer parrell to the

cutting edge of the bucket and connect it to the bucket embelical. Power on system. If it doesn't work the first time check the troubleshooting section.

8. References

HyperTerminal

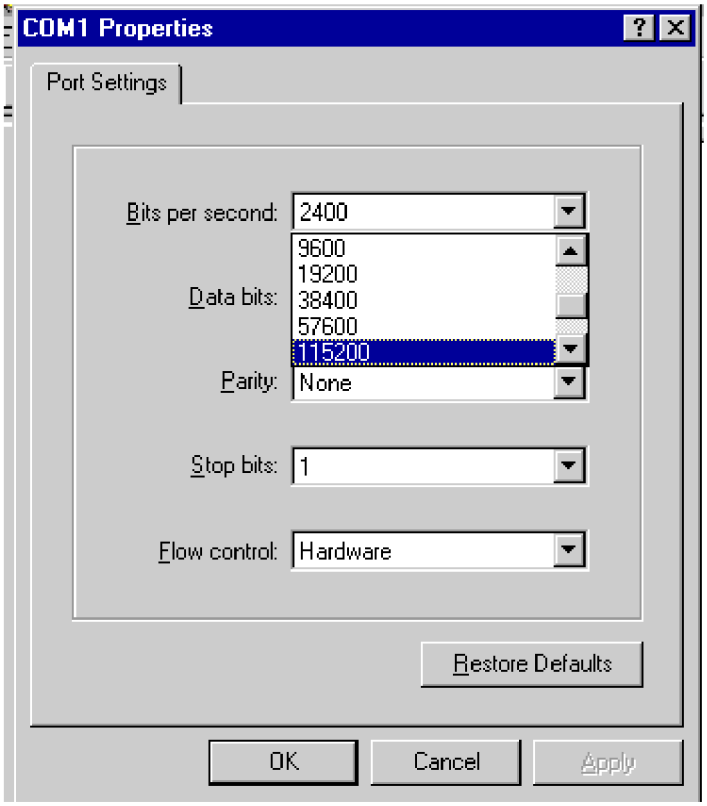
1. Start the HyperTerminal .exe program (*hypertrm.exe)*. Click on **START**, then **ACCESSORIES**, then **COMMUNICATIONS**, then **HYPERTERMINAL**, then chose the HyperTerminal entry that does *not* have an .ht extension.
(Note: Some versions of Windows have Hyperterminal is Accessories.)



2. This brings up this dialog. Enter a Name (like 'Direct-Com-1). Chose an ICON - whatever you wish. Click OK.

3. This dialog then appears. Click the selection arrow on the "Connect using" list box, and select the COM port your modem is connected to - ***not*** the modem name. When you select the COM port, the phone number to dial boxes is grayed. Click OK.

4. The COM port properties box comes up. For all hardware, make sure that you set the Bits per second to 9600, the data bits to 8, parity to none, stop bits to 1, and flow control to none. Click OK.

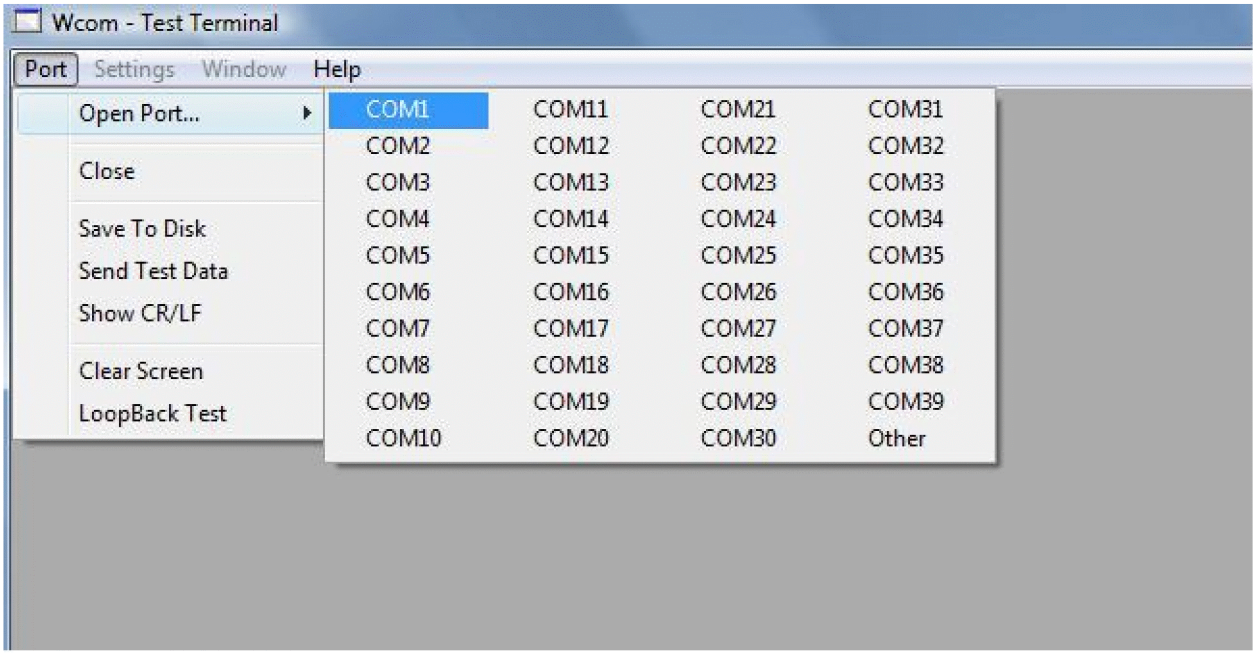


5. Now you have a white screen and are ready to issue commands to the device. When a command is entered you will not be able to see what you are typing. You will get a response if entered correctly.

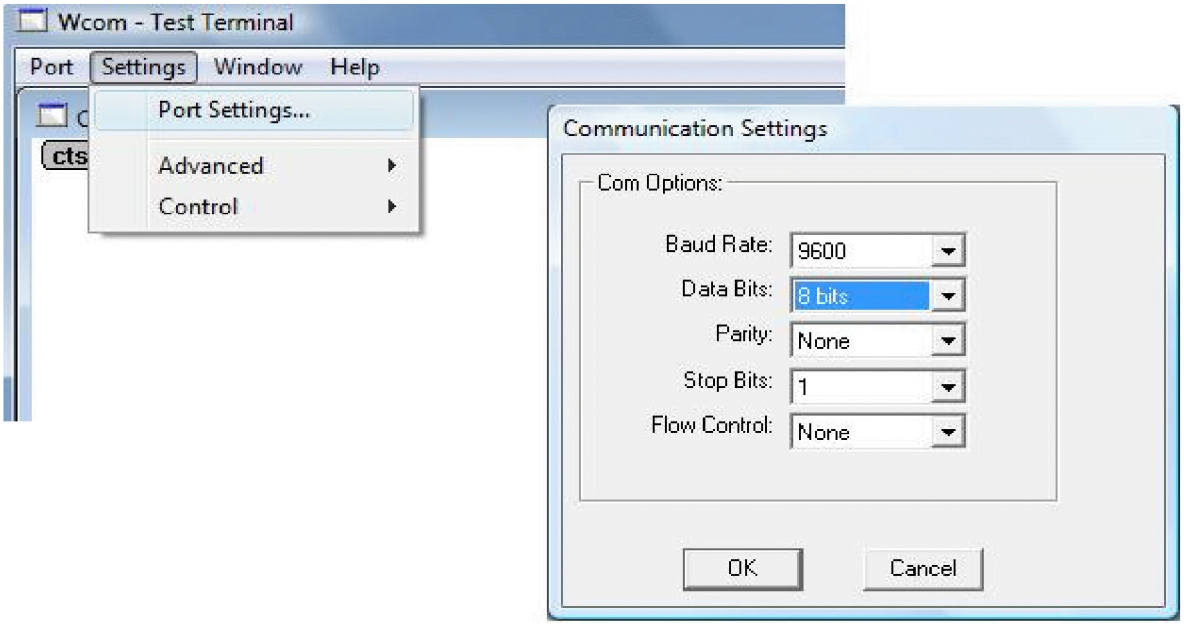
Wcom32

1. Double click the W-Com32 icon on the desktop to open the terminal.

2. In the "port menu" select "open port" and choose the com port number that your device is connected to.



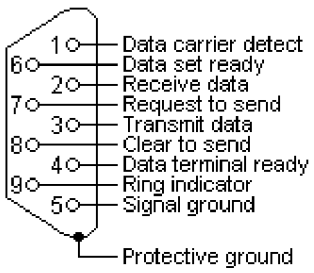
3. set the port settings to 9600 baud rate, 8 data bits, none for parity, 1 stop bit, and none for flow control.



4. Similar to HyperTerminal, when commands are given, only responses will show on screen.

RS 232 DB9 Connector Pinout

DB-9M	Function	Abbreviation
Pin 1	Data Carrier Detect	CD
Pin 2	Receive Data	RD or RX or RXD
Pin 3	Transmit Data	TD or TX or TXD
Pin 4	Data Terminal Ready	DTR
Pin 5	Signal Ground	GND
Pin 6	Data Set Ready	DSR
Pin 7	Request To Send	RTS
Pin 8	Clear To Send	CTS
Pin 9	Ring Indicator	RI



ClamVision System

1 Computer w/ power cord

1 ClamVision software key

1 mouse

1 keyboard

1 17” monitor

1 15” monitor

1 battery backup

1 12v dc power supply

2 Maxstream radios

1 Avocent Longview wireless video set

1 Edgeport/8 USB – Serial Adaptor

1 pos/heading GPS

1 positioning GPS

2 Wireless boxes

1 power converter for machine

2 power Distribution Junction Blocks

1 keypad w/ marking button and power cord

10 male to female DB9 serial cables (lengths vary)

1 boom GPS cable

2 rg58 N to rpsma boom GPS radio antenna coaxial cable

100’ of 2 conductor power wire

3 25’ VGA monitor cables

1 on/off toggle switch

Options

RTK GPS –

1 base station

1 rover GPS

2 differential radios w/ antennas and cables

Depth –

Cable Arm Cable Counter-

1 boom angle sensor

1 deck angle sensor

1 rotary encoder

1 counter box

1 zero button

wiring

Cable Arm Pressure Depth-

1 pressure transducer (bucket)

1 bucket umbilical

1 cable reel

1 slipring

1 boom cable

1 RS-485 to RS-232 converter

2 data radios w/ antennas and cables

1 barometer

Draft Sensors-

Pressure transducer

Wiring

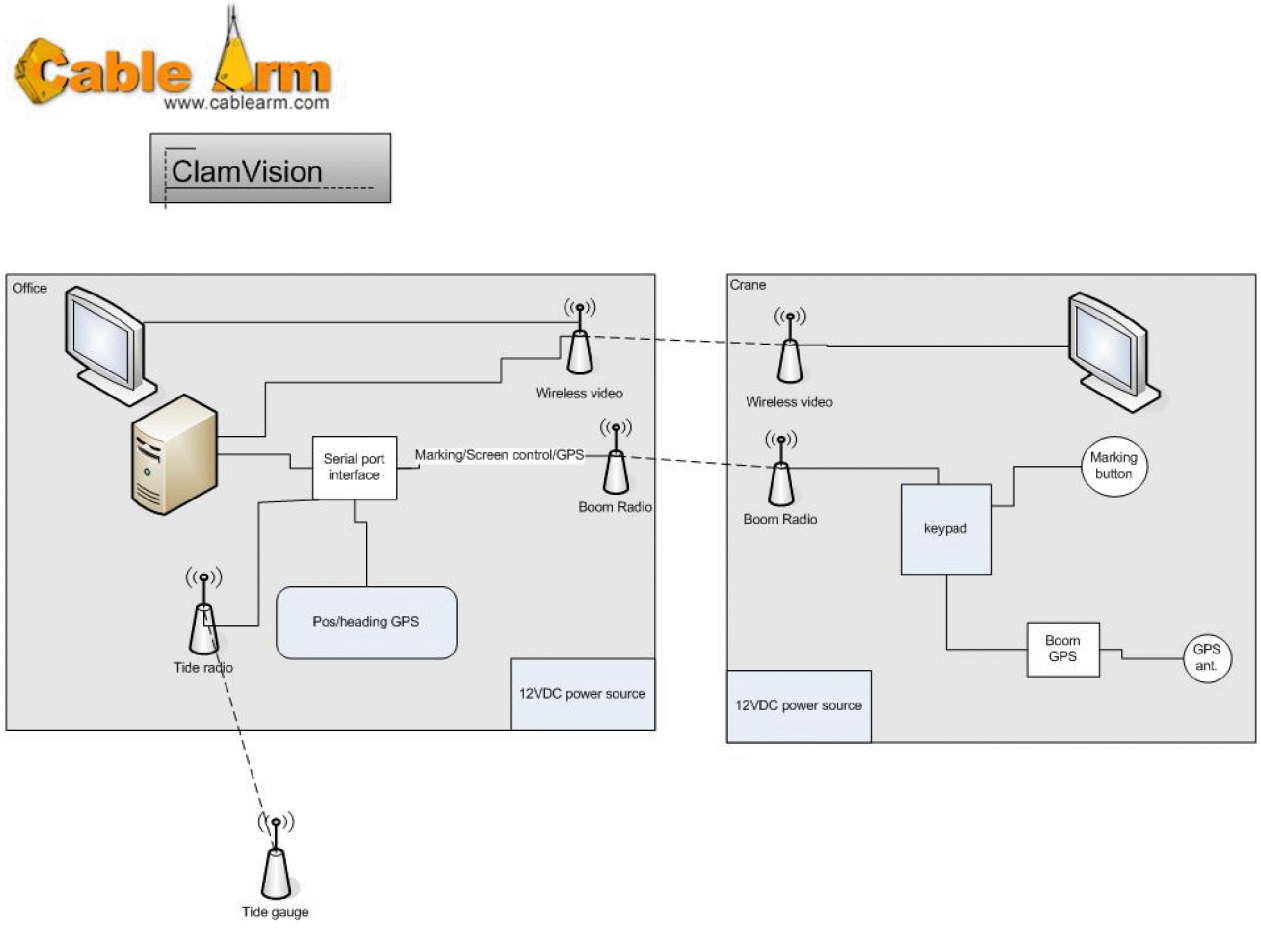
Pitch/Roll Sensors-

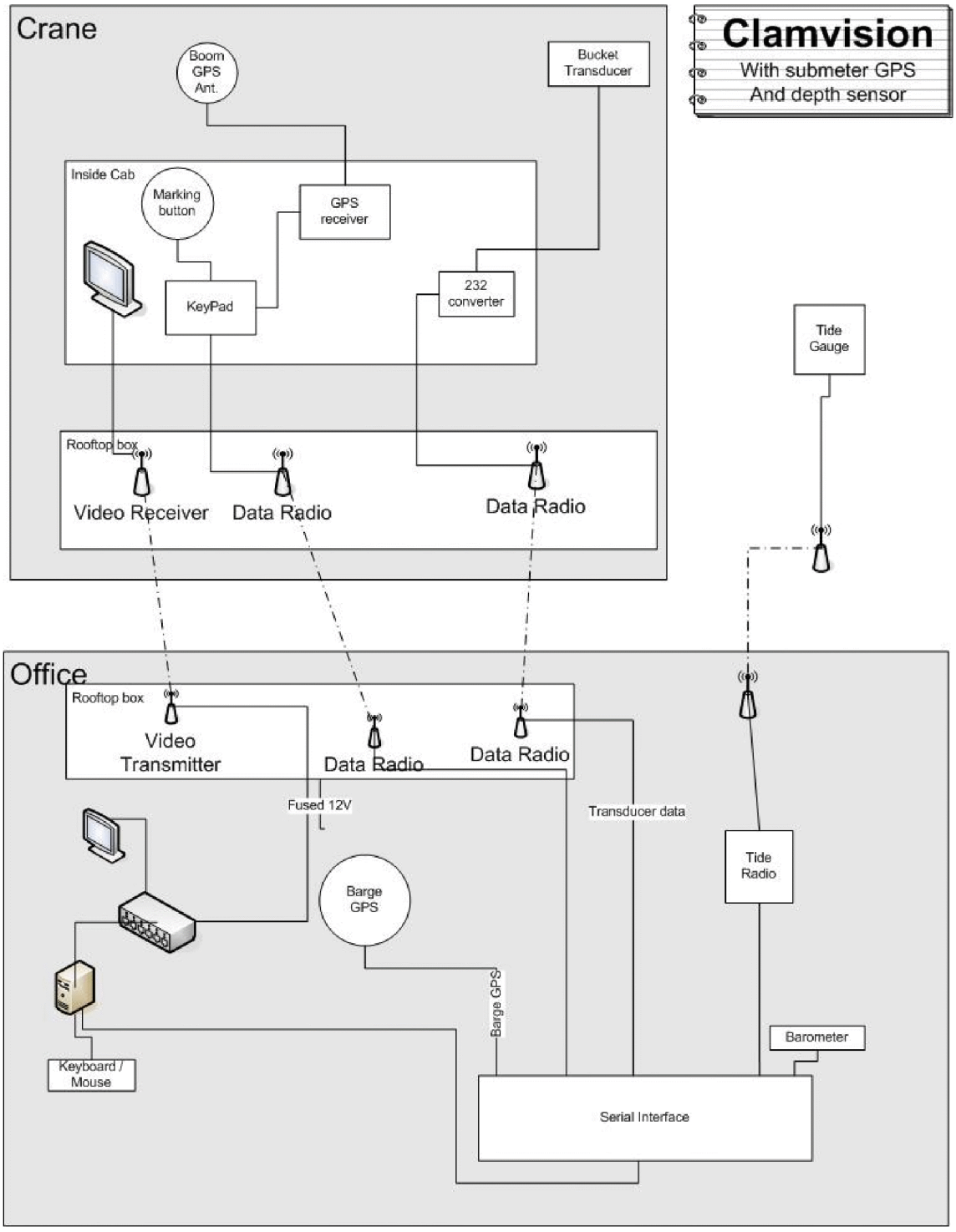
Angle Sensor

Wiring

Basic ClamVision System

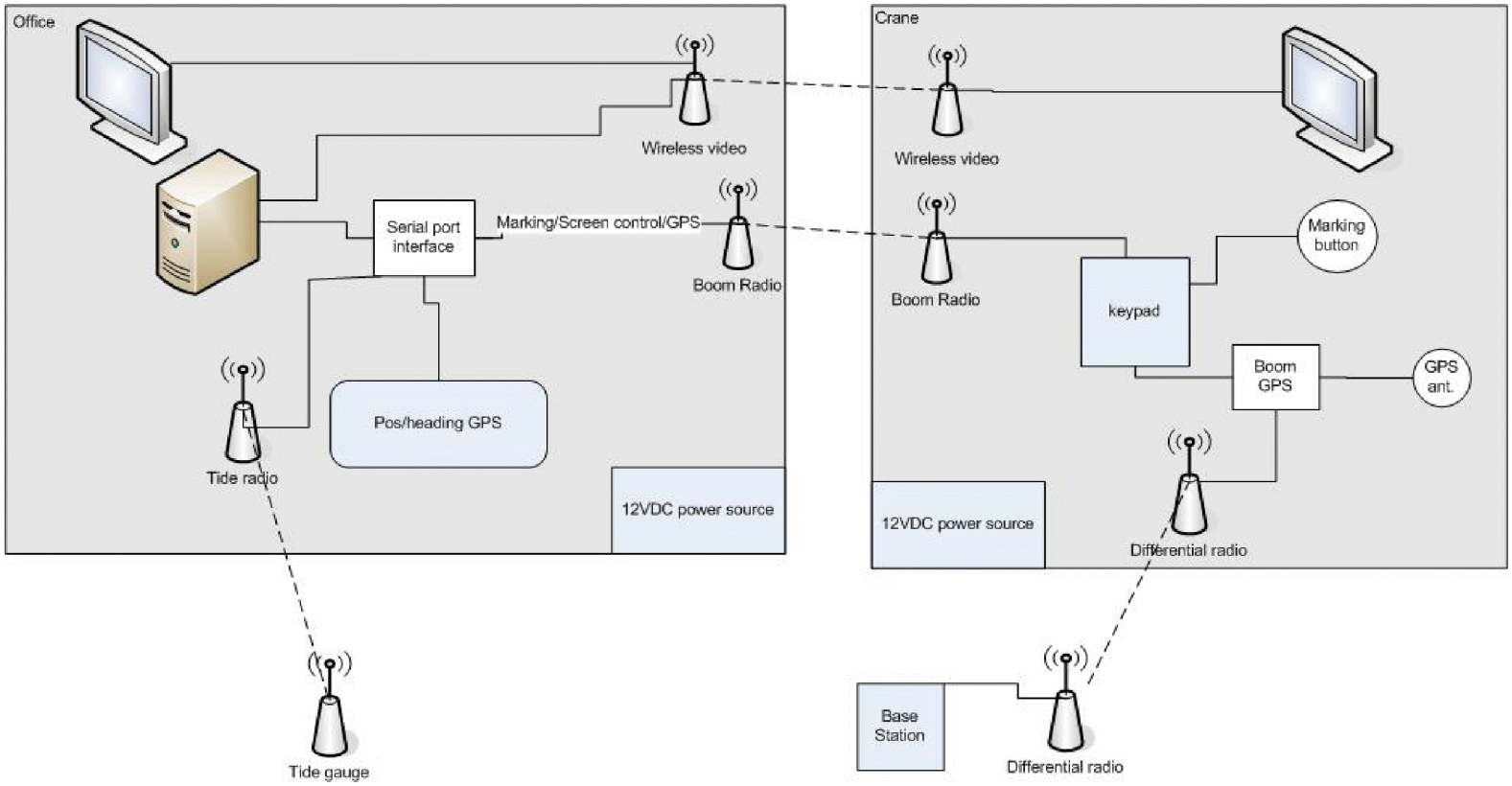
The diagrams below show the wireless signal path as well as the main hardware components of several ClamVision® systems. The option of a Cable Arm Tide Gauge is also included. As this configuration is the least complicated in setup and hardware, it can be built upon and added to as preferences or job specifications change. Like the Cable Arm Tide Gauge, other options are available. These include the ability to realize bucket depth by means of a pressure transducer or a cable counter method. We also offer various accuracies and types of GPS to suit different requirements. Sensors to record draft, pitch and roll on a barge are also available. In some cases the use of imaging sonar has proven an effective tool.




Crane
Boom GPS Ant.
Bucket Transducer
Clamvision
With submeter GPS
And depth sensor
Inside Cab
Marking button
GPS receiver
KeyPad
232 converter
Rooftop box
Video Receiver
Data Radio
Data Radio
Tide Gauge
Office
Rooftop box
Video Transmitter
Data Radio
Data Radio
Fused 12V
Transducer data
Barge GPS
Tide Radio
Barge GPS
Barometer
Keyboard / Mouse
Serial Interface

www.cablearm.com

ClamVision with RTK GPS



ClamVision® Specifications and Conditions of Sensors

Source: Communication between David Foster (Malcolm Pirnie, Inc.) and Steven Radel (Jay Cashman, Inc.) and Ray Bergeron (Cable Arm, Inc.)

Requested Information	Response
Description of the methods used to measure and record vertical placement of the bucket	December 5-6, 2005, Jay Cashman, Inc. and Cable Arm, Inc. used paint marks on chain to measure vertical placement. ClamVision® was used during the rest of the project.
Information regarding correlation between the ClamVision® bucket plots and the daily multi-beam surveys to assess horizontal accuracy	Bathymetric surveys were used to verify the vertical accuracy of the dredging operation. The horizontal positioning of the bucket was not measured because horizontal accuracy was not an objective of the Pilot Study.
Condition of the sensors pre-condition and post-condition	Sensors malfunctioned at the beginning of the Pilot Study. After December 6, 2005 at 5:35 pm, ClamVision® depth and bucket closure system were fully operational.

Description of Difficulties and Deviations from Work Plan

Source: Provided by Lisa Swann (Earth Tech, Inc.) – documented during the Environmental Dredging Pilot Study

Date [1]	Section/ Dredge Cells	Station	Total Dredge Time (Hours)	In-Situ Daily Volume Estimate (cy) [2]	Scow	Daily Ullage Scow Sediment Volume Estimate (cy) [3]	Estimated Production Time (cy/hr) [4]	Estimated Average Cycle Time (min:seconds)	Rinse Tank Sediment Estimates [5]	Variations from approved Work Plan	Operational changes in Dredge Technique	Other Considerations
12/5/2005	13' / Cells A2 -E2	0+05 - 2+77	7.25	942.26	SEI 3000	932.29	130	1:45	Clean Water - no measurement taken	ClamVision© depth and bucket closure systems not operational. Bucket chain marking method was used to estimate depth of sediment removal, based on operator judgment. Several overfilled buckets were observed during this period. Full depth of sediment removal was consistently achieved through one bucket pass in each dredge swing arc.	From 13:35 - end of shift, (Stas. 0+71 - 0+277), the Alex D tug was used to guide the rinse tank in order to minimize crane boom extensions. The sampling teams reported increased turbidity readings during this operation.(Reference Clamvision Rows 34-160)	
12/6/2005	11' / Cells A3 -C3	0+05 - 2+05	7.68	1012.28	SEI 3000	608.02	178	2:20	7.2 feet water, no measurable sediment; two buckets removed.	ClamVision© depth and bucket closure systems not operational. Bucket chain marking method was used to estimate depth of sediment removal, based on operator judgment. Several overfilled buckets were observed during this period. Full depth of sediment removal was consistently achieved through one bucket pass in each dredge swing arc.	Continued to use Alex D tug to guide the rinse tank.(Reference Clamivision Data Sheet Clamvision Data until 16:20)	Scow SEI 3000 transported to BioGenesis Washing BGW, LLC @ 16:50 hrs. Increased tug activity during this period.
12/6/2005	11' / C3 - E3	2+05 - 2+77		354.28	SEI 3000	162.14		2:50		Full depth of sediment removal was consistently achieved through one bucket pass in each dredge swing arc.	ClamVision© depth and bucket closure systems fully operational at 17:35 hrs, (Cell D-3, Sta 2+00) which increased cycle time due to operator orientation of the system. Less frequent overfilled buckets were observed upon full operation of the depth sensor equipment.(Reference Clamvision Sheet Dec 6 After 16:20)	Real-time Clam Vision data will provide more accurate cycle times. From 19:30-20:30 the dredge was moved to the 15' section, guide barge dismantled and rinse tank relocated to port side of dredge. Increase tug activity during this period.

SUMMARY OF DREDGING PRODUCTION DATA AND VARIATION FROM WORK PLAN
Prepared by Earth Tech, Inc.

Date [1]	Section/ Dredge Cells	Station	Total Dredge Time (Hours)	In-Situ Daily Volume Estimate (cy) [2]	Scow	Daily Ullage Scow Sediment Volume Estimate (cy) [3]	Estimated Production Time (cy/hr) [4]	Estimated Average Cycle Time (min:seconds)	Rinse Tank Sediment Estimates [5]	Variations from approved Work Plan	Operational changes in Dredge Technique	Other Considerations
12/7/2005	15' / A1 - B1	0+05 - 1+25	7.16	833.69	SEI 300	608.02	116	2:18	7 feet water, sediment less than 6 inches; two buckets removed	None noted	Rinse tank was moved to the port side of the dredge. Tug boat assistance no longer used to guide rinse tank. From 08:35 - 13:12 (Sta 0+00 - 0+64) operator revised dig technique by taking two passes per arc to achieve design depth. Observed increase in decant water in scow, however drain water was much less turbid. (Reference Clamvision Sheet December 7, Rows 6-96) From 13:15 - 15:40 (Sta 0+64 - 1+28) operator revised dig technique by taking one paa per swing arc to achieve design depth, with ~ 1/4 bucket overlap. Observed few over-filled buckets and decant water was much more turbid. (Reference Clamvision Sheet December 7, Rows 97 - 144)	Real-time Clam Vision data will provide more accurate cycle times.
12/8/2005	15' / B1-D1	1+25 - 2+00	4.43	486.31	SEI 300	445.9	110	2:42	6.5 feet water; approx. 1 foot sediment; two buckets removed	None noted	Dredge technique included taking two passes per swing arc to achieve design depth. Observed increase in decant water in scow, however drain water was much less turbid. (Reference Clamivision Data 12/8/06-entire sheet)	Real-time Clam Vision data will provide more accurate cycle times.
12/10/2005	15'/ D1-E1	2+00 - 2+85	5.25	521.52	SEI 300	363.8	99	2:00	6.5 feet water; approx. 1 foot sediment; two buckets removed	None noted	Dredge technique included taking two passes per arc to achieve design depth. Observed increase in decant water in scow, however drain water was much less turbid. Bucket drain "hang" time was increased to allow complete decanting in water column prior to dumping. (Reference Clamvision Data Sheet 12/10, entire sheet)	Real-time Clam Vision data will provide more accurate cycle times.

Notes:
1. No dredging was performed on 12/9/05 due to inclimate weather conditions.

2. Theoretical in-situ sediment removal volumes based on intermediate survey data performed by Jay Cashman, Inc. (JCI). Volumes were calculated by comparing post excavation survey after each dredge day versus pre-condition survey performed by Roger's (dated 11/28/05).

3. Ex-situ scow sediment volumes are based on a average of six depth soundings to sediment surface, freeboard water is not included in this estimate (see JCI daily Ullage reports).This method of of meaurement is considered highly subjective due to variation of measurements on a daily basis due to the load shifting between daily scow movement.

4. Production rates calculated based on in-situ sediment volume estimates (cy)/total dredge time (hours), as determined by intermediate survey data.

5. Based on visual observation - approximately 2 cy /day of rinse water was removed from the tank.

6. Daily dredge and sediment scow movements are presented on the daily JCI reports. It should be noted that the daily displacement tonnage is a measurement of the dispacment of water caused by the load and does not directly relate the the sediment volume. In order to guage an accurate tonnage of material transported in a scow it would necessary to obtain an accurate bulk density of the material.

ClamVision® Photographs

Source: Images provided by Steven Radel (Jay Cashman, Inc.)

	ClamVision® Software *Lower Passaic River Restoration Project*	Figure 1a February 2009

Bucket depth sensor

GPS receiver

Boom angle indicator

Barge GPS

GPS antennae

Barge GPS

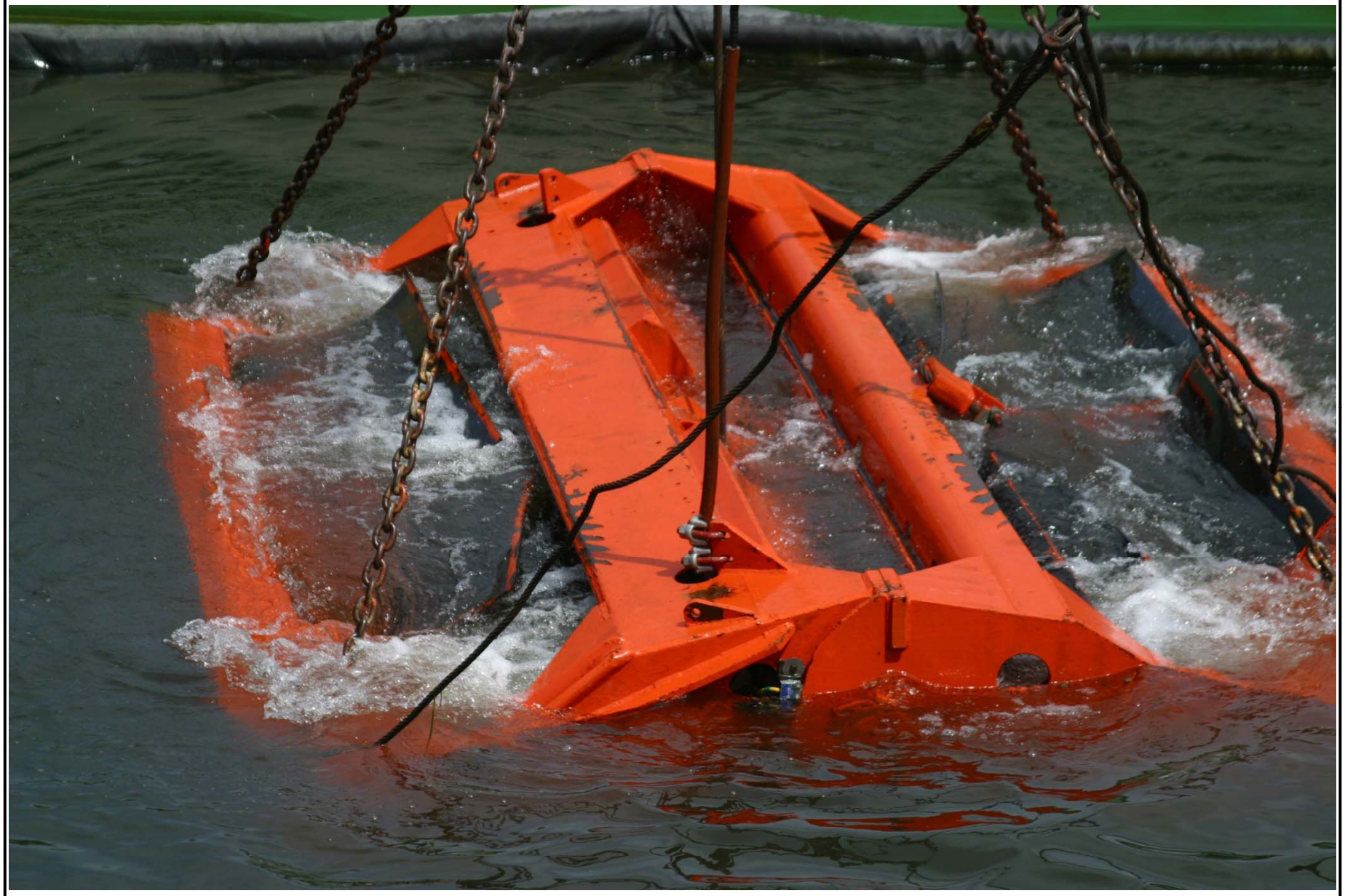
	System Components *Lower Passaic River Restoration Project*	Figure 1b February 2009

Cable Counter

Lower Passaic River Restoration Project

Figure 1c

February 2009



Dredging Switches Open

Lower Passaic River Restoration Project

Figure 1d

February 2009

Dredging Switches Closed

Lower Passaic River Restoration Project

Figure 1e

February 2009

GPS Specifications

Source: Jay Cashman, Inc. Final Completion Report (December 2005)

Source: Communication between David Foster (Malcolm Pirnie, Inc.) and Steve Raedel (Jay Cashman, Inc.) and Ray Bergeron (Cable Arm, Inc.)

Due to access issues associated with the base station site at 80 Lister Avenue (Newark, NJ) and radio interference, the proposed RTK GPS was not used during the Environmental Dredging Pilot Study. Instead, a functional GPS equivalent on-board the Wood I (R100 DGPS Receiver and Trimble AG132) was used as the primary system to determine the bucket positioning. Two sub-meters were used to double-check positioning.

No calibration records are available.
At the time, the bucket positioning was check with a point onshore.
Refer to attached brochure and operator manual.

Jay Cashman, Inc.
Pilot Study Final Report
Executive Summary

Jay Cashman, Inc. (Cashman) is pleased to provide this Final Completion Report for the Lower Passaic River Environmental Dredge Pilot Study, performed during the week of December 5, 2005. This report serves to provide the project closeout information required by the NJDOT pursuant to the Pilot Study project specifications. The Table of Contents summarizes the reporting requirements and includes additional data collected by Jay Cashman, Inc. during the Pilot Study.

The pre-dredge survey was performed by Roger's Surveying of Long Island, NY on Monday November 28, 2005. This work set the base line elevations for the pilot study project. Pursuant to the project specifications, the pilot study area was divided into three dredging areas, each area with a specified target elevation: 11 feet, 13 feet and 15 feet.

On Thursday, December 1, 2005 Cable Arm installed a previously tested base station at the 80 Lister Avenue site in Newark, NJ on a known benchmark to provide an RTK signal to the GPS unit on the Wood 1 dredge barge. Cashman intended to use this system as the primary system for the pilot study. Cashman's on board system equipped with a Trimble GPS antenna and a ClamVision navigational positioning system was to be used as a redundant or back-up system. As it turned out, and as described in more detail below, due to mobilization delays associated with the railroad swing bridge, access issues associated with the base station site and other issues, Cashman decided to use its on-board system as the primary system to determine bucket positioning.

The Wood 1 dredge, scows, guide barge and all other necessary equipment was mobilized to the site on Sunday December 4, 2005. Attempts were made to mobilize to the site on Friday, December 2, 2005; however the railroad swing bridge experienced a breakdown that forced the railroad to cancel future bridge moves until emergency repairs were made. Cashman moored its dredge equipment and scows downriver in a secure location until the bridge repairs were completed. These repairs were made early Sunday morning on December 4 and at approximately 1:15pm EST, Cashman moved its equipment into the Pilot Study work area to set-up for the work to begin on Monday December 5, 2005.

As described in more detail in the Pilot Study Work Plan, the dredging of the 11 and 13-foot areas was performed with Cashman's Wood 1 dredge winched to a guide barge. The guide barge was then used to move the dredge across the dredge area. The 15-foot area was dredged in the more conventional manner with a tugboat moving the dredge into the 15-foot area. All dredging was performed in an upstream to down stream manner.

The pilot dredging activities began on Monday December 5, 2005 with the Cashman Wood 1 dredge set-up over the 13-foot area, cabled to the guide barge. A tugboat was used to assist in moving the wash tank barge as necessary. The Cable Arm 8 yard environmental clamshell bucket was equipped with depth sensors to determine the depth

Crescent® R100 Series DGPS Receiver

High Accuracy, Multipurpose Receivers

Complete your work quickly and accurately with the Crescent R100 series DGPS receiver. Rely on consistent sub-meter performance with standard SBAS differential and Hemisphere GPS' exclusive COAST technology that maintains accuracy during temporary loss of differential signal. The Crescent R100 offers many differential correction options for various environments and worldwide coverage. The simple user interface and extensive software features make the Crescent R100 the ideal solution for professional mapping, guidance and navigation applications.

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The latest Hemisphere GPS products are powered by Crescent Receiver Technology, the future of precision GPS.

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- Feature-packed sub-60cm DGPS Positioning
- Differential options including SBAS (WAAS, EGNOS, etc.), Radio Beacon, OmniSTAR
- Exclusive e-Dif® option where other differential correction signals are not practical
- COAST™ technology maintains accurate solutions for 40 minutes or more after loss of differential signal
- Fast output rates of up to 20 times per second provide the best guidance and machine control
- Compatible with our exclusive L-Dif™ technology, for applications requiring accuracy under 20cm
- The status lights and menu system make the R100 Series easy to monitor and configure

Crescent® R100 Series DGPS Receiver

GPS Sensor Specifications

Receiver Type:	L1, C/A code, with carrier phase smoothing (Patented COAST™ technology during differential signal outage)
Channels:	12-channel, parallel tracking (10-channel when tracking SBAS)
WAAS Tracking:	2-channel, parallel tracking
Update Rate:	Up to 20 Hz position
Horizontal Accuracy:	<0.6 m 95% confidence (DGPS*) <2.5 m 95% confidence** (autonomous, no SA)
Cold Start:	60 s (no almanac or RTC)
Antenna Input Impedance:	50 Ω

Beacon Sensor Specifications

Channels:	2-channel, parallel tracking
Frequency Range:	283.5 to 325 kHz
Channel Spacing:	500 Hz
MSK Bit Rates:	50, 100, and 200 bps
Operating Modes:	Manual, automatic, database
Cold Start Time:	< 60 seconds typical
Reacquisition Time:	< 2 seconds typical
Demodulation:	Minimum Shift Keying (MSK)
Sensitivity:	2.5 µV for 6 dB SNR @ 200 bps
Dynamic Range:	100 dB
Frequency Offset:	± 8 Hz (~ 27 ppm)
Adjacent Channel Rejection:	61 dB ± 1 dB @ fo ± 400 Hz

Communications

Serial Ports:	2 full duplex
Interface Level:	RS-232C
Baud Rates:	4800, 9600, 19200, 38400, 57600
Correction Input / Output Protocol:	RTCM SC-104
Data Input / Output Protocol:	NMEA 0183
Raw Measurement Data:	Proprietary binary (RINEX utility available)
Timing Output:	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)

Environmental

Operating Temperature:	-32°C to +74°C (-25°F to +165°F)
Storage Temperature:	-40°C to +85°C (-40°F to +185°F)
Humidity:	95% non-condensing
Shock and Vibration:	EP 455
EMC:	FCC Part 15, Subpart B, Class B CISPR 22

Power

Input Voltage Range:	8 to 36 VDC
Reverse Polarity Protection:	Yes
Power Consumption:	3W
Current Consumption:	< 250 mA @ 12 VDC
Antenna Voltage Output:	5.0 VDC
Antenna Short Circuit Protection:	Yes

Mechanical

Enclosure:	Powder-coated aluminum
Dimensions:	160 mm L x 114 mm W x 45 mm H (6.3" L x 4.5" W x 1.8" H)
Weight:	0.54 kg (1.20 lb)
LED Indicators:	Power, GPS lock, DGPS position
Power Connector:	2-pin micro-Conxall
Data Connectors:	DB9-female
Antenna Connector:	TNC-male

Data Pin-out

Port A	
Pin 2	Transmit Data A (Tx)
Pin 3	Receive Data A (Rx)
Pin 5	Signal Ground
Pin 6	Event Marker
Pin 9	1 PPS Output
Port B	
Pin 2	Transmit Data B (Tx)
Pin 3	Receive Data B (Rx)
Pin 5	Signal Ground

* Depends on multipath environment, number of satellites in view, satellite geometry, baseline length (for local services) and ionospheric activity

** Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity

HEMISPHERE GPS
Corporate Headquarters
4110 - 9th Street S.E.
Calgary, AB T2G 3C4
Canada

Phone: 403.259.3311
Fax: 403.259.8866
Toll Free: 800.274.9190
info@hemispheregps.com
www.hemipheregps.com

1328 Parkway Court • Beavercreek • OH • 45432
Phone: (937) 426-2703 • Fax: (937) 426-1125 • E-Mail: info@NexSens.com
Visit us on the web at http://www.NexSens.com

Trimble AG132 GPS
Sensor Interface Manual
Revision 07.10.23

Table of Contents

About NexSens Technology, Inc.

NexSens software and real-time data logging systems are designed to simplify the setup and operation of environmental monitoring networks. NexSens products automate much of the tedious programming, data collection, and manual data processing common with other systems.

iChart is an easy-to-learn, easy-to-use Windows-based software program designed to interface with the industry's most popular environmental monitoring sensors and systems. A large multi-vendor instrument library makes setup quick and easy. iChart automates much of the tedious programming, data collection and manual data processing common with other environmental data collection systems.

The NexSens iSIC (Intelligent Sensor Interface and Control) is a state-of-the-art line of data loggers that simplify the collection of real-time data from environmental sensors and monitoring instruments. The iSIC data logger supports multi-vendor sensor connections and is designed for environmental data monitoring with NexSens communication equipment and software.

How to Use This Manual

This manual is designed to provide you with detailed instructions for interfacing specific sensors to the NexSens iSIC data logger.

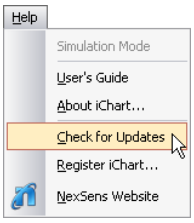
This manual provides you with all the information needed to interface your sensor with the iSIC data logger. For advanced system and sensor reference material:

- Review the material in the iSIC operations manual:
  - http://www.nexsens.com/support/manuals.htm
- Review the sensor manufacturer's operations manual. This information should have been provided with the purchase of the sensor. This material can also typically be found at the instrument manufacturer's website. If you are still having difficulty, email your technical support question to:

  support@nexsens.com

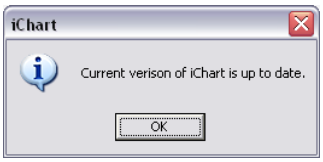
Keeping iChart Up to Date

NexSens periodically releases new versions of iChart software and iSIC firmware to be downloaded free of charge. The updated versions typically add new features, improve existing features, and/or add more reliability to the system. It is important that iChart is updated to the latest version before connecting a new sensor to your iSIC data logger. Your computer will require internet access to update automatically.



To obtain the latest version of iChart software, open the program on your computer. In the **Help** menu, select **Check for Updates.**

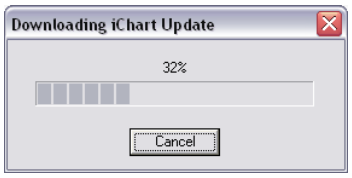
If your software is up to date, iChart will confirm that your computer is running the current software release.



If a newer version of iChart is available, a dialog box will appear asking if you would like to upgrade to download the update.

Click **Yes**. iChart will begin downloading the update.

Note: Depending on your connection speed, this update may take a few minutes. You can continue running other applications on your computer while the download is progressing.



When the update has finished the downloading process, click **OK** and close iChart.

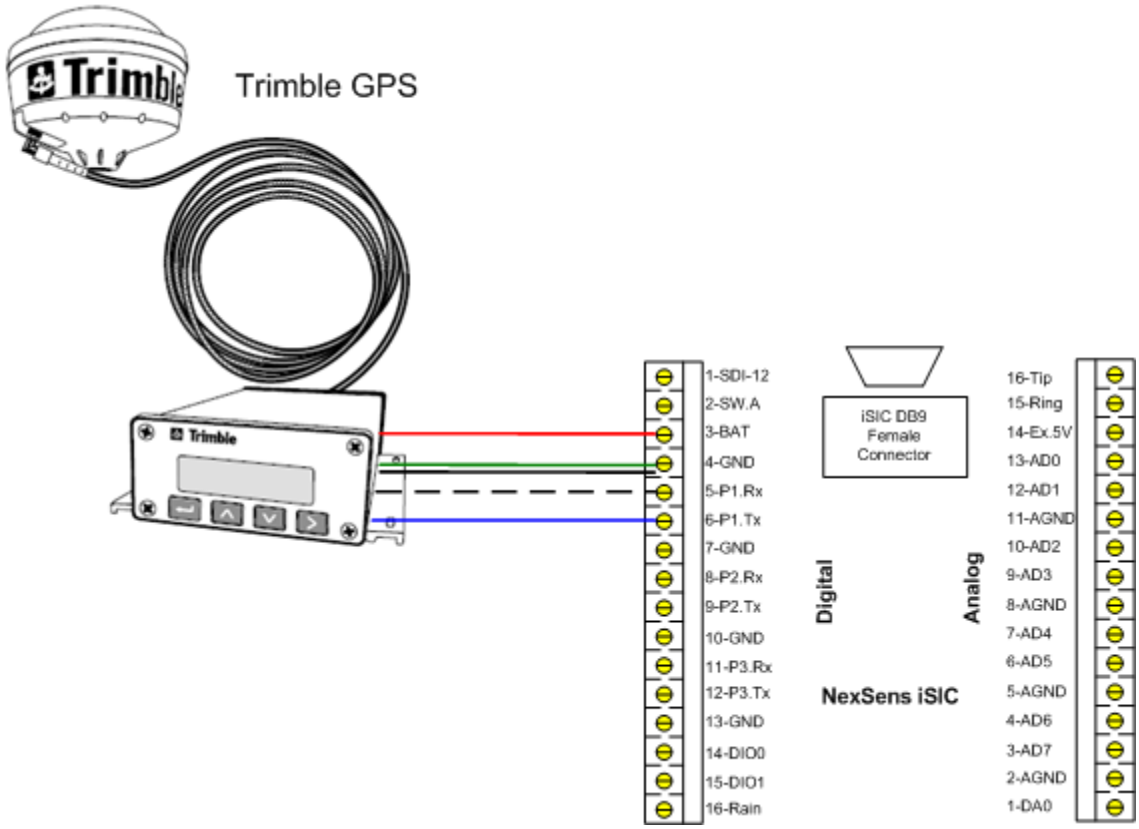
Reopen iChart. When the program opens, iChart will automatically begin the installation process. Follow the step-by-step installation windows to complete the iChart software update.

Note: If an internet connection is unavailable on the computer, iChart can be downloaded onto another computer and then moved to the computer where it needs installed. The latest version of iChart can be downloaded here:

http://www.nexsens.com/support/downloads.htm

Wiring

Trimble AG132	iSIC	Color
DB9 Pin 2	6-P1.Tx	White
DB9 Pin 3	5-P1.Rx	Blue
DB9 Pin 5	4-GND	Green
Power +	3-BAT	Red
Power -	4-GND	Black



The diagram above shows a Trimble GPS connected to Port 1 of the iSIC using a male DB9 to flying lead interface cable.

Up to three RS232 sensors can be connected to the digital terminal of the iSIC at one time. This number can increase two more by adding a factory installed Digital Expansion connector.

It is necessary that both the blue and white wires be connected to the Rx and Tx pins on the same port. For example, if you are adding second RS232 sensor to the iSIC, connect the blue and white wires to P2.Rx and P2.Tx respectively as shown in the diagram above.

When adding a third RS232 sensor, connect the blue and white wires to P3.Rx and P3.Tx respectively. Follow this wiring pattern for every RS232 sensor you interface with the iSIC.

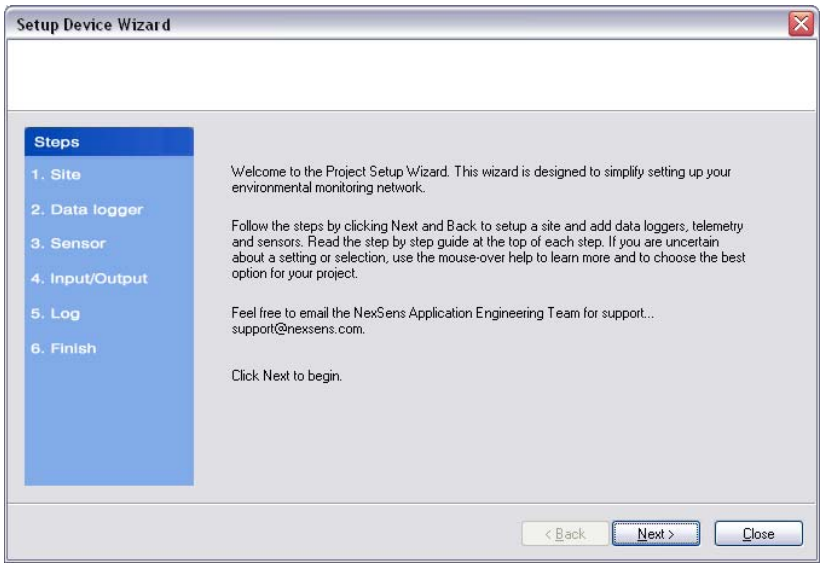
After connecting the flying lead wires, power the iSIC by connecting the red and black battery terminals.

Adding to iChart

Once all wiring is completed, the device is ready to be added to an iChart database. To add the device to an existing database, select **Instrument | Add Device**. To create a new database, select **File | New Project.**

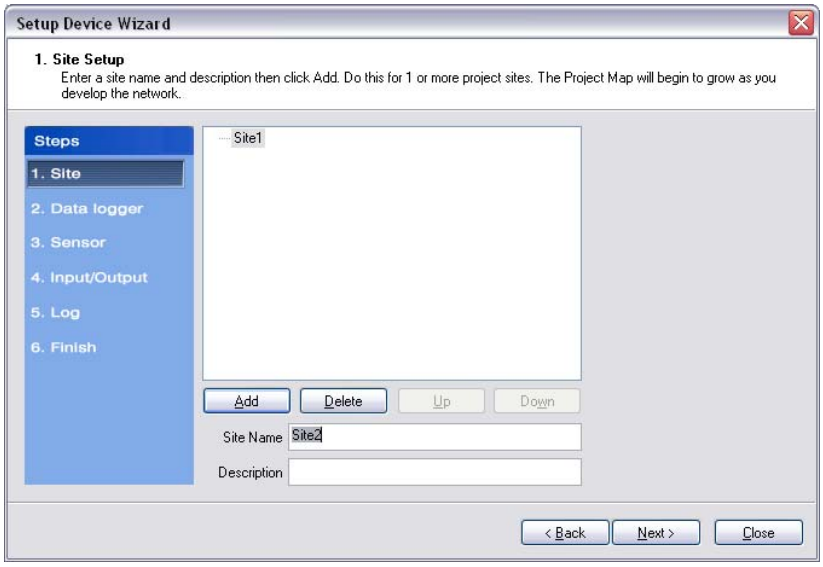
Setup Device Wizard

The Setup Device Wizard will begin. Click **Next** to continue.



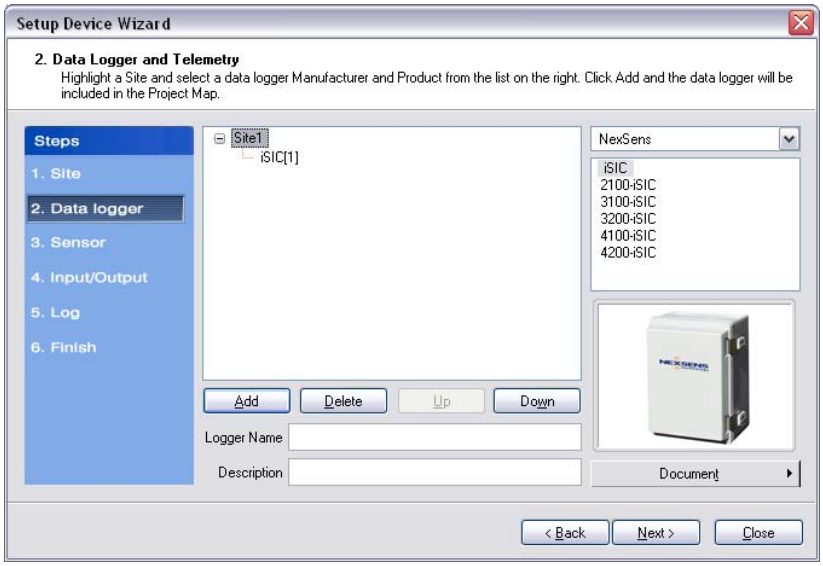
Step 1 – Site Setup

The first step is to create a site for data loggers and sensors to be located in. If this is an existing project, sites may already exist. Enter a **Site Name** and click **Add** or simply select a site that has already been added from the navigation list.



Step 2 – Data Logger & Telemetry

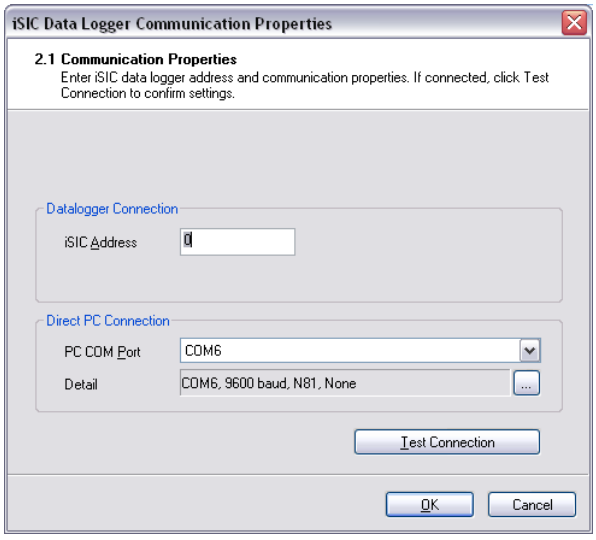
The next step is to add the data logger(s) to the sites created in the previous step. Select a site to add a data logger to. Then select the data logger model number from the list at right and click **Add** or select a data logger that has already been added from the navigation list, if simply adding the sensor to a data logger that has already been setup.



The **iSIC Data Logger Communication Properties** dialog box will appear. Enter the required iSIC data logger connection information (see below for model-specific instructions) to finish adding the data logger to the selected site. When complete, click **OK**.

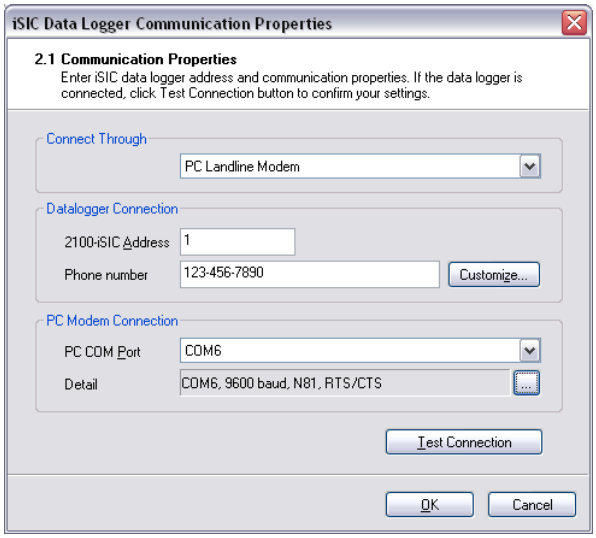
For an **iSIC** data logger, enter the iSIC address and select the PC COM Port that the data logger is connected to.

- The iSIC address is typically '1'. If unknown, enter '0' and click **Test Connection** to determine the address.
- The PC COM Port drop-down menu is the list of available COM ports iChart detected on the computer.



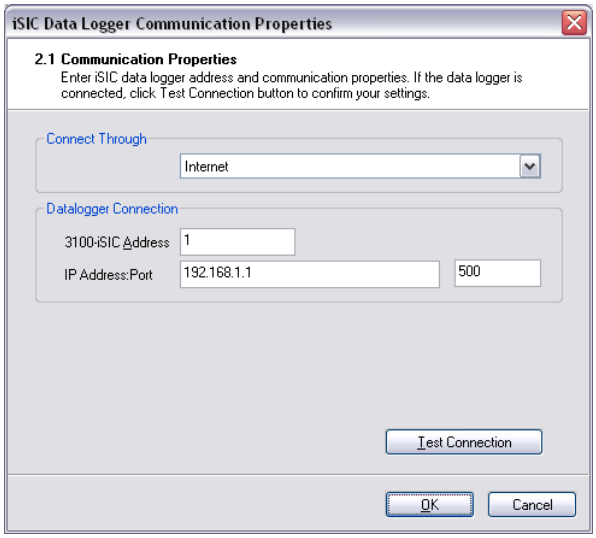
For a **2100-iSIC**, enter the 2100-iSIC address, phone number, and PC COM Port that the computer phone modem is connected to.

- The 2100-iSIC address is typically '1'. If unknown, enter '0' and click **Test Connection** to determine the address.
- The PC COM Port drop-down menu is the list of available COM ports iChart detected on the computer. Internal PC phone modems are typically set to COM3.



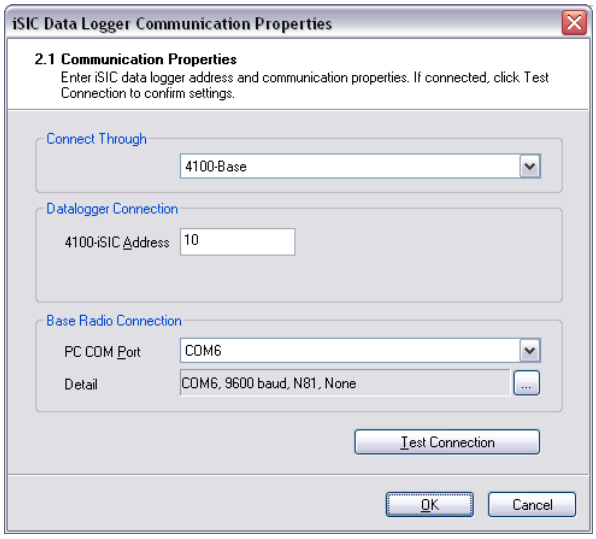
For a **3100-iSIC**, enter the 3100-iSIC address and the IP address of the data logger.

- The 3100-iSIC address is typically '1'. If unknown, enter '0' and click **Test Connection** to determine the address.
- The IP address is provided by the cellular service provider in which your cellular data account is setup. The port is set to 500 by default.



For a **4100-iSIC**, select the method in which the 4100-iSIC is connected to your PC and enter the 4100-iSIC address.

- A 4100-iSIC can connect to a PC through a 4100-BASE or a 4200-iSIC.
  - A 4100-BASE system connects to a PC via RS-232 cable.
  - A 4200-iSIC connects to a PC via landline telephone.
- The 4100-iSIC address is '1' by default.
  - If there is more than one 4100-iSIC in use, each 4100-iSIC should be programmed with different addresses (See the *4100-iSIC | iSIC Addressing* section in the iSIC manual).



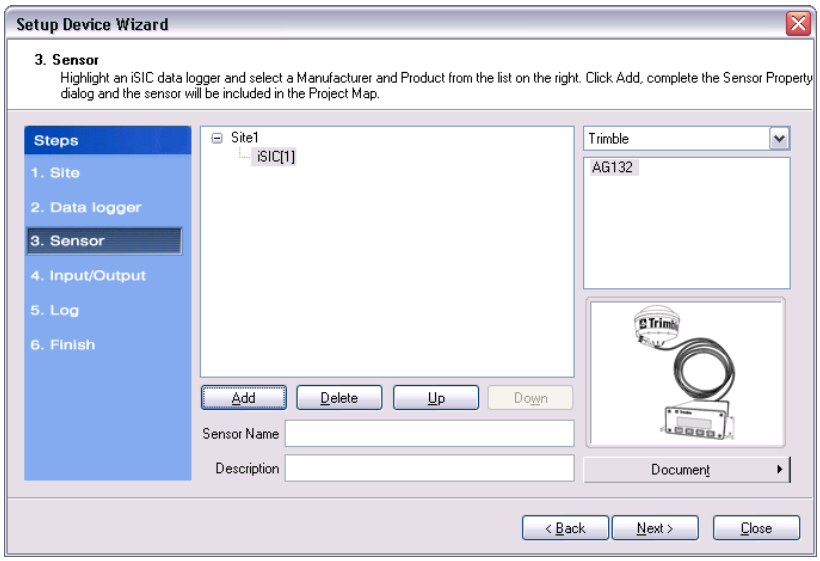
For a **4200-iSIC**, enter the iSIC address and PC COM port the data logger is connected to.

- The 4200-iSIC address is typically 250. When communicating with a 4200-iSIC, any communication using the 4200-iSIC address will be sent to the 4200-iSIC data logger.
  - Communications using any other address will be broadcast to any 4100-iSIC(s) in your radio network.

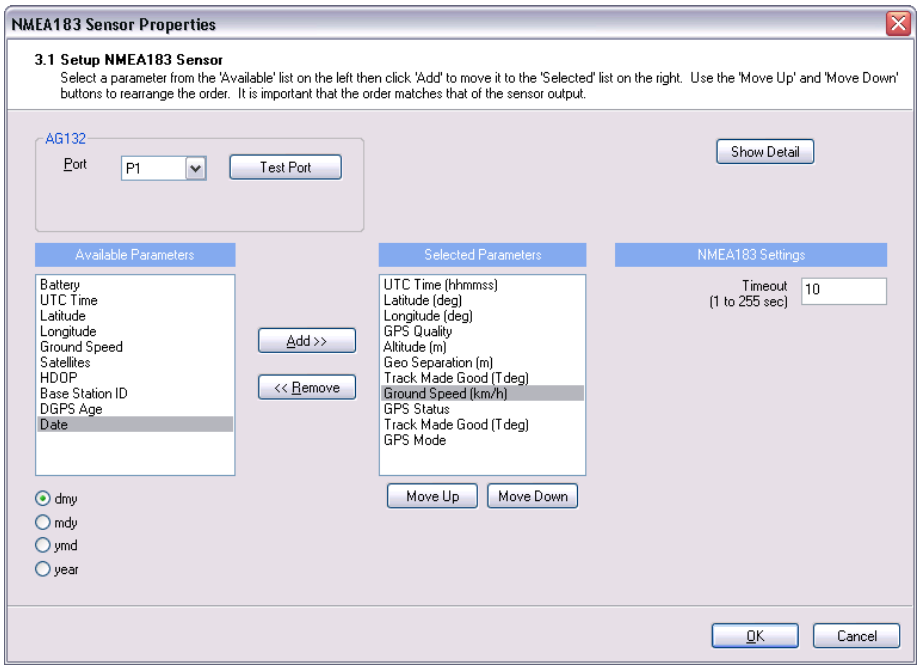
    Note: Do not use address '0' when communicating to a 4200-iSIC.
- The drop down menu of PC COM Port's is the list of available COM ports iChart detected on the computer. Internal phone modems are typically set to COM3.

Step 3 – Sensor

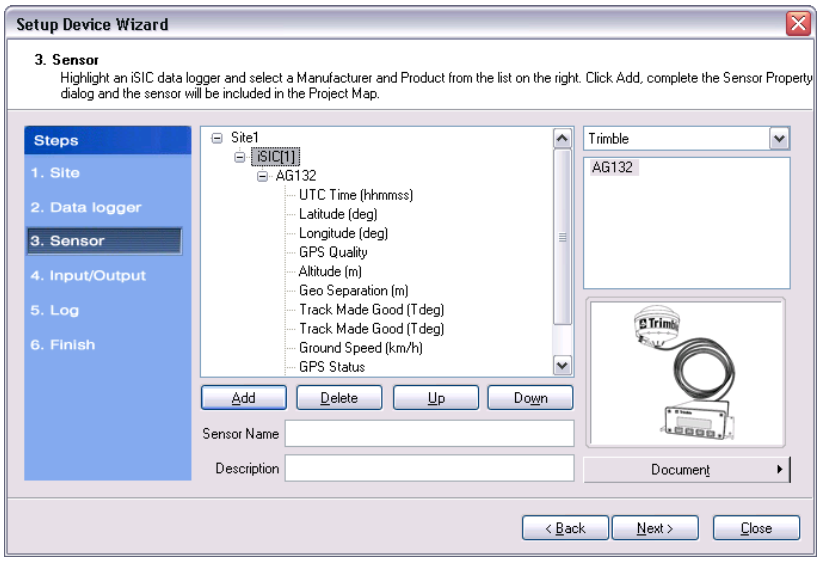
After selecting a data logger, click **Next** and select **Inficon** from the drop-down list of manufacturers. Then select the **Hapsite** model number associated with your device and click **Add**.



The **Sensor Properties** dialog box will come on the screen. From the **Available Parameters** column, move parameters to the **Selected Parameter** that you would like to log from the Trimble GPS.

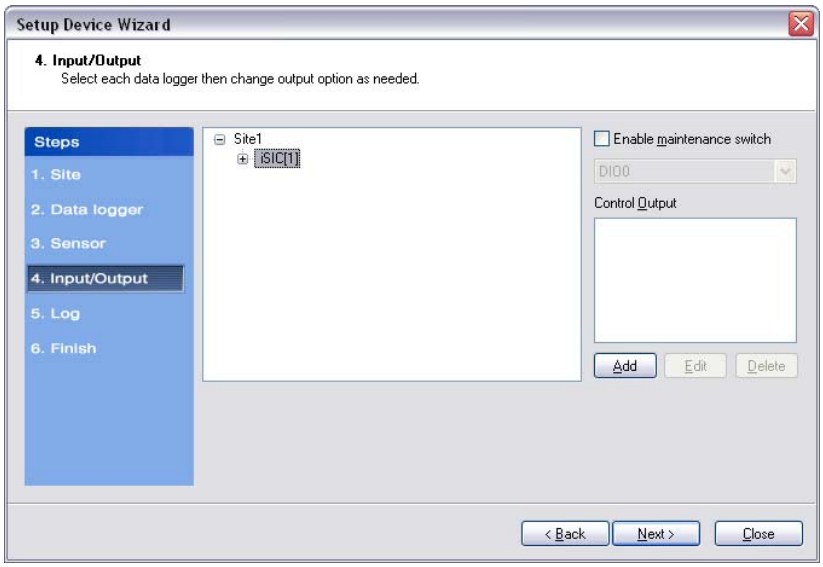


Click **OK** and the sensor will be added to the selected data logger. More sensors can be added at this time by selecting the sensor manufacturer and then sensor model number from the drop down menu on the right. Click **Next** when finished adding sensors.



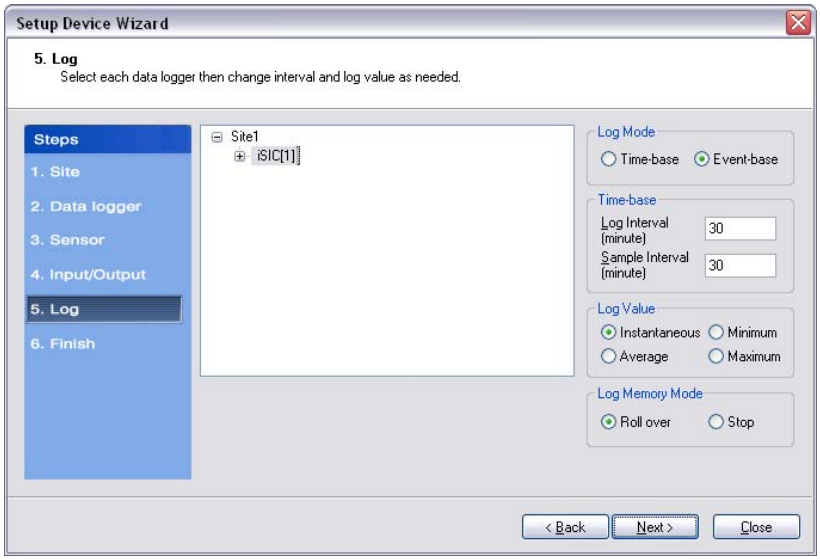
Step 4 – Input/Output

Enable any output and control features of the data logger. See the iSIC manual, section ***4.4.2 iSIC Controls*** for more information on this functionality.



Step 5 – Log

Select each data logger from the site list and enter the desired **Log Interval** and **Sample Interval** for the data logger in the **Interval** section. In the **Log Value** section, select how the data logger should log data points.



Log Mode

The Log Mode controls when data is logged by an iSIC. In **Time-base** (the default and most common), data is logged at a specified interval, controlled in the **Time-base** section. In **Event-base** log mode, data is only logged when a ground pulse is sent to the Rain input pin on the iSIC digital terminal strip (such as from the contact closure of a tipping bucket rain gauge).

Log Value

By default, the **Sample Interval** and **Log Interval** are equal. When a sampling interval is different than the log interval, all the sampled measurements for the iSIC are used to calculate the average, minimum, or maximum of that logging interval (based on the log type selected, only one can be selected at a time). The individual data points that comprise the samples are not saved; only the final, average, minimum or maximum data point is saved at the specified log interval.

Log Memory Mode

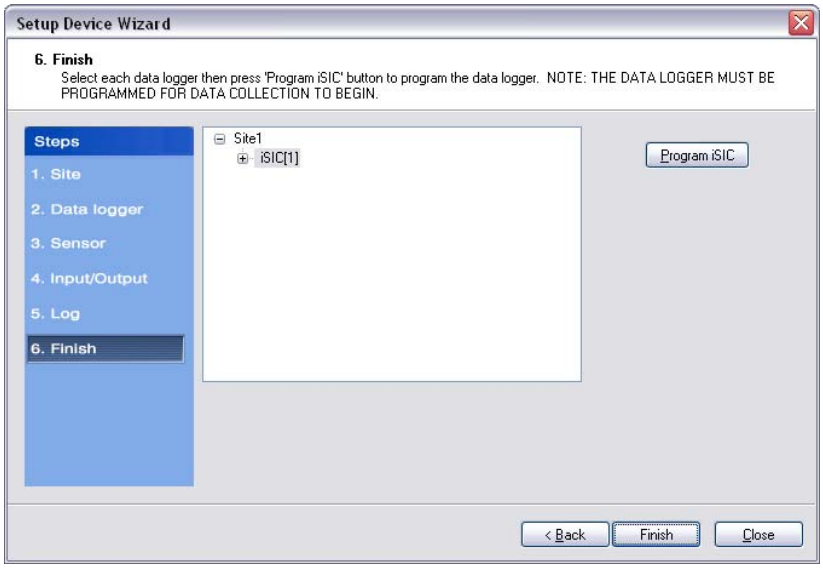
The default memory mode is **Roll over**, and is the recommended operating mode. In this mode, the last ~150K readings (when using 512K flash) will be stored in iSIC memory. When the iSIC memory has filled with readings it will "roll over" the original readings and keep logging. This is ideal for real time applications, where data is being uploaded to a PC as

In **Stop** memory mode, the first ~150K readings (when using 512K flash) will be stored in the iSIC memory. When the iSIC memory has filled with readings, it will stop logging until memory is cleared. When operating in this mode, it is recommended that memory is cleared every time data is uploaded.

Step 6 – Finish

All data loggers and sensors must be programmed before data collection can begin.

- Select an iSIC data logger and click the '**Program iSIC**' button. Before programming an iSIC:
  - The iSIC must be powered and connected to the computer.
  - The 2100-iSIC must be powered and connected to a phone line.
  - The 3100-iSIC must be powered and have a cellular data account.
  - The 4100-iSIC must be powered and be able to communicate to the computer through a 4100-base or 4200-iSIC
  - The 5100-iSIC must be powered and be able to communicate to the computer over Ethernet.
- Click **Finish** when programming is complete.



This wizard can always be revisited by selecting **Project | Setup Device Wizard** if you would like to program an iSIC at a later time or need to setup other sites, data loggers, and sensors.

Step 7 – Retrieve an Initial Data Set and Use the Instrument Within iChart

After your sensor has been added to the database, the main instrument control screen will appear.

Important: All parameters are initially displayed with blank values until after the first log interval has passed and data has been interrogated. Once data has been retrieved from the iSIC, these fields will show the most recent data set recorded by the instrument. By default, iChart will automatically interrogate devices five minutes after every hour.

[redacted]

Production Logs

[redacted]

Production Logs Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
10	Some of the problems with the EDPS production evaluation are described below: Lack of Standardized Dredge Production Form. A standard Daily Report of Operations form like that attached (ENG Form 4267), or similar form, was not used during the EDPS. Use of an industry standard dredge production form by the dredge contractor and the EDPS project engineering team is essential to ensure the collection of key delay performance information, thus allowing accurate production rates to be calculated for the project. According to the draft EDPS Report, the contractor or project engineering team did not measure and record detailed dredge production values for critical operational categories	Production Logs	Provided in binder.
11	Some of the problems with the EDPS production evaluation are described below: The CPG previously indicated in submitted comments that a detailed log of the dredging operations would be required to track and fully interpret monitoring data.	Production Logs	Provided in binder.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Production Logs

Source: Jay Cashman, Inc. Final Completion Report (December 2005)

Since dredging activities during the Environmental Dredging Pilot Study were not designed for navigational purposes, ENG FORM 4267 was not used. However, relevant production information requested on the ENG FORM 4267 is available on the four log sheets provided by Jay Cashman, Inc. (Daily Activity Summary, Daily Movement Log, Daily General Log, and Engineer Daily Report). An acronym list and corresponding definitions for Jay Cashman, Inc.'s logs are provided below:

PB = Port Bow
SB = Starboard Bow
PS = Port Stern
SS = Starboard Stern
STRB = Starboard
DMG = Distance Made Good
XTE = Cross- Track Error
BIT KP = Center pin of the crane (or excavator) chainage/location along the center line
TIDE = Tide
CRZ =Contamination Reduction Zone
ASP* = Health and Safety Plan
HPU = Hydraulic Power Unit

Note that the production logs provided by Jay Cashman, Inc. do not document the weather conditions during dredging operations. A table of weather conditions (as reported for Newark, New Jersey) is attached.

*ASP was determined to be a typographical error and should have been recorded as HASP (Health and Safety Plan).

Temperature and Wind Speed Data

Date	Temperature Average (^{o}C/^{o}F)	Wind Speed Average (miles per hour)	Wind Direction
5-Dec-08	0.4/32.7	2.3	West-Southwest
6-Dec-08	0.5/32.9	5.3	West-Northwest
7-Dec-08	-1.8/28.7	7.7	West
8-Dec-08	-2.4/27.7	5.2	West-Southwest
9-Dec-08	-0.1/31.9	6.9	West-Northwest
10-Dec-08	-1/30.3	4.9	South

Source: Weather Underground, www.wunderground.com

JAY CASHMAN, INC.

PASSAIC RIVER

DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/5/2005**

Scow	**SEI-3000**	**Cut**	**A-2-E-2**	**DMG**	**30**	**XTE**	**172.3**
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	

START TIME	STOP TIME	ACTIVITY
0630		Cashman crew and Cable Arm staff on board dredge on site
		awaiting Cable Arm equipment setup / Cashman crew cut out counter
		weight in cable arm bucket / Electronics test / Bucket test
	1050	Put wash barge ahead / Crane computer still not operational
1050	1115	Start loading scow SEI-3000
1115	1150	Stop due to Clam Vision problem, changed fuse OK
1150	1245	Continue loading scow SEI-3000
1245	1300	Stop due to chain for tag line
1300	1845	Continue loading scow SEI-3000
1845	1900	Stop due to Cable Arm sensor wire to bucket
1900	1910	Complete 13 foot cut # from A-2 to E-2
1910	2000	Boom crane down in order that Cable Arm techs can repair system

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY MOVEMENT LOG

DREDGE: **WOOD ONE** DATE: **12/5/1900**

TIME	DMG	XTE	TIDE	BIT KP	REMARKS
1050	+30	172.3	6.5	0	**START LOADING SEI-3000 (cell A-2 start)**
1115					**STOP DIGGING DUE TO CLAM VISION TROUBLESHOOT**
1150					**CONTINUE LOADING (Cell A-2)**
1215	+65	174+46	5.9	30	**MOVE BACK (Cell A-2)**
1245					**STOP DIGGING DUE TO CHAIN FOR TAG LINE**
1300					**CONTINUE LOADING**
1310	+89	169.78	5	48	**MOVE BACK (Cell A-2)**
1400	1+09	176.42	3.9	71	**MOVE BACK (Cell A-2)**
1425	1+30	174.33	3.3	87	**MOVE BACK (Cell A-2)**
1445	1+50	176.69	2.8	1+05	**MOVE BACK (Cell A-2)**
1515	1+73	176.64	2.3	1+33	**MOVE BACK (Cell B-2)**
1540	1+93	178.36	1.8	1+50	**MOVE BACK (Cell B-2)**
1610	2+13	171.79	1.4	1+71	**MOVE BACK Dredge Cell B-2/C-2)**
1640	2+31	173.34	1	1+94	**MOVE BACK (Cell C-2)**
1720	2+56	179.26	0.7	2+10	**MOVE BACK (Cell C-2)**
1745	2+76	172.38	0.5	2+35	**MOVE BACK (Cell C-2/D-2)**
1810	3+06	174.5	0.8	2+58	**MOVE BACK (Cell D-2)**
1830	3+36	175-34	0.8	2+76	**MOVE BACK (Cell E-2)**

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY GENERAL LOG

DREDGE: **WOOD I** DATE: **12/5/2005**

Daily Safety Meeting

Topic	Attendees
Setting up CRZ zone and exclusion zones.	Stu Chandler ASP
Meet with crew, discuss dress out and safety awareness.	Rich Barber
Meet with crew, review decon procedures.	James Barnes
	Harry Ellis
	Anthony Kurley
	Carl Stewart
	Anthony Carbone

DREDGE CREW ON SITE

PERIOD	NAME	CLASS	HOURS
MIKE LEWIS	20% HAZ MAT	OPERATOR	0600-2000
MIKE ALLEN		ENGINER	0600-1700
CARL STEWART	20% HAZ MAT	ENGINER	0600-2000
ANTHONY CARBON	20% HAZ MAT	MATE	0600-2000
RAFAEL CAMACHO		MATE	0800-1700
HARRY ELLIS	20% HAZ MAT	DECKHAND	0600-2000
JAMES BAUER	20% HAZ MAT	BOATMEN	0530-2000
ANTHONY KERLEY	20% HAZ MAT	MATE	0600-2000

SCOW LOG

SCOW	PB	SB	PS	SS	VOLUME	TUG/DESTINATION
SEI 3000					932.29	In use

JAY CASHMAN, INC.

ENGINEER DAILY REPORT

DREDGE Wood 1 DATE 12/5/2005

PROJECT Passaic River JOB# 05-020

SHIFT	0600 / 1800		
ENGINEER	CARL STEWART		
CAPTAIN			

MAINTENANCE OF EQUIPMENT
Swap generators 0600 hrs
Assist crew in putting wires on barge
Fuel mobile crane on assist barge
Repair controls on Bosco
Assist Cable Arm techs
Hook up emergency wash sink
Put all soft lines away
Make brackets for reels
Assist in moving lockers down below
Change electrical outlets
Add 2 gallons atf oil to stering on Bosco

EQUIPMENT SERVICED - FUEL, OIL, GREASE

LIST OF PARTS & TOOLS CONSUMED (W/ PART #)

EQUIPMENT HOURS & FUEL, OIL QUANTITIES	
FUEL SOUNDINGS	
MAIN TANK	GALLONS
START	1570
TRANSFERRED	624
RECIVED	
FUEL ON BOARD	941
OIL SOUNDINGS	
LOCATION	
	GALLONS
TOTAL OIL:	
HOUR METERS	HOURS
EQUIPMENT	
PORT GEN SET	13039
STAR. GEN SET	15157
HPU	1,675
LIMA 2400	3773
WINCH	2337
WELDER	574
EDDIE CARROL	
SEI-2000	
MIGHTY QUINN	
BOSCO PORT	
STRB.	

JAY CASHMAN, INC.

PASSAIC RIVER

DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/6/2005**

Scow	**SEI-3000**	**Cut**	**A3-E3**	**DMG**	**0+61**	**XTE**	**224.83**
Scow	**SEI-3003**	**Cut**	**D3**	**DMG**	**2+75**	**XTE**	**222.38**
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	

START TIME	STOP TIME	ACTIVITY
0630		Cashman crew and Cable Arm staff on board dredge on site
	0815	awaiting Cable Arm equipment setup /
0815	0830	Start shifting dredge ahead
0830	0920	Stop Cable Arm tag line not working
0920	1020	Start loading in area A3 without cable arm sensors
1020	1045	Shift drdge over to cut A3
1045	1046	Dredge online in cut A3
1046	1210	Stop Cable Arm working on bucket and tag line
1210	1225	Continue loading scow SEI-3000 in area A3
1225	1300	Stop Cable Arm system not working
1300	1625	Continue loading scow SEI-3000 in area A3
1625	1730	Change scows out
1730	1930	Loading scow SEI-3003 in area E3
1930	2030	Shift barges around and dredge

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY MOVEMENT LOG

DREDGE: **WOOD ONE** DATE: **12/6/2005**

TIME	DMG	XTE	TIDE	BIT KP	REMARKS
0630					**Crew on board awaiting Cable Arm system**
0815					**Shift dredge ahead to next cut A3**
0830					**Stop Cable Arm tag line not working**
0920	0+48	182.07	5.4		**Swing over from cut A2 to dig part of A3**
1020					**Shift dredge over to cut A3**
1045	0+61	224.83	6.1	0+30	**Dredge online**
1050					**Stop Cable Arm working on bucket and tag line**
1210	0+61	224.83	6.5	0+30	**Continue loading scow SEI-3000 area A3**
1225					**Stop for Cable Arm**
1300					**Continue loading scow SEI-3000 area A3**
1320	1+13	224.76	6.1	0+67	**Move back area B3**
1355	1+43	225.54	5.3	1+02	**Move back area B3**
1420	1+62	225.29	4.6	1+15	**Move back area B3**
1500	1+86	227.31	3.6	1+41	**Move back area C3**
1520	2+13	226.04	2.9	1+63	**Move back area C3**
1600	2+32	223.68	2.2	1+88	**Move back area D3**
1625	2+54	222.12	1.7	2+05	**Move back area D3 Change scows**
1730					**Start loading scow SEI-3003**
1805	2+75	222.38	0.6	2+31	**Move back area D3**
1830	3+05	225.01	0.4	2+54	**Move back area E3**

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY GENERAL LOG

DREDGE: **WOOD I** DATE: **12/6/2005**

Daily Safety Meeting

Topic	Attendees
Setting up CRZ zone and exclusion zones.	Stu Chandler ASP
Meet with crew, discuss dress out and safety awareness.	Rich Barber
Meet with crew, review decon procedures.	James Barnes
	Harry Ellis
	Anthony Kurley
	Carl Stewart
	Anthony Carbone

DREDGE CREW ON SITE

PERIOD	NAME	CLASS	HOURS
MIKE LEWIS	20% HAZ MAT	OPERATOR	0600-2030
MIKE ALLEN		ENGINER	0600-1700
CARL STEWART	20% HAZ MAT	ENGINER	0600-2030
ANTHONY CARBON	20% HAZ MAT	MATE	0600-2030
RAFAEL CAMACHO		MATE	0800-1700
HARRY ELLIS	20% HAZ MAT	DECKHAND	0600-2030
JAMES BAUER	20% HAZ MAT	BOATMEN	0530-2030
ANTHONY KERLEY	20% HAZ MAT	MATE	0600-2030

SCOW LOG

SCOW	PB	SB	PS	SS	VOLUME	TUG/DESTINATION
SEI 3000	2	2	2	2		
SEI 3000	6	6	6	6	932.29	In use
SEI 3000	6.6	6	8	8.5	1540.4	Loaded
SEI-3003	2	2	2	2		

JAY CASHMAN, INC.
ENGINEER DAILY REPORT

DREDGE Wood 1 DATE 12/6/2005

PROJECT Passaic River JOB# 05-020

SHIFT	0600 / 1800		
ENGINEER	CARL STEWART		
CAPTAIN			

MAINTENANCE OF EQUIPMENT
Swap generators 0600 hrs
Fuel HPU -Winch motor-Welder-Alex D-Bosco
Assist in repairing water pump in Alex D generator
Make hooks for extension cords in tool room
Grease winch and open gears
Assist with spuding car float
Unload salt millers launch boat
Grease 2400 Lima inside

EQUIPMENT SERVICED - FUEL, OIL, GREASE

LIST OF PARTS & TOOLS CONSUMED (W/ PART #)

EQUIPMENT HOURS & FUEL, OIL QUANTITIES	
FUEL SOUNDINGS	
MAIN TANK	GALLONS
START	
TRANSFERRED	
RECIVED	
FUEL ON BOARD	913
OIL SOUNDINGS	
LOCATION	
	GALLONS
TOTAL OIL:	
HOUR METERS	HOURS
EQUIPMENT	
PORT GEN SET	13039
STAR. GEN SET	15181
HPU	1,686
LIMA 2400	3786
WINCH	2340
WELDER	575
EDDIE CARROL	
SEI-2000	
MIGHTY QUINN	
BOSCO PORT	2830
STRB.	2671

JAY CASHMAN, INC.

PASSAIC RIVER

DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/7/2005**

Scow	**SEI-3003**	**Cut**	**A-1-E-1**	**DMG**	**-20**	**XTE**	**131.15**
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	

START TIME	STOP TIME	ACTIVITY
0630	0700	Cashman crew and Cable Arm staff on board dredge
0700	0835	Put barges in place-Awaiting orders from State to start dredging
0835	1545	Continue loading scow SEI-3003 area A-1
1545		Finish loading for day ,Get survey in front of dredge take soundings
	1730	of scow SEI-3003 / Cable Arm taking surveys

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY MOVEMENT LOG

DREDGE: **WOOD ONE** DATE: **12/7/2005**

TIME	DMG	XTE	TIDE	BIT KP	REMARKS
0630					**Crew on board awaiting Cable Arm system**
0700					**Awaiting orders from State to start dredging**
0835	-20	131.15	1.6	0+10	**Continue loading scow SEI-3003 area A-1**
1030	-2	137.74	4	0+40	**Move Ahead Area A-1**
1220	0+34	123.08	4.8	0+70	**Move Ahead Area B-1**
1415	0+57	125.44	4.1	1+10	**Move Ahead Area C-1**
1505	0+86	125.42	3.6	1+25	**Move Ahead Area C-1**

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY GENERAL LOG

DREDGE: **WOOD I** DATE: **12/7/2005**

Daily Safety Meeting

Topic	Attendees
Protective Clothing in cold weather	Stu Chandler ASP
Cold stress	Rich Barber
Personnel Decontamination Reminder	James Barnes
CRZ and Exclusion Zone Reminders	Harry Ellis
	Anthony Kurley
	Carl Stewart
	Anthony Carbone

DREDGE CREW ON SITE

PERIOD	NAME	CLASS	HOURS
MIKE LEWIS	20% HAZ MAT	OPERATOR	0600-1730
MIKE ALLEN		ENGINER	0600-1700
CARL STEWART	20% HAZ MAT	ENGINER	0600-1730
ANTHONY CARBON	20% HAZ MAT	MATE	0600-1730
RAFAEL CAMACHO		MATE	0600-1700
HARRY ELLIS	20% HAZ MAT	DECKHAND	0600-1730
JAMES BAUER	20% HAZ MAT	BOATMEN	0600-1730
ANTHONY KERLEY	20% HAZ MAT	MATE	0600-1730

SCOW LOG

SCOW	PB	SB	PS	SS	VOLUME	TUG/DESTINATION
SEI-3003	3	3	3	3	162.14	In use
SEI-3003	5.6	5.6	5.6	5.6		In use

JAY CASHMAN, INC.

ENGINEER DAILY REPORT

DREDGE Wood 1 DATE 12/7/2005

PROJECT Passaic River JOB# 05-020

SHIFT	0600 / 1800		
ENGINEER	CARL STEWART		
CAPTAIN			

MAINTENANCE OF EQUIPMENT
Swap generators 0600 hrs
Thawed out airlines on 2400 Lima
Thawed out Bosco controls
Drain air tanks on Lima
Grease inside 2400 lima and open gears

EQUIPMENT SERVICED - FUEL, OIL, GREASE

LIST OF PARTS & TOOLS CONSUMED (W/ PART #)

EQUIPMENT HOURS & FUEL, OIL QUANTITIES	
FUEL SOUNDINGS	
MAIN TANK	GALLONS
START	
TRANSFERRED	
RECIVED	
FUEL ON BOARD	742
OIL SOUNDINGS	
LOCATION	
	GALLONS
TOTAL OIL:	
HOUR METERS	HOURS
EQUIPMENT	
PORT GEN SET	13058
STAR. GEN SET	15182
HPU	1,698
LIMA 2400	3799
WINCH	2343
WELDER	575
EDDIE CARROL	
SEI-2000	
MIGHTY QUINN	
BOSCO PORT	2830
STRB.	2674

JAY CASHMAN, INC.

PASSAIC RIVER

DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/8/2005**

Scow	**SEI-3003**	**Cut**	**A-1-E-1**	**DMG**	**0+86**	**XTE**	**119.76**
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	

START TIME	STOP TIME	ACTIVITY
0630		Cashman crew and Cable Arm staff onboard dredge
	0915	warm engines Safety meeting /Awaiting orders from State to start dredging
0915	1340	Continue loading scow SEI-3003 Area C-1
1340		Shift dredge out of way for survey

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY MOVEMENT LOG

DREDGE: **WOOD ONE** DATE: **12/8/2005**

TIME	DMG	XTE	TIDE	BIT KP	REMARKS
0630					**Crew on board**
					Awaiting orders from State to start dredging
					Continue loading scow SEI-3003 area C-1
0915	1+20	122.41	0.5	1+50	**Move Ahead Area C-1**
1120	1+32	129.09	4	1+75	**Move Ahead Area C-1**
1250	1+56	124.01	5.2	1+97	**Move Ahead Area D-1**
1340					**Shift dredge out of way for survey**

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY GENERAL LOG

DREDGE: **WOOD I** DATE: **12/8/2005**

Daily Safety Meeting

Topic	Attendees
Man over board drill	Stu Chandler ASP
Personnel Decontamination	Rich Barber
CRZ and Exclusion Zone Reminder	James Barnes
HASP Reminder	Harry Ellis
	Anthony Kurley
	Carl Stewart
	Anthony Carbone

DREDGE CREW ON SITE

PERIOD	NAME	CLASS	HOURS
MIKE LEWIS	20% HAZ MAT	OPERATOR	
MIKE ALLEN		ENGINER	
CARL STEWART	20% HAZ MAT	ENGINER	
ANTHONY CARBON	20% HAZ MAT	MATE	
RAFAEL CAMACHO		MATE	
HARRY ELLIS	20% HAZ MAT	DECKHAND	
JAMES BAUER	20% HAZ MAT	BOATMEN	
ANTHONY KERLEY	20% HAZ MAT	MATE	

SCOW LOG

SCOW	PB	SB	PS	SS	VOLUME	TUG/DESTINATION
SEI-3003	3	3	3	3	162.14	In use
SEI-3003	5.6	5.6	5.6	5.6	770.16	In use

JAY CASHMAN, INC.

ENGINEER DAILY REPORT

DREDGE Wood 1 DATE 12/8/2005

PROJECT Passaic River JOB# 05-020

SHIFT	0600 / 1800		
ENGINEER	CARL STEWART		
CAPTAIN			

MAINTENANCE OF EQUIPMENT
Swap generators 0600 hrs
Fuel Crane-Fuel Bosco-Generator Day Tank and Winch
Put supplies away
Repaired flood lights on Crane
Repair tug Bosco controls

EQUIPMENT SERVICED - FUEL, OIL, GREASE

LIST OF PARTS & TOOLS CONSUMED (W/ PART #)

EQUIPMENT HOURS & FUEL, OIL QUANTITIES	
FUEL SOUNDINGS	
MAIN TANK	GALLONS
START	
TRANSFERRED	
RECIVED	
FUEL ON BOARD	742
OIL SOUNDINGS	
LOCATION	
	GALLONS
TOTAL OIL:	
HOUR METERS	HOURS
EQUIPMENT	
PORT GEN SET	13059
STAR. GEN SET	15205
HPU	1,703
LIMA 2400	3808
WINCH	2344
WELDER	575
EDDIE CARROL	
SEI-2000	
MIGHTY QUINN	
BOSCO PORT	2835
STRB.	2684

JAY CASHMAN, INC.

PASSAIC RIVER

DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/9/2005**

Scow	**SEI-3003**	**Cut**	**A-1-E-1**	**DMG**		**XTE**
Scow		**Cut**		**DMG**		**XTE**
Scow		**Cut**		**DMG**		**XTE**
Scow		**Cut**		**DMG**		**XTE**
Scow		**Cut**		**DMG**		**XTE**

START TIME	STOP TIME	ACTIVITY
0630	0805	Crew on board warm up engines
0805	0840	Shift dredge back online
0840		State shut dredge down for day due to snow storm/sampling equipment problems
	0900	Cashman will charge as State Standby Day

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY MOVEMENT LOG

DREDGE: **WOOD ONE** DATE: **12/9/2005**

TIME	DMG	XTE	TIDE	BIT KP	REMARKS
0630					
					Awaiting orders from State to start dredging
					Plan is to continue loading scow SEI-3003 area C-1
					State shut down project due to inclement weather

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY GENERAL LOG

DREDGE: **WOOD I** DATE: **12/9/2005**

Daily Safety Meeting

Topic	Attendees
HASP Review	
State Postponed day due to inclement weather	Rich Barber
	James Barnes
	Harry Ellis
	Anthony Kurley
	Carl Stewart
	Anthony Carbone

DREDGE CREW ON SITE

PERIOD	NAME	CLASS	HOURS
MIKE LEWIS	20% HAZ MAT	OPERATOR	0600-1400
MIKE ALLEN		ENGINER	0600-1700
CARL STEWART	20% HAZ MAT	ENGINER	0600-1400
ANTHONY CARBON	20% HAZ MAT	MATE	0600-1400
RAFAEL CAMACHO		MATE	0600-1700
HARRY ELLIS	20% HAZ MAT	DECKHAND	0600-1400
JAMES BAUER	20% HAZ MAT	BOATMEN	0530-1400
ANTHONY KERLEY	20% HAZ MAT	MATE	

SCOW LOG

SCOW	PB	SB	PS	SS	VOLUME	TUG/DESTINATION
SEI-3003	3	3	3	3	162.14	In use
SEI-3003	5.6	5.6	5.6	5.6	770.16	In use
SEI-3003	7	7	7	7	1378.2	In use

JAY CASHMAN, INC.
ENGINEER DAILY REPORT

DREDGE Wood 1 DATE 12/9/2005

PROJECT Passaic River JOB# 05-020

SHIFT	0600 / 1800		
ENGINEER	CARL STEWART		
CAPTAIN			

MAINTENANCE OF EQUIPMENT
Swap generators 0600 hrs
EQUIPMENT SERVICED - FUEL, OIL, GREASE
LIST OF PARTS & TOOLS CONSUMED (W/ PART #)

EQUIPMENT HOURS & FUEL, OIL QUANTITIES	
FUEL SOUNDINGS	
MAIN TANK	GALLONS
START	
TRANSFERRED	
RECIVED	
FUEL ON BOARD	
OIL SOUNDINGS	
LOCATION	
	GALLONS
TOTAL OIL:	
HOUR METERS	HOURS
EQUIPMENT	
PORT GEN SET	13082
STAR. GEN SET	15206
HPU	1,709
LIMA 2400	3808
WINCH	2346
WELDER	575
EDDIE CARROL	
SEI-2000	
MIGHTY QUINN	
BOSCO PORT	2830
STRB.	2690

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/10/2005**

Scow	**SEI-3003**	**Cut**	**A-1-E-1**	**DMG**	**1+74**	**XTE**	**122.23**
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	

START TIME	STOP TIME	ACTIVITY
0630		Crew on board warm up engines
	0745	Awaiting orders from State to start loading
0745	1030	Continue loading scow SEI-3003 Area D-1
1030	1230	Stop dredging for two hours order from State
1230	1500	Continue loading scow SEI-3003 Area D-1-E-1
1500		**Passaic River job DONE**
		Decon equipment and rinse barge
		Pick spuds on barge SEI-17 send to yard
	2000	Mob Dredge to berth 23 and SEI-29
1530	2030	SCOW SEI 3003 DELIVERED TO KEASBEY, NJ DECON FACILITY
		Work in 11', 13' and 2/3 of 15' lane approved by Lisa Swan
		using Cashman daily multi-beam survey data.
		Remainder of 15' Lane approved at end of work based on these results
		and Clam Vision real time data.
		NOTE: SCOW SEI-3000 WAS LOADED ON TUESDAY 12/6/05 AT 1640
		AND WAS DELIVERED TO THE DECONTAMINATION FACILITY IN KEASBY, NJ AT 2300 HOUR ON 12/6/05
		CALLED ON WEDNESDAY 12/7/05 FIND OUT STATUS ON BARGE
		BARGE WAS NOT UNLOADED; ON THURSDAY 12/08/05 A MEETING WAS
		HELD BETWEEN JAY CASHMAN'S BRUCE WOOD, BOBBY D., STEVE RADEL
		AND BIOGENESIS TO DISCUSS UNLOADING STATUS. SCOTT DOUGLAS
		OF NJDOT, OMR ALSO PRESENT. CASHMAN PROPOSED AN
		AGREEMENT WHERE BIOGENESIS WOULD HAVE UNTIL TUESDAY
		12/13/05 AT 5:00PM TO UNLOAD SEI-3000; AND UNTIL FRIDAY
		12/16/05 UNTIL 5:00PM TO UNLOAD SEI-3003.
		IN EXCHANGE FOR THE ADDITIONAL UNLOADING TIME, THE
		DECONTAMINATION FACILITY WOULD UNLOAD AND CLEAN THE SCOWS TO
		BOBCAT CLEAN, PLUS REMOVING VISIBLE SEDIMENT.
		CASHMAN WILL PROVIDE A 24 HOUR GRACE PERIOD, AFTER SUCH TIME
		CASHMAN WILL CHARGE $2,000.00 PER DAY, PER SCOW THAT EACH
		SCOW IS NOT EMPTIED AND CLEANED.

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY MOVEMENT LOG

DREDGE: **WOOD ONE** DATE: **12/10/2005**

TIME	DMG	XTE	TIDE	BIT KP	REMARKS
0630					**Awaiting orders from State to start dredging**
0745	1+74	122.23	1.9	2+10	**Continue loading scow SEI-3003 area D-1**
0915	2+05	116.33	0.9	2+44	**Move Ahead Area D-1-E-1**
1030					**Stop dredging order from state**
1230	2+05	116.33	2.5	2+44	**Continue loading scow SEI-3003 area D-1-E-1**
1330	2+29	121.38	4	2+63	**Move Ahead Area E-1**

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY GENERAL LOG

DREDGE: **WOOD I** DATE: **12/10/2005**

Daily Safety Meeting

Topic	Attendees
Review HASP	
Personnel Decon	Rich Barber
Project Closeout Procedures	James Barnes
	Harry Ellis
	Anthony Kurley
	Carl Stewart
	Anthony Carbone

DREDGE CREW ON SITE

PERIOD	NAME	CLASS	HOURS
MIKE LEWIS	20% HAZ MAT	OPERATOR	0600-2000
MIKE ALLEN		ENGINER	0600-2000
CARL STEWART	20% HAZ MAT	ENGINER	0600-2000
ANTHONY CARBON	20% HAZ MAT	MATE	0600-2000
RAFAEL CAMACHO		MATE	0600-2000
HARRY ELLIS	20% HAZ MAT	DECKHAND	0600-2000
JAMES BAUER	20% HAZ MAT	BOATMEN	0600-2000
ANTHONY KERLEY	20% HAZ MAT	MATE	

SCOW LOG

SCOW	PB	SB	PS	SS	VOLUME	TUG/DESTINATION
SEI-3003	3	3	3	3	162.14	In use
SEI-3003	5.6	5.6	5.6	5.6	770.16	In use
SEI-3003	7	7	7	7	1378.2	In use
SEI-3003	9	9	10.5	10.5	1742	DONE

JAY CASHMAN, INC.

ENGINEER DAILY REPORT

DREDGE Wood 1 DATE 12/10/2005

PROJECT Passaic River JOB# 05-020

SHIFT	0600 / 1800		
ENGINEER	CARL STEWART		
CAPTAIN			

MAINTENANCE OF EQUIPMENT
Swap generators 0600 hrs
Clean snow off of top and lower deck
Fuel winch motor and Alex D
Demob Cable Arm equipment from dredge to deck barge SEI-29

EQUIPMENT SERVICED - FUEL, OIL, GREASE
1quart 15/40 lube oil

LIST OF PARTS & TOOLS CONSUMED (W/ PART #)

EQUIPMENT HOURS & FUEL, OIL QUANTITIES	
FUEL SOUNDINGS	
MAIN TANK	GALLONS
START	
TRANSFERRED	
RECIVED	
FUEL ON BOARD	371
OIL SOUNDINGS	
LOCATION	
	GALLONS
TOTAL OIL:	
HOUR METERS	HOURS
EQUIPMENT	
PORT GEN SET	13083
STAR. GEN SET	15229
HPU	1,710
LIMA 2400	3818
WINCH	2346
WELDER	575
EDDIE CARROL	
SEI-2000	
MIGHTY QUINN	
BOSCO PORT	2830
STRB.	2692

Delay-Related Events

Delay-Related Events Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
12	Mobilization Delays. Bridge malfunctions or problems in dredge positioning, should have been measured and recorded on a daily report of operations. Both delays are recordable as non-effective time for the dredging production calculations, using USACE dredging operations standards. (See ENG Form 4267 attached). Bridge-related delays will significantly impact the productivity of a full scale project due to the number of passages and time required to provide advance notices to bridge operators.	Records on bridge-related delays and mobilization delays	Bridge malfunctions did not impact dredging productivity since delays occurred prior to the commencement of dredging. Records are not available.
13	Vessel Traffic Delays. No vessel traffic information was provided in the draft EDPS Report; therefore it must be concluded that no vessel traffic was encountered during the EDPS. No operational (barge) movements were reported as necessary due to vessels passing.	Records on vessel traffic delays	Vessel traffic (including PVSC skimmer, project crew boats, and press event vessel) did not impact dredging operations or cause delays. Records are not available.
14	Barge Delays. The barges SEI-3000 and SEI-3003 transported dredged materials from the EDPS study site to the Bayshore Recycling transloading facility. Transit times of barges, waiting on bridges, and material offloading times were not provided in the draft EDPS Report; therefore we conclude that they were not measured. These factors will significantly impact dredge production during a full scale operation.	Records on barge delays	Barges were not delayed due to transit time or waiting on bridges. Provided in binder. Records on barge delays associated with material offloading are available in binder.
15	Sediment Offloading Delays. It was reported that the EDPS was pushed back from summer 2005 to December 2005, due to delays associated with the construction of the sediment offloading facility. No information regarding the specifics of the construction delays and the impacts of these types of delays on a full-scale project were not discussed in the draft EDPS report.	Records on sediment offloading/schedule delays	Schedule delays at sediment offloading facility associated with berth deepening. Provided in binder.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Barge Delay

Source: Jay Cashman, Inc. Final Completion Report (December 2005)

JAY CASHMAN, INC.
PASSAIC RIVER
DAILY ACTIVITY SUMMARY

DREDGE: **WOOD ONE** DATE: **12/10/2005**

Scow	**SEI-3003**	**Cut**	**A-1-E-1**	**DMG**	**1+74**	**XTE**	**122.23**
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	
Scow		**Cut**		**DMG**		**XTE**	

START TIME	STOP TIME	ACTIVITY
0630		Crew on board warm up engines
	0745	Awaiting orders from State to start loading
0745	1030	Continue loading scow SEI-3003 Area D-1
1030	1230	Stop dredging for two hours order from State
1230	1500	Continue loading scow SEI-3003 Area D-1-E-1
1500		**Passaic River job DONE**
		Decon equipment and rinse barge
		Pick spuds on barge SEI-17 send to yard
	2000	Mob Dredge to berth 23 and SEI-29
1530	2030	SCOW SEI 3003 DELIVERED TO KEASBEY, NJ DECON FACILITY
		Work in 11', 13' and 2/3 of 15' lane approved by Lisa Swan
		using Cashman daily multi-beam survey data.
		Remainder of 15' Lane approved at end of work based on these results
		and Clam Vision real time data.
		NOTE: SCOW SEI-3000 WAS LOADED ON TUESDAY 12/6/05 AT 1640
		AND WAS DELIVERED TO THE DECONTAMINATION FACILITY IN KEASBY, NJ AT 2300 HOUR ON 12/6/05
		CALLED ON WEDNESDAY 12/7/05 FIND OUT STATUS ON BARGE
		BARGE WAS NOT UNLOADED; ON THURSDAY 12/08/05 A MEETING WAS
		HELD BETWEEN JAY CASHMAN'S BRUCE WOOD, BOBBY D., STEVE RADEL
		AND BIOGENESIS TO DISCUSS UNLOADING STATUS. SCOTT DOUGLAS
		OF NJDOT, OMR ALSO PRESENT. CASHMAN PROPOSED AN
		AGREEMENT WHERE BIOGENESIS WOULD HAVE UNTIL TUESDAY
		12/13/05 AT 5:00PM TO UNLOAD SEI-3000; AND UNTIL FRIDAY
		12/16/05 UNTIL 5:00PM TO UNLOAD SEI-3003.
		IN EXCHANGE FOR THE ADDITIONAL UNLOADING TIME, THE
		DECONTAMINATION FACILITY WOULD UNLOAD AND CLEAN THE SCOWS TO
		BOBCAT CLEAN, PLUS REMOVING VISIBLE SEDIMENT.
		CASHMAN WILL PROVIDE A 24 HOUR GRACE PERIOD, AFTER SUCH TIME
		CASHMAN WILL CHARGE $2,000.00 PER DAY, PER SCOW THAT EACH
		SCOW IS NOT EMPTIED AND CLEANED.

Sediment Offloading – Scheduling Delay

Source: Communication between Daria Navon (Malcolm Pirnie, Inc.) and Eric Stern (USEPA) on September 18, 2008

Mr. Stern stated that the main reason for the delay of the off-loading facility construction was that the berth (where the sediment off-loading facility was located) was not deep enough for the hopper barges carrying the dredged materials. Consequently, the berth had to be dredged to allow the hopper barges to come in and off-load the dredged materials.

[redacted]

Dredged Material

[redacted]

Dredged Material Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
16	Completion Report. The Contractor's Completion Report (Appendix F) is very brief, containing only two pages of project recap information, and minimal daily reports, equipment, and survey information. Information is either missing or not provided in enough detail by the Contractor to be useful.	Complete Contractor Report	Missing pieces provided in binder.
17	Added Water Volume and Dredged Material Unit Weight. Estimates of "dredged material in each scow" were made by the contractor using the barge's ullage table and measuring draft, as cited in the draft EDPS Report (Section 4.1.2, Pg. 4-2.). Based on our review of the draft EDPS Report, the contractor or project engineering team did not make a determination of the volume of water added to the situ material.	Record of volume of water	Provided in binder.
18	Geotechnical Information. An understanding of the sediment characteristics to be removed is critical to the performance of a dredging and materials handling and treatment. Very little information pertaining to physical characteristics of the dredged materials placed in the barges is available in the EDPS study documents. The draft EDPS Report did not provide photographs of dredged material in the barges, an indication of whether overflow or decanting of the material barges was conducted or not, or an assessment of related water quality impacts.	Characteristics of dredged material and photographs	Refer to geotechnical data collected in 2004 and attached photographs. No overflow occurred per the standard operating procedure and the water quality certificate permit. Refer to the decontamination reports (which will be posted on the public website when complete) for decanting.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Requested Information on Contractor Completion Report

Source: Jay Cashman, Inc. Final Work Plan (November 2005)

Information CPG Requested	Where Information Is Located
Order in which work was performed	Jay Cashman, Inc. Final Work Plan, Tab 1, Daily Movement Logs and Daily Activities Summary
Methods Used	Jay Cashman, Inc. Final Work Plan, Tab 1, Daily Movement Logs and Daily Activities Summary
Debris removed and disposed of	No debris was removed. Refer to the decontamination reports (which will be posted to the public website when complete) for material handling, offloading, and debris handling.
Limitations encountered in performing the work	Refer to "ClamVision® and Accuracy" Tab in binder
Weather conditions	Data are not available in Jay Cashman, Inc. Final Work Plan. Refer to weather conditions for Newark, New Jersey in the "Production Logs" Tab in binder.
Tide Conditions	Jay Cashman, Inc. Final Work Plan, Tab 4, Tide Level Readings
Outstanding Issues	Refer to "ClamVision® and Accuracy" Tab in binder.

Offloading and Volume of Dredged Material

Source: Provided by Eric Stern (USEPA) on January 30, 2009

Mr. Stern stated that 2,424 cubic yards were measured in SEI-3000 and 3,178 cubic yards were measured in SEI-3003 at the time of offloading. A total of 1,287 cubic yards of water was removed from the top of the cargo holds at the offloading site.

Geotechnical Characteristics of Dredged Material

Source: Table 4-12 and Table 4-13 from the "Data Summary and Evaluation Report" (Earth Tech, Inc. and Malcolm Pirnie, Inc., May 2005)

TABLE 4-12
Geotechnical Data
Passaic River July 2004 Core Samples (0-3 ft)

Field ID	Lab ID	EPA ID	Sample Date	Solids, Percent IN623	Moisture Content D2216	Liquid Limit D4318 LL	Plasticity Index D4318 Pl	Plastic Limit D4318 PL	Specific Gravity D854
A1-01	579185	B1FB9	07/12/2004	32.6 %	185.0 %	73	27	46	2.16
A1-12	579186	B1FC0	07/12/2004	42.4 %	137.8 %	74	30	44	2.06
A1-23	579187	B1FC1	07/12/2004	47.8 %	111.9 %	63	16	47	2.44
A2-01	579188	B1FC2	07/12/2004	35.0 %	170.0 %	78	35	43	2.56
A2-12	579189	B1FC3	07/12/2004	41.3 %	138.6 %	85	43	42	2.32
A2-23	579190	B1FC4	07/12/2004	50.4 %	103.8 %	64	26	38	2.37
A3-01	579191	B1FC5	07/12/2004	39.3 %	143.2 %	93	47	46	2.48
A3-12	579192	B1FC6	07/12/2004	41.8 %	133.6 %	89	46	43	2.32
A3-23	579193	B1FC7	07/12/2004	48.0 %	105.7 %	64	19	45	2.32
B1-01	579194	B1FC8	07/13/2004	35.9 %	163.3 %	75	NP	NUV	2.39
B1-12	579195	B1FC9	07/13/2004	44.8 %	143.8 %	74	18	56	2.38
B1-23	579196	B1FD0	07/13/2004	44.5 %	115.6 %	65	24	41	2.41
B2-01	579197	B1FD1	07/13/2004	33.9 %	170.8 %	116	63	53	2.42
B2-12	579198	B1FD2	07/13/2004	40.4 %	146.1 %	71	27	44	2.48
B2-23	579199	B1FD3	07/13/2004	43.9 %	113.5 %	66	25	41	2.39
B3-01	579200	B1FD4	07/13/2004	37.3 %	159.8 %	66	26	40	2.44
B3-12	579201	B1FD5	07/13/2004	39.6 %	128.3 %	53	NP	NUV	2.45
B3-23	579202	B1FD6	07/13/2004	53.2 %	93.8 %	53	17	36	2.45
C1-01	579238	B1FD7	07/13/2004	37.6 %	151.2 %	66	22	44	2.31
C1-12	579239	B1FD8	07/13/2004	41.1 %	137.9 %	67	27	39	2.32
C1-23	579240	B1FD9	07/13/2004	46.1 %	120.0 %	71	26	44	2.28
C2-01	579203	B1FE0	07/13/2004	36.5 %	174.9 %	105	49	56	2.40
C2-12	579204	B1FE1	07/13/2004	53.0 %	102.6 %	50	14	36	2.51
C2-23	579228	B1FE2	07/13/2004	47.7 %	105.8 %	60	20	40	2.24
C3-01	579229	B1FE3	07/13/2004	37.0 %	160.6 %	65	24	41	2.25
C3-12	579230	B1FE4	07/13/2004	41.5 %	132.5 %	55	12	43	2.21
C3-23	579231	B1FE5	07/13/2004	50.5 %	97.2 %	57	17	40	2.41
D1-01	579241	B1FE6	07/13/2004	36.8 %	158.2 %	70	30	40	2.28
D1-12	579242	B1FE7	07/13/2004	45.9 %	131.0 %	62	15	47	2.29
D1-23	579243	B1FE8	07/13/2004	47.7 %	117.7 %	67	13	54	2.34
D2-01	579244	B1FE9	07/13/2004	35.1 %	172.9 %	71	14	57	2.29
D2-12	579245	B1FF0	07/13/2004	44.2 %	130.9 %	64	11	52	2.29
D2-23	579246	B1FF1	07/13/2004	48.2 %	100.8 %	61	23	39	2.34

TABLE 4-12
Geotechnical Data
Passaic River July 2004 Core Samples (0-3 ft)

Field ID	Lab ID	EPA ID	Sample Date	Solids, Percent IN623	Moisture Content D2216	Liquid Limit D4318 LL	Plasticity Index D4318 Pl	Plastic Limit D4318 PL	Specific Gravity D854
D3-01	579247	B1FF2	07/13/2004	39.0 %	146.3 %	66	19	47	2.31
D3-12	579236	B1FF3	07/13/2004	39.9 %	140.7 %	64	25	39	2.31
D3-23	579237	B1FF4	07/13/2004	39.7 %	151.3 %	74	24	50	2.17
E1-01	579263	B1FF5	07/14/2004	37.8 %	158.5 %	99	48	51	2.38
E1-12	579264	B1FF6	07/14/2004	42.0 %	123.1 %	72	30	42	2.35
E1-23	579265	B1FF7	07/14/2004	45.7 %	118.9 %	70	24	46	2.52
E2-01	579266	B1FF8	07/14/2004	36.8 %	161.7 %	107	61	47	2.38
E2-12	579267	B1FF9	07/14/2004	46.2 %	112.0 %	102	58	44	2.34
E2-23	579268	B1FG0	07/14/2004	54.0 %	87.3 %	54	20	34	2.34
E3-01	579269	B1FG1	07/14/2004	38.8 %	139.0 %	65	21	43	2.36
E3-12	579270	B1FG2	07/14/2004	41.0 %	143.3 %	64	24	40	2.38
E3-23	579271	B1FG3	07/14/2004	52.0 %	102.0 %	55	16	39	2.33
T-17comp	579235	B1FG7	07/13/2004	36.4 %	154.3 %	67	22	46	2.32
Average (excludes T17 composite)				42.5 %	134.3 %	71.2	27.3	44.2	2.35
Median (excludes T17 composite)				41.5 %	137.8 %	66.0	24.0	43.0	2.34

NP = Not performed (no result reported by laboratory).
NUV = No Usable Value; "0" was reported by laboratory; not considered to be a usable result.
Note: Moisture Content (ASTM D2216) is the ratio of the water in the sample to the dry solids.

TABLE 4-13
Grain Size Data
Passaic River July 2004 Core Samples (0-4 ft)

Field ID	EPA ID	Sample Date	GRANULE > 2 mm, %	SAND, %	SILT, %	CLAY AND COLLOIDS, %	SUM, %
A1-01	B1FB9	07/12/2004	0.0 %	33.0 %	60.0 %	7.1 %	100.1 %
A2-01	B1FC2	07/12/2004	0.0 %	13.0 %	81.0 %	5.6 %	99.6 %
A3-01	B1FC5	07/12/2004	0.0 %	44.0 %	51.0 %	5.9 %	100.9 %
B1-01	B1FC8	07/13/2004	0.0 %	23.0 %	64.0 %	14 %	101.0 %
B2-01	B1FD1	07/13/2004	0.0 %	27.0 %	59.0 %	14 %	100.0 %
B3-01	B1FD4	07/13/2004	0.0 %	20.0 %	74.0 %	5.7 %	99.7 %
C1-01	B1FD7	07/13/2004	0.0 %	16.0 %	79.0 %	5.5 %	100.5 %
C2-01	B1FE0	07/13/2004	0.0 %	25.0 %	65.0 %	9.9 %	99.9 %
C3-01	B1FE3	07/13/2004	0.0 %	34.0 %	60.0 %	6.3 %	100.3 %
D1-01	B1FE6	07/13/2004	0.0 %	12.0 %	79.0 %	8.4 %	99.4 %
D2-01	B1FE9	07/13/2004	0.0 %	11.0 %	77.0 %	12 %	100.0 %
D3-01	B1FF2	07/13/2004	0.0 %	40.0 %	56.0 %	4.6 %	100.6 %
E1-01	B1FF5	07/14/2004	0.0 %	39.0 %	56.0 %	4.3 %	99.3 %
E2-01	B1FF8	07/14/2004	ND	ND	ND	ND	ND
E3-01	B1FG1	07/14/2004	0.0 %	34.0 %	61.0 %	4.7 %	99.7 %
AVERAGE (0-1 FT INTERVAL)			0.0 %	26.5 %	65.9 %	7.7 %	100.1 %
A1-12	B1FC0	07/12/2004	0.0 %	5.0 %	85.0 %	10 %	100.0 %
A2-12	B1FC3	07/12/2004	0.2 %	41.0 %	52.0 %	6.5 %	99.7 %
A3-12	B1FC6	07/12/2004	0.0 %	44.0 %	51.0 %	5.9 %	100.9 %
B1-12	B1FC9	07/13/2004	0.0 %	24.0 %	61.0 %	16 %	101.0 %
B2-12	B1FD2	07/13/2004	0.0 %	27.0 %	59.0 %	14 %	100.0 %
B3-12	B1FD5	07/13/2004	0.0 %	33.0 %	62.0 %	4.4 %	99.4 %
C1-12	B1FD8	07/13/2004	0.0 %	6.4 %	85.0 %	8.4 %	99.8 %
C2-12	B1FE1	07/13/2004	0.0 %	50.0 %	45.0 %	5.4 %	100.4 %
C3-12	B1FE4	07/13/2004	0.0 %	32.0 %	60.0 %	7.3 %	99.3 %
D1-12	B1FE7	07/13/2004	0.0 %	14.0 %	78.0 %	7.8 %	99.8 %
D2-12	B1FF0	07/13/2004	0.0 %	28.0 %	65.0 %	7.1 %	100.1 %
D3-12	B1FF3	07/13/2004	0.0 %	39.0 %	56.0 %	5.7 %	100.7 %
E1-12	B1FF6	07/14/2004	0.0 %	39.0 %	56.0 %	4.3 %	99.3 %
E2-12	B1FF9	07/14/2004	0.0 %	46.0 %	51.0 %	2.9 %	99.9 %
E3-12	B1FG2	07/14/2004	0.0 %	41.0 %	54.0 %	5.3 %	100.3 %
AVERAGE (1-2 FT INTERVAL)			0.0 %	31.3 %	61.3 %	7.4 %	100.0 %
A1-23	B1FC1	07/12/2004	0.0 %	16.0 %	78.0 %	5.6 %	99.6 %
A2-23	B1FC4	07/12/2004	0.0 %	31.0 %	65.0 %	4.3 %	100.3 %
A3-23	B1FC7	07/12/2004	0.0 %	16.0 %	77.0 %	7.7 %	100.7 %
B1-23	B1FD0	07/13/2004	5.5 %	34.0 %	54.0 %	6.3 %	99.8 %
B2-23	B1FD3	07/13/2004	0.0 %	23.0 %	66.0 %	10 %	99.0 %
B3-23	B1FD6	07/13/2004	0.1 %	29.0 %	64.0 %	7.3 %	100.4 %
C1-23	B1FD9	07/13/2004	0.0 %	13.0 %	79.0 %	7.8 %	99.8 %
C2-23	B1FE2	07/13/2004	0.0 %	34.0 %	58.0 %	7.8 %	99.8 %
C3-23	B1FE5	07/13/2004	0.0 %	21.0 %	74.0 %	5.4 %	100.4 %
D1-23	B1FE8	07/13/2004	0.0 %	11.0 %	87.0 %	2.2 %	100.2 %
D2-23	B1FF1	07/13/2004	0.0 %	13.0 %	81.0 %	5.9 %	99.9 %
D3-23	B1FF4	07/13/2004	0.0 %	54.0 %	42.0 %	3.8 %	99.8 %
E1-23	B1FF7	07/14/2004	0.0 %	42.0 %	54.0 %	4.1 %	100.1 %
E2-23	B1FG0	07/14/2004	0.0 %	31.0 %	67.0 %	2.7 %	100.7 %
E3-23	B1FG3	07/14/2004	0.0 %	45.0 %	52.0 %	3.0 %	100.0 %
AVERAGE (2-3 FT INTERVAL)			0.4 %	27.5 %	66.5 %	5.6 %	100.0 %

TABLE 4-13
Grain Size Data
Passaic River July 2004 Core Samples (0-4 ft)

Field ID	EPA ID	Sample Date	GRANULE > 2 mm, %	SAND, %	SILT, %	CLAY AND COLLOIDS, %	SUM, %
A2-34	AF06247	11/2/2004	0.0 %	8.4 %	85.0 %	6.6 %	100.0 %
B1-34	AF06248	11/2/2004	0.0 %	10.2 %	83.0 %	6.5 %	99.7 %
B3-34	AF06249	11/2/2004	0.0 %	7.9 %	84.0 %	8.0 %	99.9 %
C2-34	AF06250	11/2/2004	0.0 %	8.5 %	86.0 %	5.7 %	100.2 %
D1-34	AF06251	11/2/2004	0.0 %	9.6 %	83.0 %	7.1 %	99.7 %
D3-34	AF06252	11/2/2004	0.0 %	14.3 %	77.0 %	8.4 %	99.7 %
DE-34	AF06253	11/2/2004	0.0 %	8.2 %	87.0 %	4.5 %	99.7 %
AVERAGE (3-4 FT INTERVAL)			0.0 %	9.6 %	83.6 %	6.7 %	99.8 %
AVERAGE (ALL INTERVALS)			0.1 %	23.4 %	70.2 %	6.3 %	100.0 %

ND = No data for this sample
Analyses by USEPA Region 2 DESA Laboratory

Photographs of Dredged Material

Source: Images provided by Steven Radel (Jay Cashman, Inc.)

Dredged Material

Lower Passaic River Restoration Project

Figure 2a

February 2009

Dredged Material

Lower Passaic River Restoration Project

Figure 2b

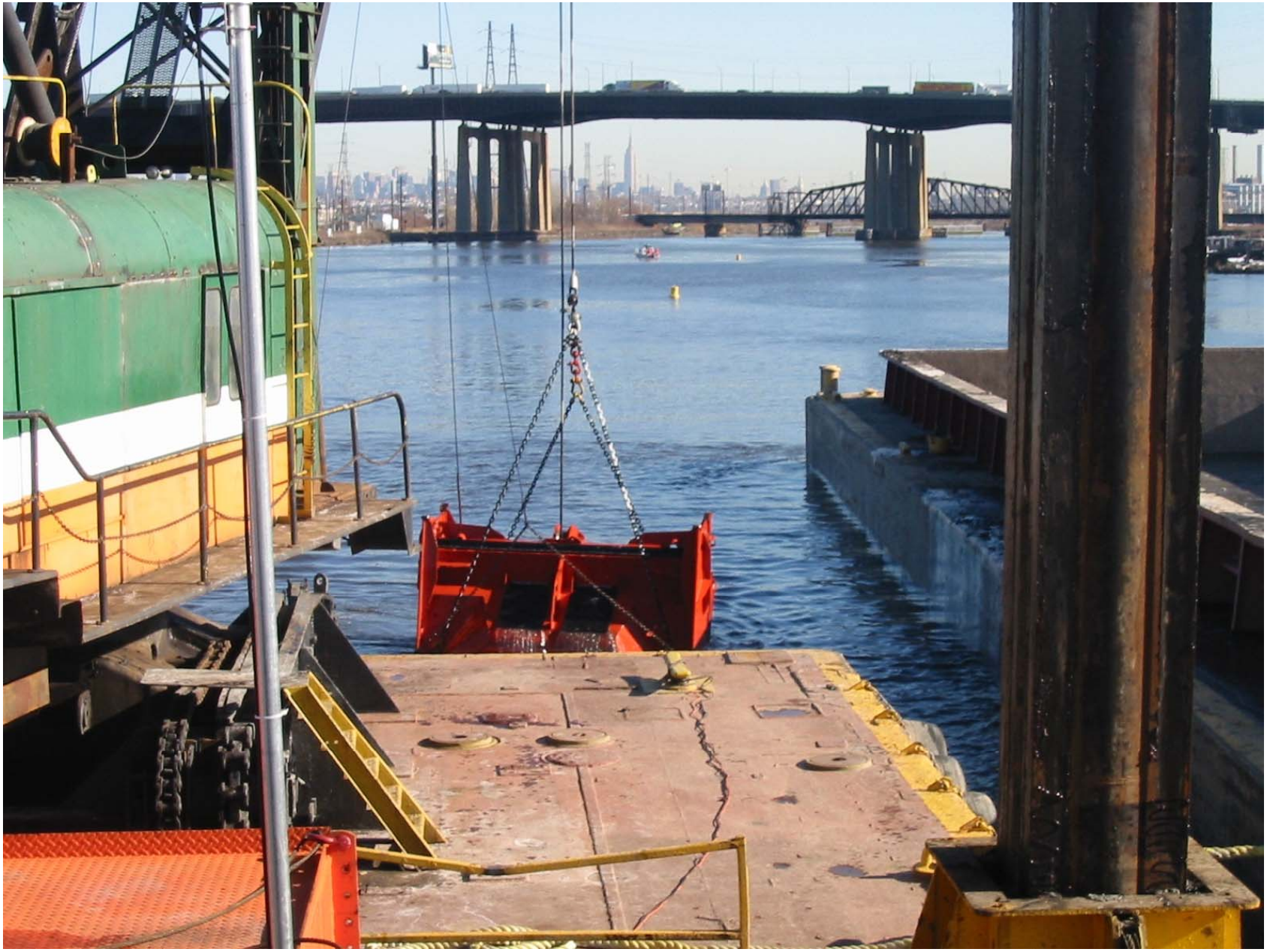
February 2009

Dredged Material

Lower Passaic River Restoration Project

Figure 2c

February 2009



Dredged Material

Lower Passaic River Restoration Project

Figure 2d

February 2009

Dredged Material

Lower Passaic River Restoration Project

Figure 2e

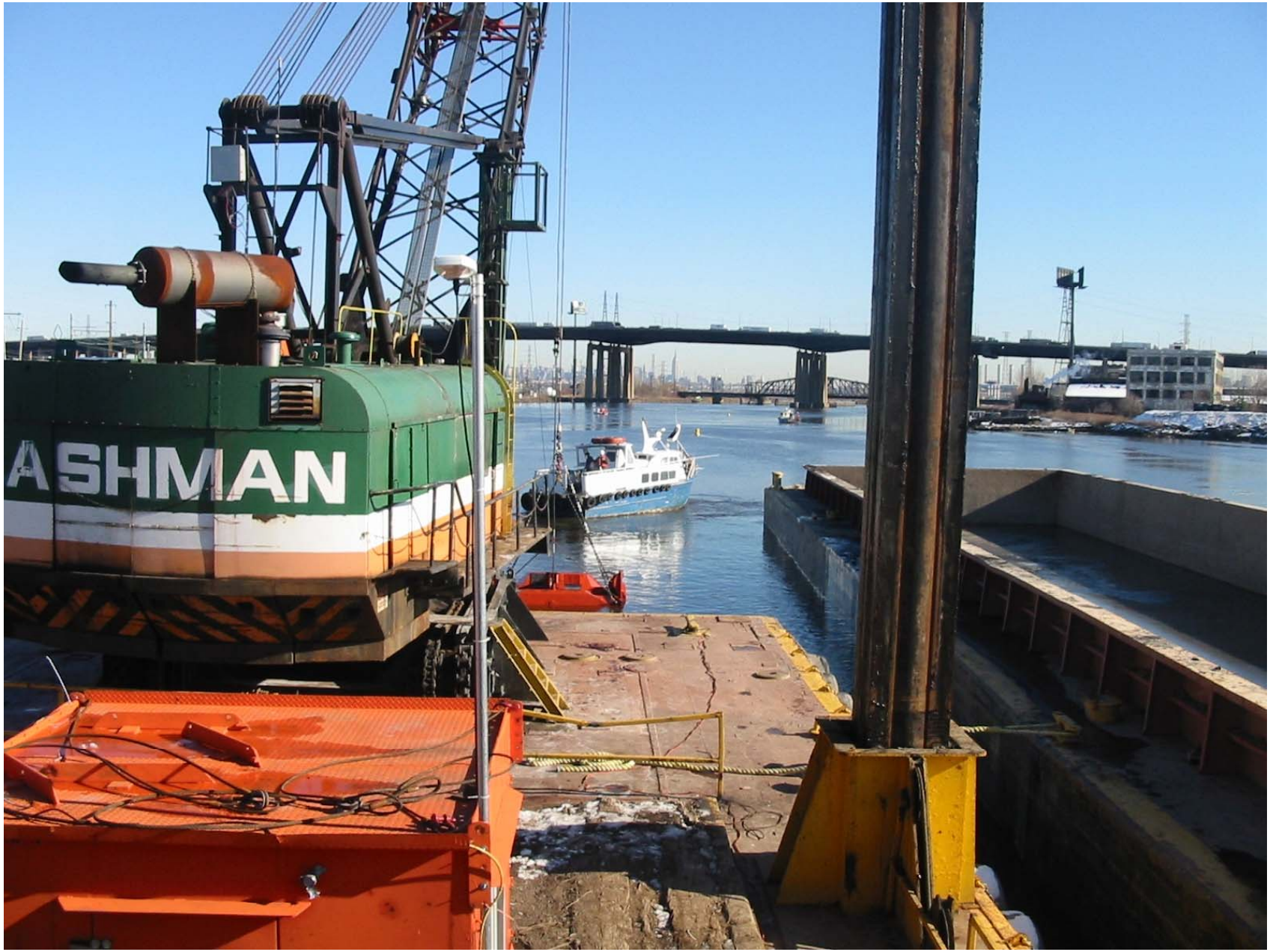
February 2009

Dredged Material

Lower Passaic River Restoration Project

Figure 2f

February 2009



Dredged Material

Lower Passaic River Restoration Project

Figure 2g

February 2009

Decontamination Technology

Decontamination Technology Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
19	The contractor was to transport dredged materials to the Bayshore Recycling 'decontamination facility' located in Keasbey, NJ. Offloading of dredged sediments was to be conducted by the sediment processing contractor, for segregation and transportation to their own facilities. Debris was to be screened for anything above ¼- inch. The draft EDPS Report does not disclose what volume or tonnage of debris was screened, the production capacity of the offloading operation, or problems encountered; therefore we conclude that offloading system performance was not assessed during the EDPS.	Debris Screened	Provided in binder.
20	The offloading facility was apparently constructed in Summer 2005, but no plans, photos, or construction description were provided with the draft EDPS Report. Apparently there were delays in the construction of the offloading facility that caused the project to delayed at least 3 months. The draft EDPS Report does not discuss the construction problems that caused the delays.	Offloading facility construction delays	Comment repeats.
21	To achieve an expected treatment objective for a full-scale LPRRP, it is possible that multiple passes of the contaminated sediment through one, or more, treatment processes may be required. The draft EDPS Report does not provide a description and assessment of the pilot treatment systems (BioGenesis Sediment Washing and Endesco Thermo-chemical treatment) effectiveness, logistics, and costs encountered on the EDPS. This information should be provided to the CPG and stakeholders for consideration in developing a full-scale remedy.	Description of pilot treatment systems	Refer to final decontamination reports, which will be posted on the public website when complete.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Debris Screened

Source: Provided by Eric Stern (USEPA) on January 30, 2009

The dredged material from the Lower Passaic River was transported to the BioGenesis Sediment Washing Facility located in Keasby, NJ. BioGenesis's subcontractor offloaded the dredged material and stored it in the upfront storage facility (ship). During offloading the material was screened to ± 1/4 inch, and a total of 118 tons of oversized material was removed and disposed.

Bathymetric Surveys

Bathymetric Survey Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
22	Daily Hydrographic Surveys. Daily multibeam hydrographic surveys of the project dredge area were conducted as reported in the draft EDPS Report (Section 4.1.1, Pg.4-1); however the multibeam survey data was not provided in the EDPS documents.	Daily bathymetric surveys	Available upon request.
23	Daily and pre- and post-dredge survey information, including raw and processed data, and plotted files, should be made available to the CPG and takeholders as part of the EDPS report.	Pre-dredge and Post-dredge surveys	Available upon request.
24	If surveyor's daily logs were maintained, and calibrations of the bathymetric survey systems performed over the duration of the EDPS, this information should have been made available to the reader. There also should have been a report prepared by the Survey subcontractor documenting equipment, procedures, and results of the bathymetric survey, including field work and post-processing work. This information was not provided in the draft EDPS.	Surveyor daily logs	Not available.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Daily Bathymetric Survey Data

Daily bathymetric survey data are available upon request.

Please send inquiries to:

Dr. AmyMarie Accardi-Dey
Malcolm Pirnie, Inc.
104 Corporate Drive
White Plains, NY 10602-0751

Pre-Dredge and Post-Dredge Bathymetric Survey Data

Pre-dredge and post-dredge bathymetric survey data are available upon request.

Please send inquiries to:

Dr. AmyMarie Accardi-Dey
Malcolm Pirnie, Inc.
104 Corporate Drive
White Plains, NY 10602-0751

E 593,000
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E 594,000
E 594,500
E 595,000
E 595,500
N 696,000
N 695,500
N 695,000
TARGETED DREDGING ELEVATION = -15'
TARGETED DREDGING ELEVATION = -13'
TARGETED DREDGING ELEVATION = -11'

NOTE:

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* TSS 320 POS/MV.
* Coastal Oceanographics "HYPACK" software.

Coordinates are expressed in feet and refer to the NEW JERSEY MERCATOR (NAD 1983) System.

Soundings or Elevations refer to MEAN LOW WATER as determined from

Bench Mark "PK/T-GAUGE"(KV0262)

Elevation 6.01 feet above NGVD 29

The Plane of Mean Low Water is 2.4 feet below Mean Sea Level (as per The U.S. Army Corps of Engineers) .

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

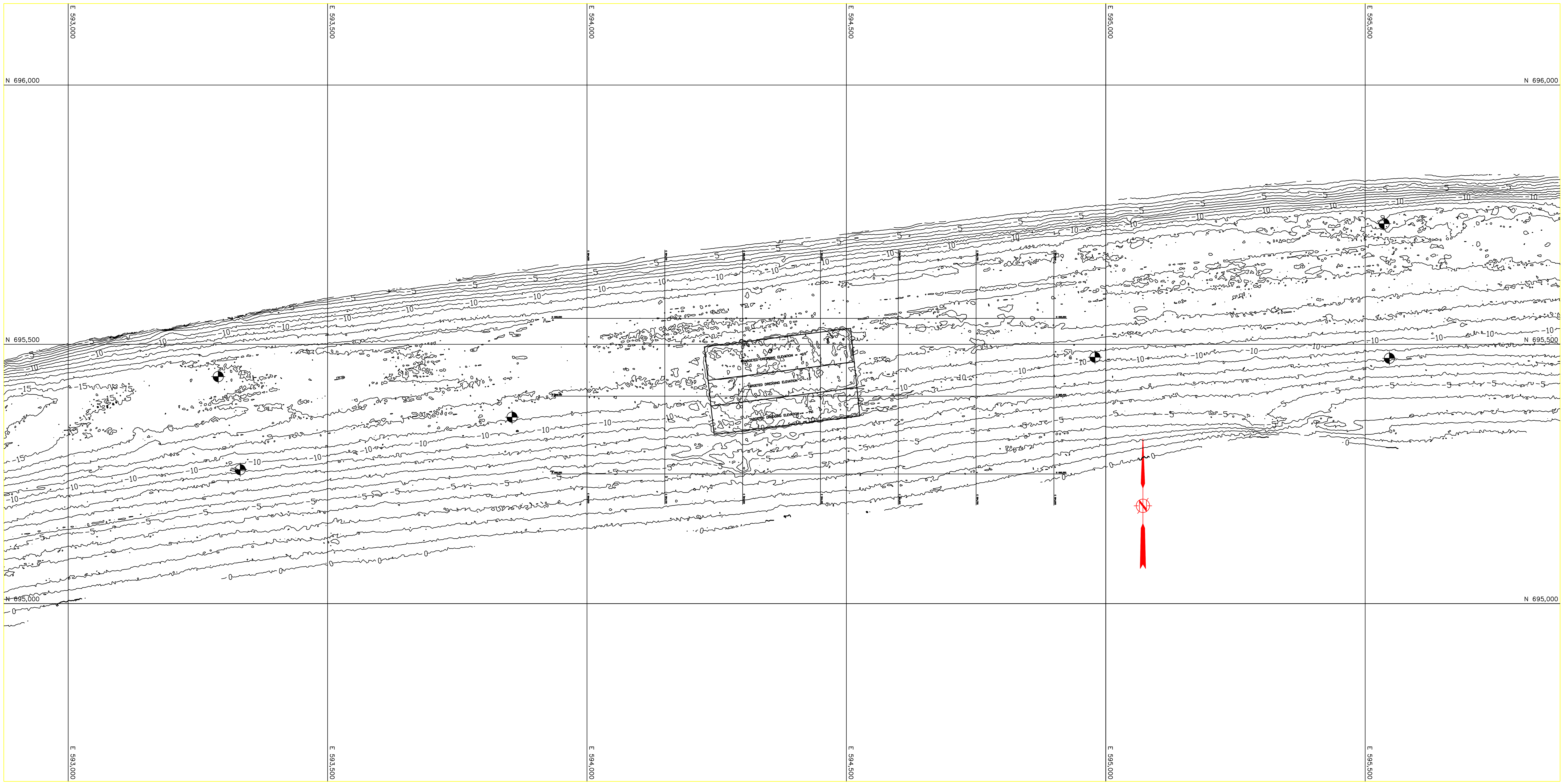
I hereby certify that this map indicates the conditions existing as of the date indicated hereon to the best of my professional knowledge.

William A. Rogers, L.S. New Jersey State
#22254 A.C.S.M. Certified Hydrographer #151

REVISIONS	JOB #	DATE	FB. / PG.

LOWER PASSIAC RIVER DREDGING PILOT STUDY NEWARK, NEW JERSEY

Drafted by: DWR	Rogers Surveying, P.L.L.C.	Date : 11/28/05
Checked by: VLB	1632 Richmond Terrace, Staten Island, N.Y. 10310 Tel: (718) 447-7911 Fax: (718) 876-0899 www.rogerssurveying.com	Scale : 1"= 100'
Dwg. File: 25582		Job No. : 29136
Disk No. SHT 1 OF 1	PRE DREDGE HYDROGRAPHIC SURVEY	F.B./Pg.



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REVISIONS	JOB #	DATE	FB. / PG.	

LOWER PASSIAC RIVER DREDGING PILOT STUDY NEWARK, NEW JERSEY

Drafted by: DWR

Checked by: VLB

Dwg. File: 25582

Disk No. SHT 1 OF 1

Rogers Surveying, P.L.L.C.
1632 Richmond Terrace, Staten Island, N.Y. 10310
Tel: (718) 447-7311 Fax: (718) 273-3580
www.rogerssurveying.net

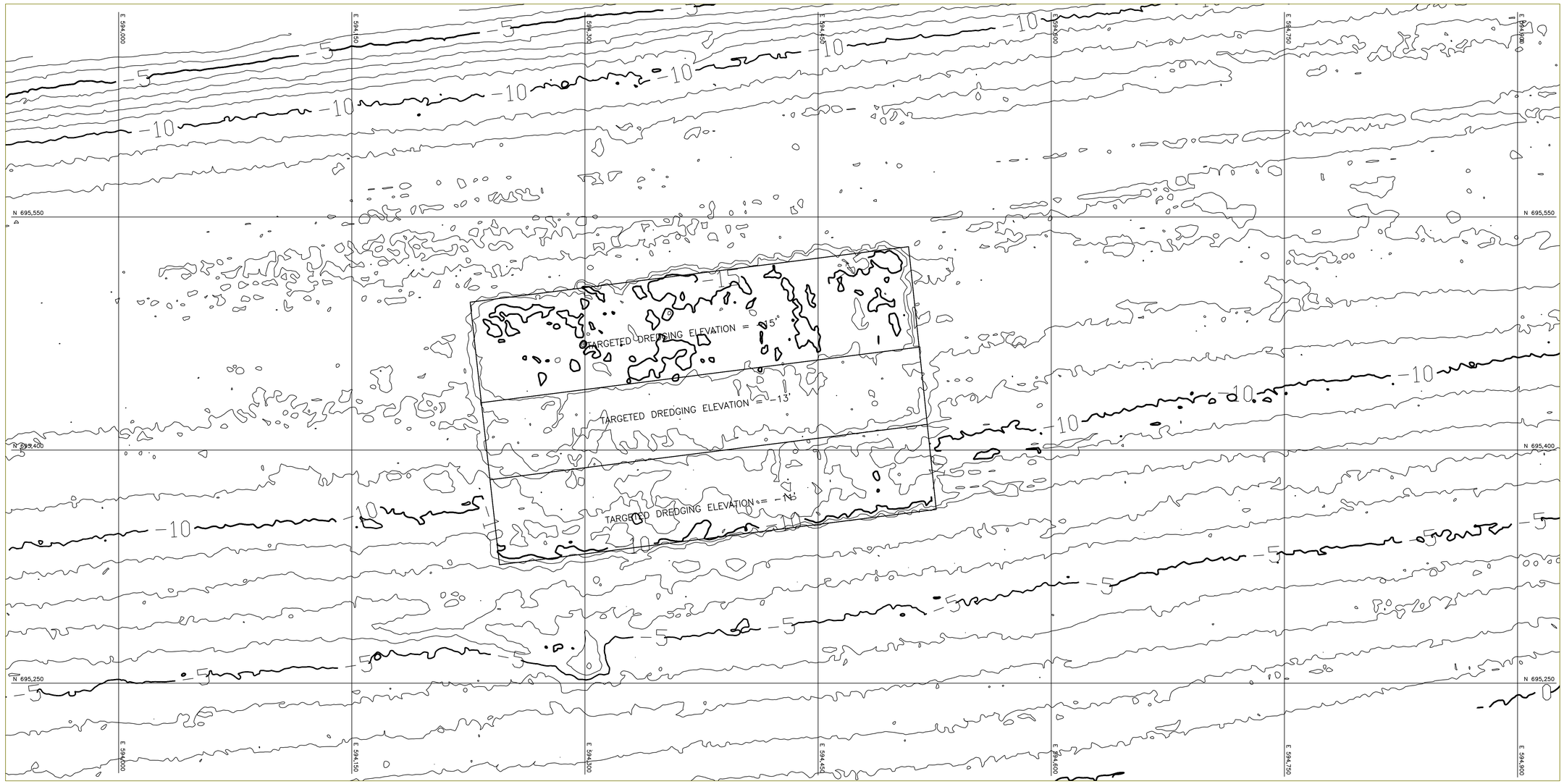
POST DREDGE HYDROGRAHPIC SURVEY

Date : 12/11/05

Scale : 1"= 100'

Job No. : 29136

F.B./Pg.



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REVISIONS	JOB #	DATE	FB. / PG.

LOWER PASSIAC RIVER DREDGING PILOT STUDY NEWARK, NEW JERSEY

Drafted by: DWR	Rogers Surveying, P.L.L.C. 1692 Richmond Terrace, Staten Island, N.Y. 10310 Tel: (718) 447-7911 Fax: (718) 273-3000 www.rogerssurveying.net	Date : 12/11/05
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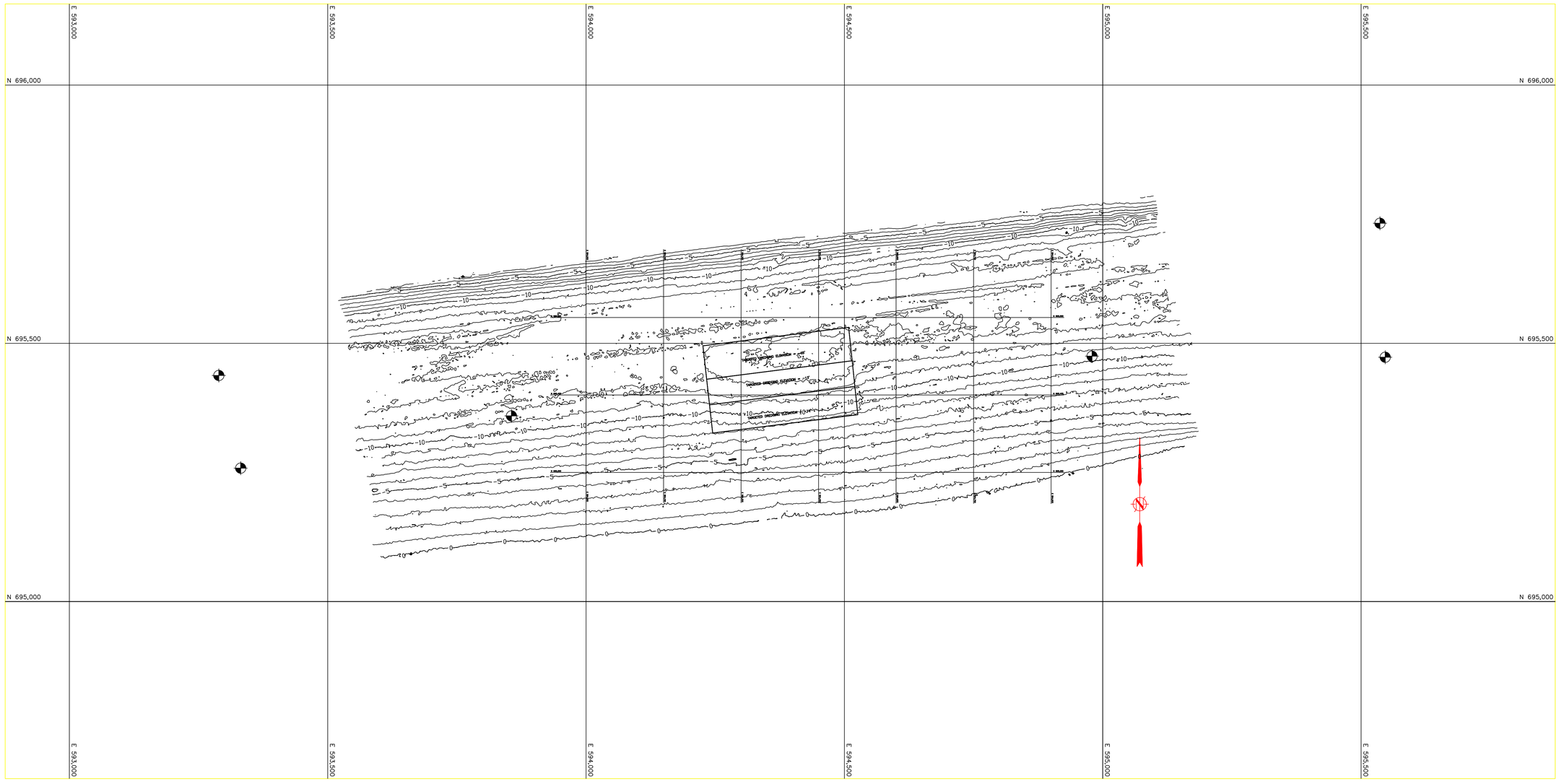

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LOWER PASSIAC RIVER DREDGING PILOT STUDY NEWARK, NEW JERSEY

Drafted by: DWR	Rogers Surveying, P.L.L.C. 1592 Richmond Terrace, Staten Island, N.Y. 10310 Tel: (718) 442-7311 Fax: (718) 273-2000 www.rogerssurveying.net	Date : 2/15/06
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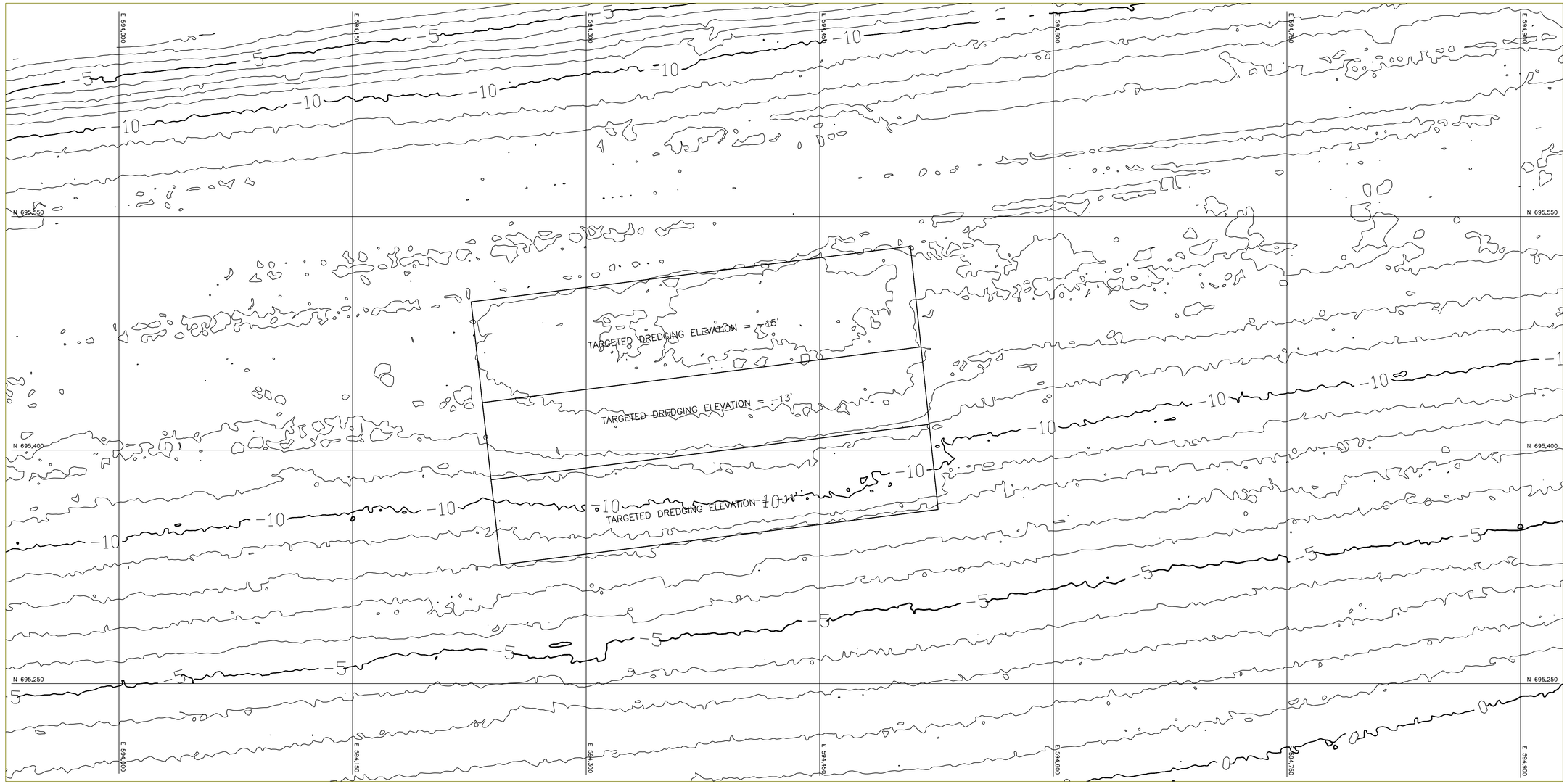

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REVISIONS	JOB #	DATE	FB. / PG.

LOWER PASSIAC RIVER DREDGING PILOT STUDY NEWARK, NEW JERSEY

Drafted by: DWR	Rogers Surveying, P.L.L.C. 1682 Richmond Terrace, Staten Island, N.Y. 10310 Tel: (718) 447-7911 Fax: (718) 273-3899 www.rogerssurveying.net	Date : 2/15/06
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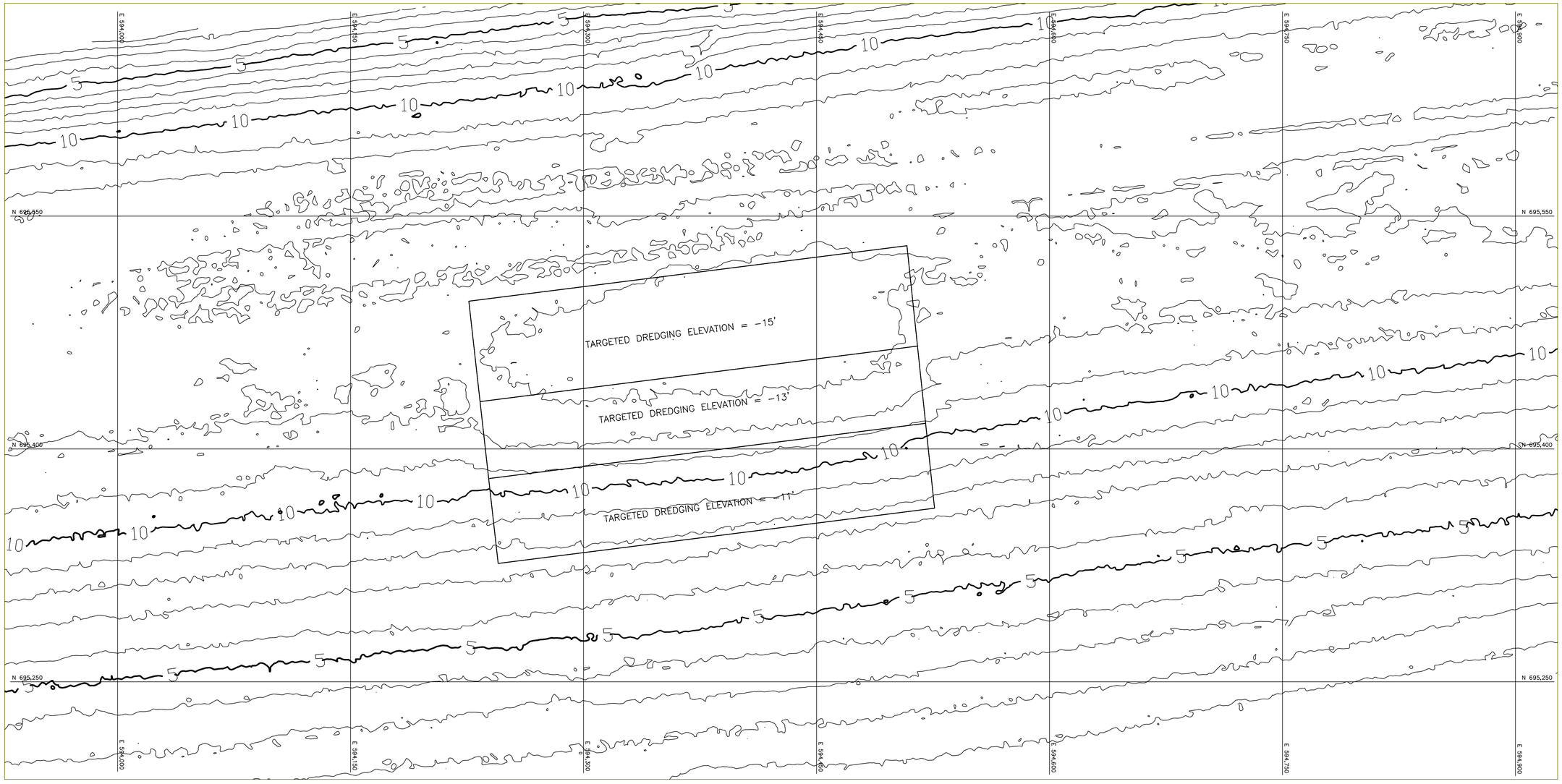

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LOWER PASSIAC RIVER DREDGING PILOT STUDY NEWARK, NEW JERSEY

Drafted by: DWR	Rogers Surveying, P.L.L.C. 1632 Richmond Terrace, Staten Island, N.Y. 10310 Tel: (718) 447-7911 Fax: (718) 979-0980 www.rogerssurveying.net	Date : 4/18/06
Checked by: BW		Scale : 1"= 30'
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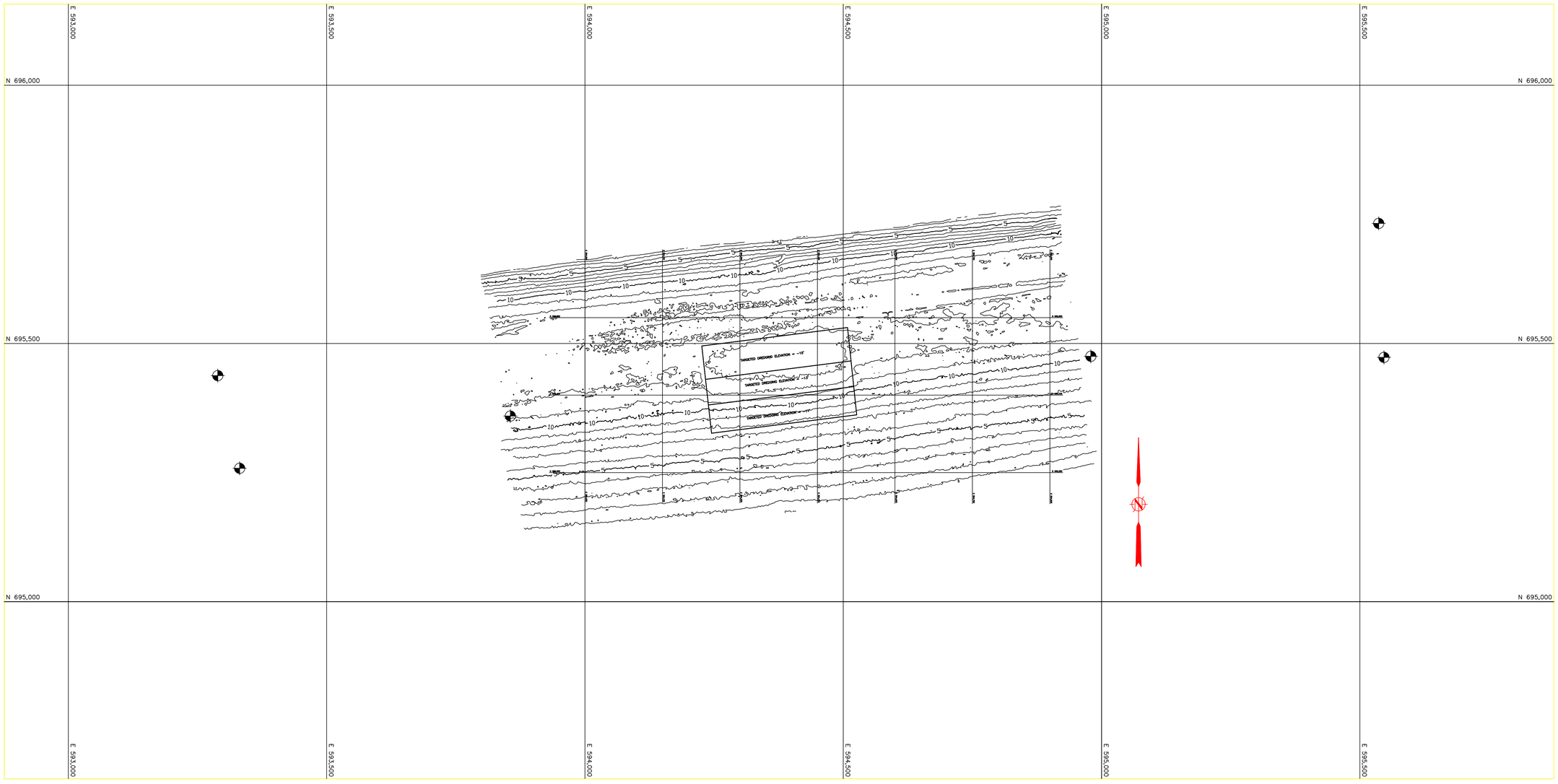

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Checked by: BW		Scale : 1"= 100'
Dwg. File: 29136		Job No. : 29655
Disk No. SHT 1 OF 1	HYDROGRAHPIC CONDITION SURVEY	F.B./Pg.

Dredging Proposal/Crew Experience

Crew Experience Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
25	The Dredging Pilot Procurement Process [August/September 2005], including the Project Plans and Specifications originally solicited to contractors during procurement does not indicate whether the contractor was required to have experience in environmental dredging operations. Reference to a pre-qualification step is made in these documents, however the prequalification solicitation and submittals were not included in the draft EDPS Report or other available documents. These records should be provided for review as part of the draft EDPS Report.	Jay Cashman, Inc. proposal	Provided in binder.
26	The draft EDPS Report does not provide key crew experience information including number of crew, and whether the crew was experienced in conducting environmental dredging operations using the environmental bucket, rinse tank, and the ClamVision© system, prior to the EDPS. The draft EDPS also does not indicate whether the crew had acquired the necessary 40-hour OSHA training (including 8-hour refreshers) prior to working on the EDPS.	List of crew and organizational chart.	Provided in binder.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Jay Cashman, Inc.
Lower Passaic River Dredging Pilot Study Proposal (September 2005)

Table of Contents

DREDGING PLAN

Jay Cashman Inc., ("CASHMAN") is pleased to provide this proposal to implement the Lower Passaic River Dredging Pilot Study (the "Work" or "Pilot Study") as described in the New Jersey Department of Transportation (the "Department" or "NJDOT") specifications pursuant to Contract No. ESS000030. CASHMAN understands the Department's objective of the Pilot Study is to study dredging productivity and sediment re-suspension in the Lower Passaic River. This design data will be used to develop the full-scale remediation plan for the Lower Passaic River. We also understand the importance of working and interacting with the Department's team of scientists and consultants tasked with monitoring this important work. CASHMAN has the expertise, local presence, and owned equipment inventory to complete this project in accordance with the Department's requirements and we look forward to this opportunity.

The following is CASHMAN's intended procedure to execute the operational requirements of this project. The terms Contractor, Department and Engineer are defined using the definitions provided in the specifications for this project.

Sequence of Events

The sequence of events shall be developed in the project schedule submitted with the Final Work Plan due after contract award. It will address those tasks described below:

1.0: Award and Notice

The contract documents state that an award will be issued within thirty (30) state business days after bids are received, and a Notice to Proceed will be provided upon execution of the Contract by the NJDOT Commissioner. We understand that the Department has expressed its interest in expediting the Contract Award and Notice to Proceed and CASHMAN agrees with this approach to ensure there is sufficient time to complete this important project within the prescribed timeframe. Upon award of this

contract, CASHMAN will expedite measures to execute the conditions required by the contract including but not limited to securing a performance bond.

CASHMAN understands that the exact date of construction is dependent upon the Lower Passaic River Harrison Reach project area tidal cycles and shall be determined by the Department. CASHMAN will provide the Department with the 10 days required advance notice of our intended start-date. The specification identifies projected start windows of October 24-28, 2005 or November 7-11, 2005, with a dredging completion date no later than November 18, 2005. We understand the Department prefers the early start date and CASHMAN will work toward this timeframe.

2.0: Submittals

It is CASHMAN's understanding that time is of the essence. As a result, the following project submittals will be processed on an expedited basis:

- Work Plan and Schedule (Submitted within 5 days of receipt of the written Notice to Proceed); and
- Health and Safety Plan (Submitted within 10 days of written Notice to Proceed).

The Health and Safety Plan ("HASP") shall conform to the project specifications including applicable state and federal worker safety requirements. For this project, all CASHMAN worker's will be 40 hour trained pursuant to 29 CFR 1910.120.

Additionally, and to maintain the purpose of the expedited review, it is assumed that the Department shall review and provide comments to the reports in the respective time frames noted above, or sooner. If comments are received, CASHMAN shall work with the Department and its Engineer to expedite the completion of these reports.

The schedule and plans will be finalized upon review and agreement with the Department.

3.0 Mobilization

Upon receipt of a written Notice to Proceed and approval of submittals, CASHMAN will mobilize appropriate equipment to our Staten Island, NY yard for initial preparation and a safety inspection.

The equipment will include the Dredge "Wood II" with an 8 cy environmental bucket, three (3) SEI 3001 Hopper Barges (3000 Tons Capacity), Tug Gunny (800 HP), a work boat/survey boat and various ancillary equipment. Additional barges and other equipment will be mobilized from CASHMAN's Staten Island yard, as necessary. A detailed Proposed Equipment List is provided in Tab 4, specifications and pictures provided in Tab 5 of the hard copy submittal.

Wood II

4.0: Dredging (Completed by Nov. 18, 2005)

4.1: Pre-Dredging Bathymetric Survey

Pursuant to the project specifications, and under CASHMAN'S direction, a pre-dredging bathymetric survey will be performed by Roger's Engineering, Inc., of Staten Island, New York, prior to the start of dredging operations. This work will be coordinated with the Engineer's survey contractor and the shared data will be used to establish baseline conditions.

Based on our extensive experience working on other projects, particularly navigation projects, CASHMAN advises against. In our experience, tighter grid spacing usually results in several iterations in the field and this typically results in over-digging. Because the project parameters specifically emphasize the need to avoid disturbing deeper sediments, CASHMAN recommends maintaining the recommended larger grid spacing. This will minimize the inclination to over-dig and ensure that the project stays within its defined parameters.

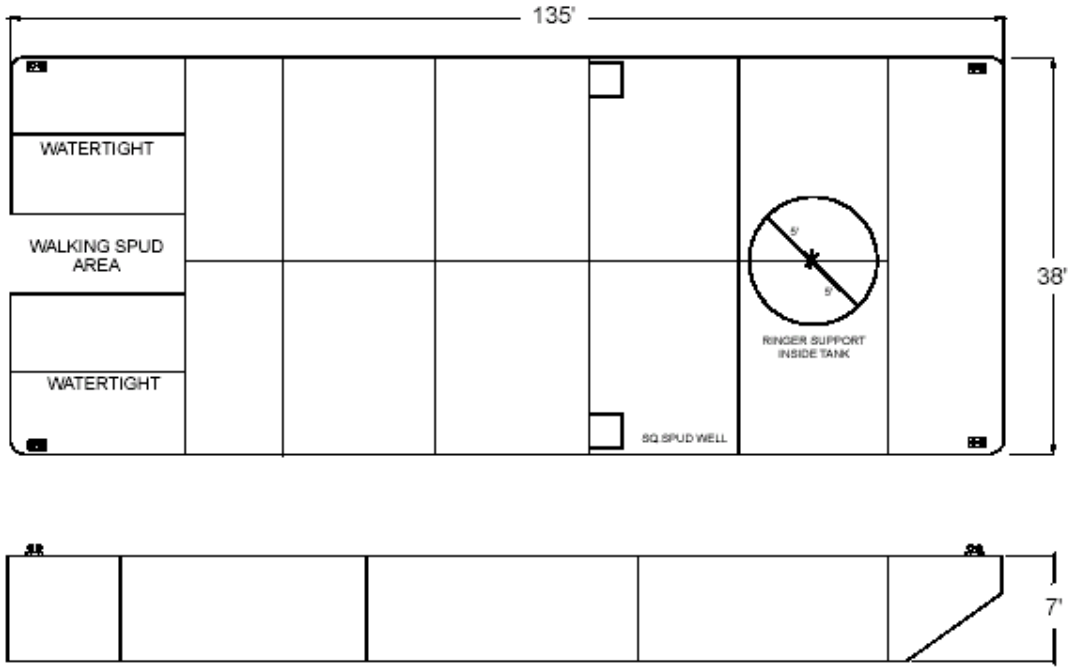
4.2: Dredging of Contaminated Materials

Cable Arm Bucket System

As stipulated in the project specifications, dredging will be conducted using an eight (8) cubic yard environmental clamshell bucket manufactured by Cable Arm. The Cable Arm clamshell bucket's light-weight design enables only soft sediment to be removed. The bucket will be placed on the bottom in the area immediately in front of the dredge. During the loading cycle, the bucket will be dipped into a barge mounted wash tank to prevent any sediment from re-entering the water column.

The following is a specification for the Wood II dredge, with more detailed information provided in Tabs 4 and 5 as part of the hard copy submittal.

WOOD 2



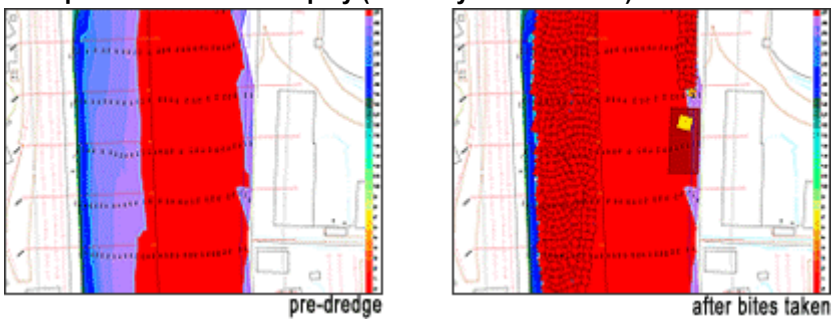
As discussed below in the Alternatives Methods Section, during full-scale remediation, CASHMAN would retrofit the Wood II with a dredge cell system to enclose the dredged area in order to minimize sediment re-suspension.

4.3: Dredge Bucket Positioning System Software

Our proposed bucket positioning method is provided to ensure compliance with the specifications and to avoid over-digging to the extent possible. Our dredge bucket elevation will be monitored using Cable Arm's ClamVision software. The ClamVision software is a fully integrated dredge positioning system. It provides the Operator with a real time view of the barge and clamshell bucket positions, as they exist over the dredging project.

ClamVision displays a 3D, color-coded surface derived from existing hydrographic survey data. Each bucket cut is also recorded and color-coded based on the vertical cut depth. ClamVision also provides data on the number of cuts remaining by showing the horizontal area yet to be excavated. To further help the Operator, an information box provides instant feedback showing current depth, final project depth, target depth, and current bucket depth.

Example of Clamvision Display (courtesy of Cable Arm)

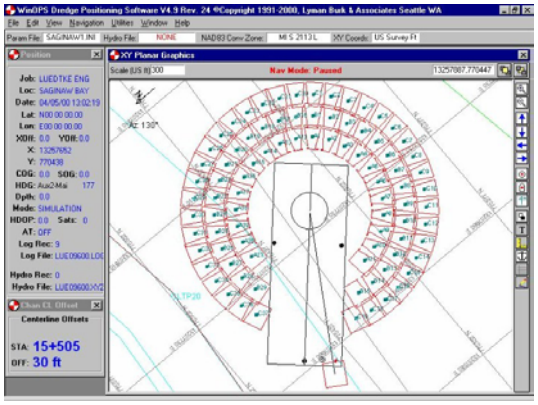


Projects requiring uniform removal over a specified area can be difficult for some dredging systems. For example, the bottom is constantly sloping and the specifications call for one (1) foot of material to be removed throughout. ClamVision has a separate mode specifically for these situations. In this mode, color is no longer directly tied to depth, but is tied to the “distance to completion."

Sensors on the crane boom and the hoist drum will be calibrated daily to maintain consistent vertical measurements. The Operator will observe a digital read-out of the bucket elevation on the computer screen. The screen will also display the maximum depth not to be exceeded. The Operator will also be provided with several fields on the screen as shown below to aid in efficient and precise excavation.

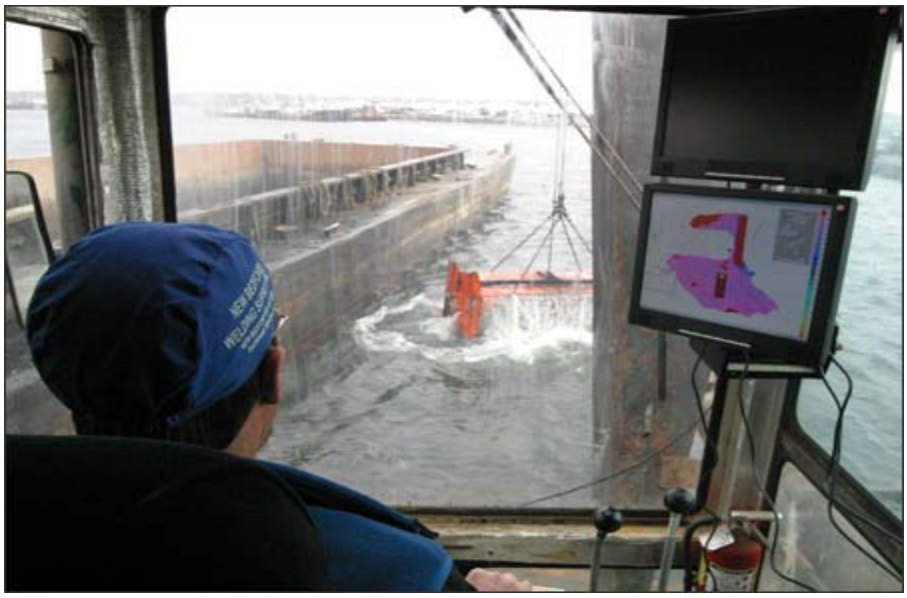
4.4: Dredge Positioning

Dredge Positioning



Dredge Positioning will be provided by an MS860 RTK GPS positioning system. The system will utilize RTK GPS for the location of the barge and the boom tip. The barge will also use a Gyro to determine the barge azimuth to insure proper alignment of the barge with dredge cuts. This helps to insure that all areas can be covered in the first pass. Through the use of dual computer display monitors, the system provides the Operator and the Dredge Captain with a real time plan view of the dredge location and the bucket location. The bucket location will be superimposed on a digging rose pattern indicating the actual footprint of the bucket. Providing this information to both the Operator and the Dredge Captain greatly facilitates the movement of the dredge by optimizing communication and operational control.

4.5: Data Integration



CASHMAN will integrate all the data generated providing the Operator with an accurate and real time assessment of project conditions. The data will be assimilated into daily reports pursuant to the project requirements. These will be submitted to the Engineer, and the Dredge Captain, each day as specified, in quadruplicate.

CASHMAN's surveyor will perform hydrographic surveys daily to monitor progress and for general quality control. The surveys will be reviewed to ensure dredging has not exceeded the design depth and to establish areas that will require re-dredging.

CASHMAN will use its best efforts to avoid over-digging. As discussed above, keeping larger grid settings will help achieve this objective. Although it is not anticipated, areas that exceed the depth criteria will be backfilled in six-inch lifts with the specified backfill material.

4.6: Wash Tank and Rinse Water Management

The wash tank will be staged on a deck barge adjacent to the dredge. The hopper barge will be stationed on the other side of the dredge. The purpose of this arrangement is to expedite procedures in the field by keeping the components within the same crane boom setting. After each cycle, the bucket will be dipped in the wash tank to rinse any sediment from the bucket.

After a minimum retention/decant time of 24 hours from the last addition of water, the rinse water will be discharged back into the Passaic River in the dredging area as outlined in the Federal Consistency Determination/Water Quality Certificate (FCD/WQC) issued by NJDEP. Per these requirements, this rinse water must meet total suspended solids limit of (30 mg/L) as specified in the FCD/WQC.

If necessary, to achieve the TSS levels, CASHMAN will use bag filters or similar device(s) to remove TSS from the water prior to discharging. Any used filters will be disposed at an approved facility. Any paperwork or manifests that require signatures will

be signed "On behalf of the Generator", in this case identified as the Department. In the alternative, this waste material can be containerized, labeled, and delivered to the Decontamination Facility for offloading and management at its cost.

4.7: Debris Management

CASHMAN intends to complete the dredging using the Cable Arm bucket as specified above. We further intend to remove debris and sediment, commingled, as part of the dredging activity. This material will be delivered to the Decontamination Facility as discussed below. Debris that is considered at or below the target excavation depth will be left in place. Because CASHMAN anticipates the Decontamination Facility will manage most of the debris encountered, it is assumed minimal additional debris will require separate management and offsite disposal. This material will be managed and disposed in accordance with appropriate requirements, following the procedures discussed above in 4.6.

4.8: Material Management and Delivery to Decontamination Facility

At the conclusion of each dredging shift, CASHMAN will transport each scow containing dredged sediment to the BioGenesis Washing BGW, LLC facility (the "Decontamination Facility"), located at 75 Crows Mill Road, Keasbey, NJ.

In accordance with the Sediment Delivery Terms Sheet (the "Terms Sheet") dated 09/13/2005, the Decontamination Facility will accept the sediment dredged from the Lower Passaic River (including any oversized debris) at the facility by dredge scow, at its designated offloading location.

Based on our experience, there may be some potentially limiting factors associated with this facility. First, the area adjacent to this facility is shallow, approximately 7.6' deep. As a result, CASHMAN must light load its scows to eliminate draft. CASHMAN prefers to avoid timing tide cycles as this increases the risk of damaging our vessels. We expect to deliver approximately 500 yards of material with each load. If necessary, CASHMAN may also use alternate material barges to minimize draft.

Second, the facility hours of operation as provided overlap with our limited dredging window. We have discussed this with facility representatives and they have indicated they would work with the Contractor to accommodate the tight project schedule.

As referenced in Contract Addendum #1, "The Decontamination Facility will offload and transfer the transported materials to their own facilities, where the materials will be segregated." CASHMAN assumes any residual water remaining after the dredge unloading shall be minimal. However, should excess water be encountered CASHMAN assumes this water will be offloaded and managed by the Decontamination Facility at no cost to Contractor.

Pursuant to the Terms Sheet, BioGenesis will offload the delivered sediment at no cost to the Contractor. The BioGenesis stated offload rate is 1,000 cubic yards per day. Depending on the bucket size used and other operational efficiencies, this operation could result in considerable project slowdowns if these limits can not be achieved. Further, it is understood that should the barge need to be moved during the unloading

CASHMAN CONSTRUCTORS

process, BioGenesis shall perform this task at their cost. Any additional costs related to these slowdowns shall not be the Contractor's responsibility.

CASHMAN does have concerns that operational delays may result if the Decontamination Facility is unable to perform at its stated production rate.

CASHMAN assumes no responsibility for those activities outside its control, including the operations of the Decontamination Facility.

CASHMAN submits this bid in reliance on the standby time pay items and our standard rates should the above and other out of scope items interfere with our ability to complete this project.

CASHMAN is available and welcomes the opportunity to provide additional support and input into this process to ensure it operates at maximum efficiency.

4.9: Water Quality Testing

CASHMAN understands the importance of the data collection aspects of this work. We understand the Engineer will have numerous subcontractors and consultants in and around the job site collecting water column samples, and performing other measurements and tasks. To the extent possible, CASHMAN will coordinate its daily work with the Engineer and its technical team to ensure all parties are in complete communication and to ensure the Engineer collects the highest quality data to achieve the Pilot Study objectives.

4.10: Post-Dredging Survey

Pursuant to the specifications, a bathymetric survey will be conducted at the conclusion of the project. The survey work will be performed by Rogers Engineering, Inc., at the direction of CASHMAN.

5.0: Demobilization

Upon completion and verification of the work, the staging area will be dismantled and the equipment will return to CASHMAN's facility in Staten Island, NY.

6.0: Decontamination

At the conclusion of the project, the barges will be decontaminated at the Decontamination Facility, and all resulting water and sediment shall be offloaded and managed by the Decontamination Facility.

7.0: Project Close-Out

Following substantial completion, Engineer will finalize as-built quantities for all Pay Items and Extra Work authorized and incorporated into the project. Contractor will assist

Engineer in preparation of As-Builts at no extra cost. Contractor has 20 days from receipt thereof, to accept or reject the proposed final as-built quantities.

After As-Builts are finalized, pursuant to the specifications, the Department will make an estimate of the total amount of Work completed under contract, and prepare and issue the Final Certificate to the Contractor. Pursuant to the specifications, the Contractor has 30 days to accept in writing or accept with reservations following the procedures stipulated in the specifications.

8.0: Alternative Methods

Dredge Cell

CASHMAN understands the intent of the Pilot Study field-work is to perform the work without containment systems to allow for the collection of sufficient data on sediment suspension, re-suspension and potential transport. This Pilot Study data will be used in the remedial design process for designing the full-scale remedy. Another objective of the study is to evaluate productivity by simulating production operations.

For full-scale dredging, Jay CASHMAN, Inc. would use a dredge cell approach that would serve as a platform for the rinse tank and silt curtain or sheet pile containment system. CASHMAN would like to discuss this aspect with the Department in more detail prior to starting the Pilot Study, as these procedures would be used during the full-scale operation and could be evaluated for their effectiveness during this Pilot Study. The following is a brief description of the dredge cell approach methodology.

Install Environmental Protection –Dredge Cell

Prior to the start of the full-scale dredging operation, all environmental protection measures will be in place. CASHMAN will fabricate a dredge cell that will be attached to the Wood II. The dredge cell will include a wash tank and spill containment barriers. The dredge cell will consist of flexi-floats coupled together with H beams. The primary silt curtain will be attached to the beams to completely enclose this area. Therefore, only a relatively small area of the water will be exposed to suspended sediments. The bucket will be placed on the bottom in the area immediately in front of the dredge, which will be completely surrounded by the primary silt curtain. The dredging work will be performed inside this cell. The rinse tank will be positioned on the H beam frame. The dredge will excavate sediments, place them in the adjacent scow, rinse the bucket and resume dredging. CASHMAN believes this approach optimizes the ability to contain suspended sediment. If required by the Engineer, CASHMAN can provide costing to evaluate this approach during this Pilot Study.

9.0: Additional Company Resources

Jay Cashman, Inc. has additional resources to bring to this project through our wholly owned Sterling Equipment Company (www.sterlingequipment.com). Through Sterling we have an inventory of floating equipment valued in excess of $60 million. Should circumstances warrant, and additional resources are required, please be advised that Jay Cashman, Inc. stands ready to provide these resources.

Jay Cashman, Inc. – The Right Choice

PROJECT REFERENCES

Environmental Dredging Projects (First 5)

- **Demonstrated Experience Dredging and Handling/Disposing Contaminated Sediments**

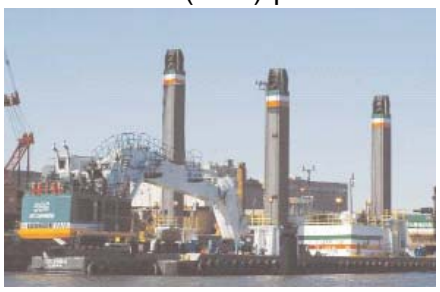
1) **Kill Van Kull Contract 8,** Newark Bay, NJ

Owner:	Army Corps of Engineers, NY District
Address:	26 Federal Plaza, New York, NY 10278-0090
Value:	$37,000,000
Dates:	July 2003 – November 2004
Contact:	Mr. Hal Hawkins, Project Manager
Address:	26 Federal Plaza, New York, NY 10278-0090 Ph: (212) 264-9092

Environmental Compliance: Work was performed in accordance with regulations.

Kill Van Kull Contract 8, New York Harbor

Work on this project began in July 2003 and it has just been completed. The Kill Van Kull Channel (KVK) provides access to Newark Bay and is home to one of the busiest container ports in the world. Part of an aggressive improvement project, this phase increased the depth to 45 feet and generated approximately 1.5 million cubic yards of material. Of that volume, roughly 200,000 cubic yards of pre-characterized contaminated sediments considered unsuitable for ocean disposal were processed and placed at a designated upland disposal site. The remaining material – a combination of silt, clay, and some rock – was transported out to sea and placed as cap material over a Historic Area Remediation Site (HARS).



2) **Fort Point Channel Dredging**, Boston, MA

Owner:	Massachusetts Turnpike Authority
Address:	185 Kneeland Street, Boston, MA
Value:	$2,000,000
Dates:	June 2002 – March 2003
Contact:	Mr. Matt Wiley
Address:	185 Kneeland Street, Boston, MA Ph: (617) 951-6094

Environmental Compliance: Work was performed in accordance with regulations.

Fort Point Channel Dredging, Boston, MA

Contaminated dredge sediments were excavated under strict turbidity controls to an exact elevation to accept pre-cast concrete erosion control mats and perimeter rip rap.

This area of the channel is subject to a 9-foot tidal range and is only 50 feet wide. In Fort Point Channel the contamination was predominantly low-level TPH, with varying degrees of metals but mostly lead and arsenic. These materials were transported by barge to Spectacle Island where they were either processed with cementious materials or amended with other soils prior to placement and compaction. Similarly, dredged sediments from the KVK Project in New York that required upland disposal were pretreated with cement and fly ash prior to upland disposal.

3) **New Bedford Pier Dredging**, New Bedford, MA

Owner:	City of New Bedford, Harbor Development Commission
Address:	City Hall, 133 William St, New Bedford, MA 02740
Value:	$3,300,000
Dates:	June 2002 – August 2002
Contact:	John Simpson, Executive Director of the New Bedford Harbor Dev. Commission
Address:	City Hall, 133 William St, New Bedford, MA 02740 Ph: (508) 961-3000

Environmental Compliance: An Administrative Consent Order with penalty was received for unauthorized discharge of oil into the harbor when equipment became damaged as a result of striking debris on the harbor bottom. A negotiated settlement was reached with the Department of Environmental Protection to the satisfaction of both Jay Cashman, Inc. and the DEP.

New Bedford Pier Dredging, New Bedford, MA

Dredged 60,000 cubic yards of sediment requiring remediation and upland disposal. The project required compliance with strict environmental windows and accommodation of scheduled marine traffic deadlines. Cashman successfully made specific project milestones, completing dredge work before deadlines and getting the job done on time. Also, Cashman worked in cooperation by partnering with the City of New Bedford and the engineers.

4) **Portsmouth, NH Naval Shipyard Dredging**

Owner:	Department of the Navy
Address:	Portsmouth Naval Shipyard, Portsmouth, NH 03804-5000
Value:	$1,008,752
Dates:	December 2001 – April 2002
Contact:	Roger Hamlin, Resident Engineer
Address:	Portsmouth Naval Shipyard, Portsmouth, NH 03804-5000 Ph: (207) 252-7907

Environmental Compliance: Work was performed in accordance with regulations.

Portsmouth, NH Naval Shipyard Dredging

Dredged contaminated sediment alongside a pier/bulkhead at an active northeast marine facility. Material was dredged, dewatered, stabilized and disposed of at onsite upland disposal site.

5) **Maintenance Dredging Naval Weapons Facility**, Colts Neck, NJ

Owner:	Department of the Navy
Address:	Naval Facilities Engineering Command Lester, PA
Value:	$4,560,400
Dates:	October 2003 – January 2004
Contact:	Ms. Noel Willette, Contracting Officer
Address:	US Naval Facilities Command Ph: (610) 595-0552

Environmental Compliance: Work was performed in accordance with regulations.

Maintenance Dredging Naval Weapons Facility, Colts Neck, NJ

This winter project involved dredging material in deep water (35-40 feet) within the confines of a secure military facility. While in this sensitive security area, the dredging had to work around ongoing marine activity and complete the project within a limited period of time.

6) **Mamaroneck Harbor, NY**

Owner:	U.S. Army Corps of Engineers, NY District
Address:	26 Federal Plaza, New York, NY 10278-0090
Value:	$5,300,000
Dates:	January 1999 – April 2000
Contact:	John Tavolaro, Resident Engineer
Address:	26 Federal Plaza, New York, NY 10278-0090 Ph: (212) 264-9020

Environmental Compliance: Work was performed in accordance with regulations.

Mamaroneck Harbor, NY

The Mamaroneck Harbor dredging in New York was performed for the New York District Army Corps of Engineers. While not a large project, it posed the challenge of working in a shallow, narrow channel – one that needed to remain open for marine traffic every minute of every day. JCI used the 375 Caterpillar hydraulic excavator dredge. The work needed to be scheduled in tandem with traffic. No problems were encountered excavating 170,000 cubic yards of sediment in 3½ months.

7) **Hyannis Harbor Beach Nourishment**, Hyannis, MA

Owner:	U.S. Army Corps of Engineers
Address:	696 Virginia Rd, Concord, MA 01742
Value:	$1,300,000
Dates:	September 1998 – February 1999
Contact:	Chris Kirk, President Gibson & Cushman
Address:	38 Homan Ave, Bayshore, Long Island 11706 Ph: (631) 665-0353

Environmental Compliance: Work was performed in accordance with regulations.

Hyannis Harbor Project, Hyannis, MA

As part of the re-alignment and improvement of the entrance channel, which provides year-round ferry service to the islands of Martha's Vineyard and Nantucket, this project involved the hydraulic removal of 120,000 cubic yards of material. This material was placed and graded on three local beaches. The project also involved the mechanical removal and placement of contaminated sediment within a confined aqueous disposal site (CAD Cell) outside of the harbor entrance. All of the work was performed during severe winter weather and required that the channel remain open to a large fleet of commercial vessels.

8) **Nantasket Pier**, Hull, MA

Owner:	Massachusetts DEM Waterways
Address:	349 Lincoln St, Hingham, MA 02043
Value:	$1,750,000
Dates:	May 2000 – March 2001
Contact:	Kevin Maguire, Resident Engineer
Address:	349 Lincoln St, Hingham, MA 02043 Ph: (781) 740-1600

Environmental Compliance: Work was performed in accordance with regulations.

Nantasket Pier, Hull, MA

Mechanical dredging of the Weir River. Roughly 83,000 cubic yards of dredge was transported for open sea disposal. This project improved access to the redeveloped Nantasket Pier.

9) **Pilgrim Nuclear Power Plant**, Plymouth, MA

Owner: Boston Edison Company/Entergy Corp.
Address:

Value: $650,000
Dates: 1998

Contact: Jim Manning, Owner's Representative

Address:
Ph: (508) 830-7871

Environmental Compliance: Work was performed in accordance with regulations.

Pilgrim Nuclear Power Plant, Plymouth, MA

The Pilgrim Nuclear Power Plant Dredging project (40,000 cubic yards) in Plymouth, MA required precision dredging at the plant's cooling water intake structure. The turbidity controls were very stringent, due to concerns with plant turbines. Cashman employed turbidity-removal techniques successfully developed on past projects.

10) **Maintenance Dredging Scituate Entrance Channel and Scituate Harbor**

Owner:	U.S. Army Corps of Engineers
Address:	696 Virginia Rd, Concord, MA 01742
Value:	$2,100,000
Dates:	August 2002 – February 2003
Contact:	Maurice Beaudoin, Resident Engineer
Address:	696 Virginia Rd, Concord, MA 01742 Ph: (508) 294-9857

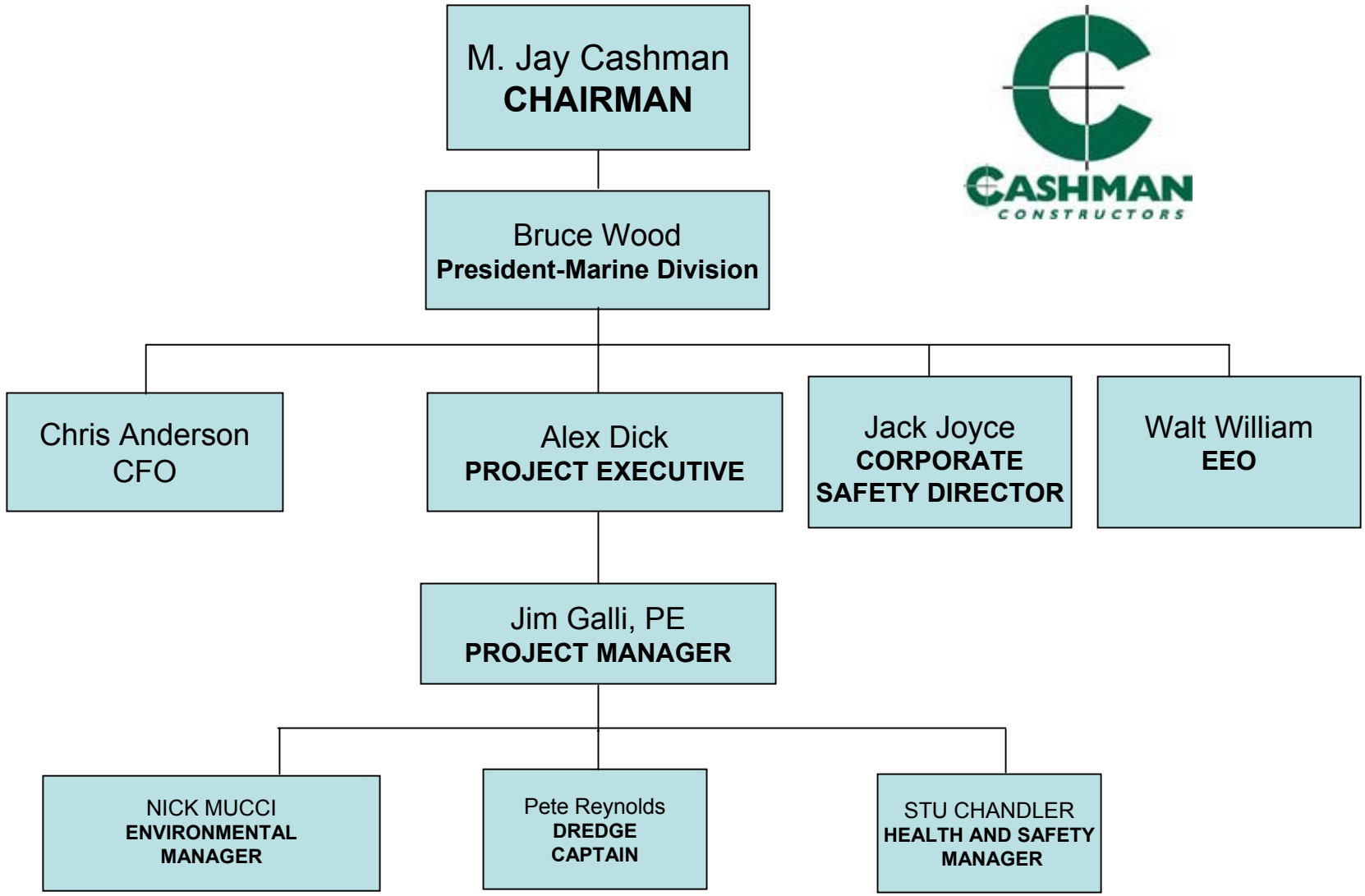
Environmental Compliance: Work was performed in accordance with regulations.

Scituate Harbor Dredging, Scituate, MA

Mechanical dredging with open sea disposal performed for NE District ACOE during limited dredging "window." Dredging was in confined channel that was kept open for active commercial fishing operations for duration of project. The project included environmental protection of sea grass beds and shellfish by maintaining over 4,000 feet of silt curtain throughout the project.

JAY CASHMAN, INC. ORGANIZATION CHART

Lower Passaic River Dredging Pilot Study Project



W. BRUCE WOOD
President - Marine Division
Jay Cashman, Inc.

EXECUTIVE SUMMARY

As President of Jay Cashman Inc.'s Marine Division, Bruce brings to the job more than 20 years' experience in the construction industry, with special expertise in complex, large scale marine work and high productivity dredging.

He is responsible for day-to-day operations management, estimating, and administration in the oversight of the majority of the company's marine, heavy construction, and highway sole ventures, ranging in size from under a million dollars to $50 million. Bruce also serves as President of Sterling Equipment, a subsidiary which owns, operates, and manages the twelve million dollars' worth of trucks, cranes, barges, and dredges used on Cashman projects.

In administration, he works closely with senior management, providing direction of the company's human resources, marketing, and contracts administration departments, as well as oversight of EEO, safety, and personnel policies.

Areas of expertise:
• dredging
• marine construction
• field construction operations
• bridge/pier construction
• personnel management
• heavy equipment operations, maintenance, and permitting

PROFESSIONAL EXPERIENCE

OPERATIONS OVERSIGHT OF THE FOLLOWING ONGOING PROJECTS
• *Principal-in Charge – Massachusetts Turnpike Millbury Interchange, Exit 10A*. Complete construction of a new interchange which links the Massachusetts Turnpike directly to access roads into the city of Worcester. Included in the work is demolition, earth moving, the widening of two existing bridges over the Turnpike, plus the construction of two new ones. Client: Massachusetts Turnpike Authority.
(Project value: $35 million)
• *Principal-in Charge – Boston Harbor Clean-up Project, Deer Island, Massachusetts.* Removal of the 700,000 tons of tunnel stone that were dug from the 9-mile outfall tunnel linking the Island's waste water treatment facility with undersea diffusers. Work required removal from the island by barge of materials which were transported to a pier in Everett and ultimately used to cap a contaminated site in Everett. Client: Massachusetts Water Resources Authority.
(Project value $17 million)

• *Principal-in Charge – Multiple Dredging Projects*. The company's dredging operations maintain vigorous, often around-the-clock schedules to maximize productivity during short windows of opportunity. The following dredging projects were completed or initiated during the 1996-1999 seasons:

- Pilgrim Power Plant (40,000 cubic yards)
- Plymouth Yacht Club (6,000 cubic yards)
- Old Colony Yacht Club, Dorchester (3,000 cubic yards)
- Cohasset Harbor (private client) (10,000 cubic yards)
- Scituate Harbor (U.S. Coast Guard) (7,500 cubic yards)
- Hingham Harbor (145,000 cubic yards)
- Deer Island, Boston Harbor (20,000 cubic yards)
- Mamaroneck Harbor, NY (160,000 cubic yards)
- Perth Amboy Marina, NJ (30,000 cubic yards)
- Hyannis Harbor Dredging (90,000 cubic yards)
- Town of Scituate (40,000 cubic yards)

• *Principal-in Charge – Boston Central Artery/Tunnel Project, Relocation of Utilities, Charlestown, Massachusetts*. Removal and reinstallation of gas, water, sewer, and underground electrical lines in preparation for excavation and construction of tunnel egress and highway interface. Client: Massachusetts Highway Department.
(Project value: $4 million)

ON-SITE PROJECT MANAGEMENT EXPERIENCE (HIGHLIGHTS)

• *Project Manager – Deer Island Water Treatment Facility (various projects)*
Client: Massachusetts Water Resources Authority

- Demolition of Fort Dawes ($4 million)
- Site Preparation (earthworks/road building) ($14 million)
- Excess Till Removal (removing 1.4 million cubic yards by barge) ($14 million)
- Demolition of Deer Island House of Correction, (also, installation of utilities, landscaping, and removal of additional excess till) ($16 million)

• *Project Manager – Bridge Construction (various projects)*
Client: Massachusetts Turnpike Authority

- *Grafton, Massachusetts*. Reconstruction of eight bridges, four eastbound, and four westbound over a two-year period. Involved demolition of old decks and construction of new ones. Work was planned to allow for ongoing traffic flow in three lanes in each direction for the duration of the project.
(Project value: $4 million)
- *Newton, Massachusetts*. Complex construction over highly traveled Route 128. Work included removal of deteriorated concrete and installation of a polymer latex cement in its place. Work was completed in stages in order to accommodate ongoing traffic.
(Project value: $3 million)
- *Framingham, Massachusetts*. Reconstruction of six bridges, three eastbound, three westbound, including deck replacement, paving, and utilities.
(Project value: $5 million)

• *Project Manager – Construction of Martha's Vineyard Ferry Terminal*.
Client: Martha's Vineyard/Wood's Hole Steamship Authority.
(Project value: $2.5 million)

EDUCATION
B.S., Civil Engineering
Worcester Polytechnical Institute
Worcester, Massachusetts

PROFESSIONAL CERTIFICATIONS
Licensed Construction Supervisor
Licensed Hoist Engineer
Massachusetts Department of Public Safety

PROFESSIONAL AFFILIATIONS
Labor Relations Board
Legislative Board
(former member, Board of Directors)
Construction Industries of Massachusetts

ALEX DICK
Dredging Project Manager
Jay Cashman, Inc.

EXECUTIVE SUMMARY

Alex has been active in the marine-dredging industry for nearly twenty years. During that period he has assumed increasingly more responsible positions from Field Engineer to Survey Superintendent to Administrative Engineer to his present role as Project Manager. This experience has been gained under the employ of some of the most respected names in the dredging industry from Great Lakes Dredging to Dutra to Jay Cashman, Inc.

Areas of expertise:
• developing budgets
• estimating
• cost analysis

PROFESSIONAL EXPERIENCE (HIGHLIGHTS)

• *Project Manager - Scituate South River & Scituate Harbor.* Oversaw dredging operations of both these projects.

• *Project Manager – Metro North Railroad Bridge, Bridgeport, Connecticut.* Dredging and obstruction removal of material.

• *Project Manager – Pilgrim Power Plant, Plymouth.* Dredged and removed approximately 40,000 cubic yards in front of the cooling intake system for the nuclear power plant. Excavated material, loaded to dump scows, and hauled to the Mass Bay Disposal area. Dredging was performed by a clamshell bucket. Client: Boston Edison Company.
(Project Value: $500,000)

• *Project Manager - Mamaroneck Harbor, New York.* Dredging/ocean disposal of 170,000 cubic yards in 3.5 months. Worked in shallow waters that required constant tide monitoring. Restored harbor to over 10 feet MLW, to allow commercial and recreational boating, and maintain a federal channel. Client: Department of the Army, New York District.
(Project Value: $5,223,680)

• *Project Manager – Perth Amboy Marina, Perth Amboy, New Jersey.* Mechanically dredged and off loaded contaminated material from inside the marina onto water tight

scows. Transported material to a dewatering facility in Port Elizabeth, NJ. Material was stabilized using fly ash then loaded onto rail cars and brought to Pennsylvania for disposal. Approximately 30,000 cubic yards were removed at a rate of 1,000 cubic yards per day. Client: City of Perth Amboy.
(Project Value: $400,000)

• *Project Manager – Hyannis Harbor Dredging, Hyannis, Massachusetts*. Hydraulic dredging of an entirely new section of the channel used by passenger/vehicle ferries. Work involved removing 120,000 cubic yards of sand, building an in-shore containment dike, and filling the dike with dredged sand, to be used for nourishment of area beaches at a future date. Fast-track work was kept on schedule despite a series of severe winter storms. Client: Army Corps of Engineers;.
(Project Value: $1.3 million)

• Responsible for all operational aspects of a $40 million dollar Miami, Florida Harbor Deepening Project, including developing budgets, schedules, operating costs and production data for the first Marine Hydraulic Excavator in the United States.

• Estimated, planned maintenance and/or performed dredging in some of the most significant parts in the United States including: Boston Harbor, Baltimore Harbor, San Francisco, Norfolk Harbor, Virginia and Jacksonville, Florida.

EDUCATION
B.S. – Engineering, University of South Florida

Professional Affiliations
U.S. Hydrographic Society
SNAME
WEDA – Western Dredging Association

JAMES J. GALLI, PE
Dredging Project Manager
Jay Cashman, Inc.

Executive Summary

Mr. Galli has had a rich, varied, and rewarding career in the construction industry. His experience encompasses dredging, marine construction, foundations, fossil fuel power plants, subsurface investigation, as well as extensive estimating and hazards analysis.

An honors degree in Civil Engineering from Penn State in 1970, and more than 25 years of solid industry background in the art of estimating and the disciplines of construction management allows Mr. Galli to offer considerable expertise in the following areas:

- Dredging
- Marine Construction
- Reinforced Concrete Construction
- Steel Construction
- Foundation Piling

PROFESSIONAL EXPERIENCE

Employment History:

1995 – 1998 Dutra Dredging Company
1992 – 1995 Galli and Associates
1988 – 1992 American Dredging Company

Mr. Galli was Division Manager for American Dredging Company, responsible for $ 30 million of annual construction works. He was the general project manager for a pioneering dike construction project, at Wilmington South dredged material placement site, which utilized high strength geotextile to enable founding on semi-stable substrata. His signature was on many of the previously untested and untried construction and dredging placement, which ultimately affected a successful, sound and viable containment structure to be constructed on what appeared to be untenable substrata.

He was the project manager for the Expedient Underwater Survey if Shu-Aibah harbor in Kuwait. This survey was necessary prior to the reopening of the harbor subsequent to the Gulf War. He dictated the movement of equipment supplies to the area to accomplish this delicate operation within three weeks of the cessation of hostilities. The timing was particularly accurate as the bulk of the equipment imported to quench the oil fire in the Ahmadi Fields had to pass through Shu-Aibah Port.

Design Accomplishments:

•Design and estimate for Beach fill Brigantine, NJ. $ 4 million

•Designed inlet dredging for Berkely Township, Ocean County, NJ. $ 200,000

With the Dutra companies, Mr. Galli was a Vice President and Project Manager of the $74 million Oakland Harbor Deepening Project. This challenging project moved 7 million cubic yards of material by scow for pump-out and upland disposal of two distinct sites, one of which was a highly successful wetlands restoration effort. The remainder of the spoil was placed at sea, 55 miles west of the Golden Gate Bridge.

Credentials:

- BS Civil Engineering – Pennsylvania State University (1970)

- Professional Engineer Civil – Pennsylvania (1975)
- Professional Engineer Civil – New Jersey

- Society of Professional Engineers
- American Welding Society
- Bay Planning Coalition, Board Member
- Bay Dredging Action Committee

- State of California A Classification Contractor's License #752121

NICHOLAS J. MUCCI
Environmental Manager
Jay Cashman, Inc.

EXECUTIVE SUMMARY

With more than 20 years experience in the environmental industry Mr. Mucci is involved in assessing environmental risk and ensuring regulatory compliance for existing and new business. He provides consultation to clients involved with site assessment, remediation, waste management, beneficial reuse and Brownfield redevelopment. As a former Project Director for one of the nation's largest remedial contractors and Environmental Affairs Manager for a $2 billion dollar international company, Mr. Mucci's broad industry background lends itself well to the unique and technically challenging projects undertaken by Jay Cashman, Inc.

Areas of expertise:
• solid and hazardous waste management
• site assessment
• Environmental auditing
• Soil and groundwater remediation
• Sediment treatment
• Beneficial reuse
• Brownfield Redevelopment

PROFESSIONAL EXPERIENCE (HIGHLIGHTS)

IT Corporation/Shaw Environmental, Hopkinton, Ma. Regional project director responsible for oversight/management of remedial construction throughout New England. Involved both technical and financial management of projects and ensuring compliance with corporate policies and procedures. Shaw environmental is one of the country's largest providers of engineering, design and construction services and the regions Emergency Response Contractor for the US EPA.

Thermo Electron Corporation, Waltham, Massachusetts. Directly responsible for environmental regulatory compliance of all operations throughout North America and for the coordination of these activities for international locations. Reviewed and approved assessments, audits, and remediation activity.

Thermo Consulting Engineering, Middleboro, Massachusetts. Managed a 25-person engineering consulting division, a subsidiary of Thermo Electron Corporation, with full responsibility for profit and loss, strategic planning. Directed the transition of the division from building design services to civil and environmental engineering.

Clean Harbors Environmental Services, Inc., Braintree, Massachusetts. Directed the technical resources of one of the largest environmental services providers in the country. Responsible for over 100 engineers, scientists, and technicians, providing analytical laboratory services and environmental engineering services supporting emergency response and remediation activities throughout the eastern United States.

SCA Chemical Services, Chemical Waste Management, Braintree, Massachusetts. As part of one of the largest hazardous waste management companies in the country, involved in coordinating disposal activities and managing waste site clean-ups throughout the Northeast. Involved in the early clean-ups under the Federal Superfund program in Region I, including the Motollo Road site, Keefe site, and Ottawi and Goss sites in New Hampshire, as well as the Norwood PCB site, Baird and McGuire, and the Silresim sites in Massachusetts.

EDUCATION

B.S., Environmental Science
Springfield College
Springfield, Massachusetts

PROFESSIONAL AFFILIATIONS

Environmental Business Council
Professional Environmental Management Association

Stewart J. Chandler ASP
Safety Officer/ Industrial Hygienist
Jay Cashman, Inc.

Executive Summary

As Safety Officer/ Industrial Hygienist, Stu draws on eleven years of experience dealing with health and safety in hazardous waste remediation, heavy civil, marine, and general construction. He is responsible for the development, implementation, and general management of health and safety programs at both a corporate and project level. He is held accountable for the over-all health and safety performance for several ongoing projects. His last long term project finished with a recordable rate of 4.74 and a lost time rate of 2.77. Both rates are less than half the national average. His program has also won two Gold and two Bronze awards from the Central Artery Tunnel Project with a total of over 1.5 million dollars in monetary incentive, for the project. All this was done while logging in excess of 2 million man-hours.

Stu manages the safety program on site by holding Supervisors, Foremen, and other Safety Officers accountable for the safety of their workers. He also works closely with upper management in the development of safe working procedures for new operations. Training and Education of the employees are also key elements of his program.

Areas of expertise:

- Air Monitoring
- Environmental Sampling
- Industrial Hygiene
- OSHA and State Regulation
- Army Corps Regulation
- City, State, and Federal Agency Inspections
- Preparing and Implementing Health and Safety Plans
- Preparing and Implementing Emergency Response Plans
- Employee Training; OSHA 30 hour constructional safety, OSHA 10 hour constructional safety, confined space, competent person-trenching, respirator training and fit testing, hazardous communication, blood born pathogen, hearing conservation, fall protection, electrical safety, site safety rules and procedures.
- Developing a Safety Committee
- Tool Box Talks
- Accident Investigation
- Safety Audits
- Document Control

PROJECT EXPERIENCE

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc.- Old Colony Railroad Rehabilitation Greenbush Line, Weymouth, MA*- Reconstruction of over 18 miles of commuter rail line and integration to the active commuter rail system. The project involves extensive bridge construction, new track and signal construction, utilities, roadwork, wetlands replication, construction of 2 tunnels, new station construction, retaining and noise walls, landscaping and restoration. Special work includes: pile driving, slurry wall/soil mix construction; soil nailing, drilled shaft construction and large scale earthworks. This project is the first design/build contract awarded by the Massachusetts Bay Transportation Authority. In addition to facility construction, the design/build team is responsible for permitting, facility design, quality control and assurance, historic preservation and mitigation, property acquisition case folders, wetlands replication and endangered species protection measures. Client: Massachusetts Bay Transportation Authority
  (Project Value: approximately $252 million)

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc. – Boston Central Artery/ Tunnel Project C09A7, Fort Point Channel* – A joint venture of Cashman/Perini/Kiewit/Atkinson. An extremely complex project involving the demolition of an underground garage entrance, an existing rail road bridge and a motor vehicle bridge, construction of a new entrance, temporary rail and vehicle bridges, soil stabilization, pile driving, caisson installation, jet grouting, and an underground ramp constructed via cut and cover techniques.

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc. – Massachusetts Water Resource Authority Boston Harbor Project Ventilation Pipe* – A joint venture Cashman/Interbeton. Installation of a vent shaft ten miles out to sea. This project involved the out-fitting of a jack-up barge, the fabrication of an elaborate vent shaft, extensive dive work, connecting the vent shaft to a pre-existing diffuser, the dismantling of the vent shaft and restoring the diffuser to operation.

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc – Port Authority, Port Newark New Jersey.* Contract construction activities included: Site preparation, erosion and sedimentation Control, in-situ and ex-situ stabilization of potential source material, surface cover construction, dust and odor control, storm water management, install water supply system and electrical conduit system,

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc – Army Corps of Engineers* DACW61-00-B-0024, Repair of Barnegat Inlet Lighthouse Revetment. Repair of the existing Barnegat Inlet Lighthouse Revetment and the placing of marine mattresses. Work consisted of loading and placing of materials from barges and inspection of placement by divers.

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc – Aquarium, Boston Massachusetts* – A joint venture with Macomber. The construction of an Imax Theater.

The project included: pile driving, concrete work, utility relocation, trench work, and steel erection.

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc. – Boston Central Artery/ Tunnel Project, Utility Relocation North of the Charles River.* The project involved the demolition of a highway on ramp, trench work: locking out and removing existing utility lines and installing replacement lines. This work was done next to live rail lines and under an active highway.

- *Site Safety Officer/ Industrial Hygienist, Jay Cashman Inc. – Boston Central Artery/ Tunnel Project C021A2, Spectacle Island* – A joint venture Cashman/Kiewit/Atkinson A heavy civil project involving the expansion of an existing island using soil excavated from the Central Artery. Work involved cofferdam construction, the placing and treating of soil, pile driving, building piers, swales, retaining walls, installing riprap, landscaping, and bringing utilities to the island.

- *Site Safety Officer, Modern Continental Construction Co., Inc. Boston Harbor Project CP043 and CP160, Deer Island* - Responsibilities included: coordinating the site safety plan among contractors, conducting weekly "Tool Box Talks", monitoring and enforcing OSHA regulation, company policies, and the site Health and Safety Plan, writing safety analysis, issuing confined space, excavation and hot work permits, submitting road closure, excavation, and lockout tagout permits to the Contract Manager. Also maintaining all safety, first aid, and fire prevention equipment. Also responsible for the organizing and administering of the Accident Prevention Program to include daily inspections, follow up on daily inspection and correcting discrepancies, investigate workplace injuries, illnesses, and near-misses to develop a means to prevent reassurance of these incidents. Participated in inspection by Federal, State, or local authorities.

- *Senior Health and Safety Technologist, OHM Corporation: Baird McGuire Superfund Site, Holbrook, MA Mobile Thermal Destruction Unit.* - Responsibilities included: Conducting safety meetings, writing safety analysis, issuing permits to include: confined space, excavation, hot work, and line breaks, performing fit tests and heat stress monitoring. Also calibrated and operated three gas meters, LEL/O_2 meters, PID/FID, portable dust monitors, personal sampling pumps, colorimetric tubes, and noise meters. Responsible for the enforcement of company policies along with OSHA and USACE regulations.

- *Health and Safety Officer, OHM Corporation: Rose Twp. MI, Mobile Thermal Destruction Unit, and Superfund Site.* - Responsibilities included: Conducting safety meetings, writing safety analysis, issuing permits to include: confined space, excavation, hot work, and line breaks. Also performed fit tests and heat stress monitoring, calibrated and operated gas meters, LEL/O_2 meters, PID/FID, portable dust monitors, personal sampling pumps, colorimetric tubes, and noise meters. Responsible for the enforcement of company policies along with OSHA and USACE regulations.

- *Sample Technologist Instructor, OHM Corporation: Findlay Ohio*. - Prepared, planned, organized and instructed the 40-hour sample technologist-training course.

- *Sample Technologist Instructor, OHM Corporation - BP Oil, Ohio/ Camp Dresser McGee, IL/ Kimberly Clark, Ohio\USACE Ft. McCoy, WI/ Write Patterson Air force Base, Ohio/ Conestoga Rovers and Assoc., Romulus, MI./ Dupont Chemical. Ohio/USX corp., Ohio/Logan count Engineers, Ohio/ Matamora Landfill: Superfund Site, MI*. - Wrote and implemented the sampling plans for lagoons, ponds, pools, frac tanks, drums, soil ,wipe samples, teflar bag samples, sorbent tubes, MCEF cassettes, colorimetric tubes, PIDs, FIDs, LEL/O_2, mono-tox, radiation, and dust.

EDUCATION

B.S. – Environmental & Hazardous Materials Management With an emphasis in Industrial Hygiene
University of Findlay, Findlay, Ohio

PROFESSIONAL AFFILIATIONS

Member. American Industrial Hygiene Association
Member. American Society of Safety Engineers

CERTIFICATIONS

Associate Safety Professional
OSHA 500 course
40 hour OSHA
8 hour refresher
8 hour Supervisor Training
10 hour Construction Safety & Health
40 hour Sample Technologist Training
45 hour Health and Safety Officer Training
Red Cross CPR & First Aid
Troxler Safety Training
MBTA Right of Way
Amtrak Right of Way

PAUL POIRIER
Superintendent
Jay Cashman, Inc.

EXECUTIVE SUMMARY

Paul has been involved in the construction industry for a number of years. He has worked on both construction and dredging projects in and outside of Massachusetts. His experience working both on land and on the water compliments his ability to continually upgrade and maintain the equipment used on these projects. His ability to make decisions and work with a minimum of direction helps to keep projects moving forward and on schedule. His hands on approach to supervising helps to ensure that the work is being done on time, correctly and safely.

Areas of expertise:
• maintenance of floating equipment
• dredging (both mechanical and hydraulic)
• materials handling
• inventory control
• purchasing

PROFESSIONAL EXPERIENCE (HIGHLIGHTS)

• *Yard Superintendent – Sterling Equipment Company, Inc.* Oversees the maintenance and upgrading of various dredging equipment: dumpscows, "Wood I" clamshell & "Wood II" backhoe. Supervises and schedules dredge crew.

• *Dredging Superintendent – Metro North Railroad Bridge, Bridgeport, Connecticut.* Dredging and obstruction removal of material. Maintenance of dredging equipment.

• *Dredging Superintendent - Mamaroneck Harbor, New York.* Dredging/ocean disposal of 170,000 cubic yards in 3.5 months. Worked in shallow waters that required constant tide monitoring. Restored harbor to over 10 feet MLW, to allow commercial and recreational boating, and maintain a federal channel. Client: Department of the Army, New York District; Value: $5,223,680.

• *Dredging Superintendent - Spectacle Island* . A joint venture of Cashman, Kiewit, Perini, and Atkinson. This massive materials handling project was designed to manage the disposal of more than 2.7 million cubic yards of excavated and dredged soils and sediments resulting from the $7.7 billion Central Artery/Tunnel project. Work includes construction of slurry wall and steel cofferdam, excavation and dredging, and materials placement, construction of a park, including placement of a stone revetment, construction of a trestle with a T-head pier, and construction of a concrete sea wall. Installation of utilities under water from Long Island to Spectacle Island. Client: Massachusetts Highway Department; Value: $150 million.

• *Dredging Superintendent – Hydraulic Channel Dredging, Hyannis.* Dredged more than 120,000 cubic yards of material with a hydraulic pump dredge. Placed dredged materials on three local beached and graded each. Built an in-shore containment dike for remaining spoils. Careful scheduled ferry operations to maintain two daily trips. Client: Army Corps of Engineers; Value: $1.3 million.

• *Purchasing Agent, Shipper/Receiver & Safety Office - Sterling Equipment Company.* Conducted inventory on equipment both received and in-house. Negotiated pricing with vendors. Processed paperwork necessary to ship materials. Informed employees of safety issues.

• *Yard Superintendent – Boston Marine Works, East Boston.* Oversaw the loading and unloading of equipment and material that was used for the Spectacle Island project. Maintained site including all buildings, piers, roadways and graving dock. Worked with U.S. Customs to maintain a secure area for cars and equipment being received for export to Haiti. Supervised receiving, storing and loading of cars and equipment onto vessel for export to Haiti.

• *Site Superintendent –State of NJ & Army Corps, Newark, NJ, Upcycle.* Pilot project for the State of NJ. Processing contaminated dredge spoils into lightweight aggregate as a means of disposal. In lieu of disposal at sea; Value: $1,400,000.

• *Site Superintendent –Beazer East, Newark, NJ.* Remediation of former Koppers wood treatment facility. Remediate 8.3-acre site by removing the top 2' of material and stockpiling. Screen then mix with dry cement using a pug mill. Place material on site and grade and compact. In certain areas deep stabilization was required. This was done in place with an excavator with a rotary mixing head attachment and liquid grout to depths from 8' to 15'. Installed a water main with four fire hydrants, storm drainage system, light poles with electrical duct bank and ballards. Place, grade and compact approximately 3500 CY of imported material to meet finish grades. The site was then paved and a fence installed ; Value: $5,200,000.

• *Dredge Superintendent –City of Stamford, Stamford, CT*. Maintenance Dredging of federal channel; Value: $450,000.

• *Dredge Superintendent –Portsmouth Naval Shipyard, Portsmouth, NH*. Site contact for Navy personnel. Maintenance and new dredging of berths and approaches. Material was disposed of upland at the shipyard; Value: $1,000,000

• *Dredge Superintendent –City of New Bedford, New Bedford Harbor, MA*; Maintenance dredging of state pier and approach with upland disposal; Value: $5,200,000.

• *Dredge Superintendent- Long Wharf, Boston Harbor;* Move existing ferry dock and dredge approach and turning basin. Dispose of spoils upland. Relocate float and install upgraded gangway. Install concrete pad from gangway to

sidewalk. Cover concrete pad with decretive stone walkway. Install light and pole at end of concrete pad for gangway;
Value: $590,500.
• *Law Enforcement Specialist – United States Air Force (9 years)*

EDUCATION

SOMERVILLE TECHNICAL TRADES SCHOOL – ELECTRONICS

US ARMY CORPS OF ENGINEERS – CONSTRUCTION QUALITY MANAGEMENT FOR CONTRACTORS

PETER S. REYNOLDS
Superintendent
Jay Cashman, Inc.

EXECUTIVE SUMMARY

Pete is a highly skilled Superintendent with a wealth of experience in a variety of specialized fields. His primary responsibility is to provide on-site supervision in order to ensure that work is completed on-time, within budget, and in accordance with specifications. Additional responsibilities include estimating, scheduling, and overseeing day-to-day operations. Having worked for several years at ship building and marine repair facilities, Pete has an extensive knowledge of heavy marine construction and of the machinery-related work that is an integral part of shipyard operations.

Areas of expertise:
• marine fender systems installation
• dredging
• excavation
• concrete work
• heavy lift jacking
• building rehabilitation and construction
• concrete construction and structural repairs
• structural steel construction
• all aspects of quality control related to machinists' work
• hydro and pneumatic testing
• welding, weld inspections, pre-heat and post-weld heat treatments
• high- and low-speed machinery alignments

PROJECT EXPERIENCE

• *Superintendent – Lovejoy Wharf, Boston*. Construction of a water taxi pier.
Client: Massachusetts Highway Department.
(Project value: 1.7 million)

• *Quality Assurance Superintendent – Central Artery/Tunnel (CA/T) Project. Relocation of Utilities, Charlestown, Massachusetts*. Work involves removal and reinstallation of gas, water, sewer, and underground electrical lines in preparation for excavation and construction of tunnel egress and highway interface. Client: Massachusetts Highway Department.
(Project value: $4 million)

• *Superintendent – Boston Graving Dock Operations, Boston, Massachusetts*. Responsible for a variety of projects including:
· Machine reinstallations and rebuilds for Coast Guard vessels.

· Re-outfitting of crew quarters barges (250-500 person capacity).
· Repairing caisson for permanent berth of *U.S.S. Constitution.*
· Laying out, building, and outfitting interiors/crew quarters of two Coast Guard 270 Medium Endurance Cutters.

• *Machinist Supervisor – Robert E. Derecktor Shipbuilding, Middletown, Rhode Island*. Responsible for day-to-day operations, including overseeing work of 45-person union steel workers' team, coordinating scheduling of new construction and repair jobs, preparing and submitting estimates for all levels of dry dock repair, conducting quality control inspections of all materials prior to installation. Also responsible for certifying all installations as meeting codes for both U.S. Military and American Bureau of Shipping Standards.

• *Superintendent – Emergency Abutment Repair, Congress Street Bridge, Boston, Massachusetts*. Grout had washed out of pier, and armor stone had settled, leaving a pier that was losing its strength rapidly. Installed 75,000 lbs. of steel strapping and injected 30 cubic yards of pressure grout to restore structural integrity of pier. Client: City of Boston Public Works Department.
(Project value: $103 million)

• *Superintendent – Spectacle Island, Boston, Massachusetts*. Preparation of the 90-acre island to receive CA/T excavate; work included construction of slurry wall and cofferdam, excavation, dredging, and placement of dredged material, the eventual capping of the site, and the construction of a park, stone revetment, trestle with T-head pier and concrete sea wall. Client: Massachusetts Highway Department.
(Project value: $150 million)
• *Superintendent – Deer Island, Boston, Massachusetts*. Removal of 700,000 tons of tunnel stone which was dug from the 9-mile outfall tunnel linking the Island's wastewater treatment facility with undersea diffusers. Work required removal from the island by barge of materials which were transported to a pier in Everett and ultimately used to cap a contaminated site in Everett. Client: Massachusetts Water Resources Authority.
(Project value: $17 million)
• *Superintendent – Rehabilitation of Charlestown Housing Development, Charlestown, Massachusetts*. Demolition and reconstruction of the exterior grounds of a public housing project spread over four city blocks. The job required major excavation followed by installation of curbing, concrete and brick walkways, recreational equipment, lighting, and landscaping. Client: Boston Housing Authority.
(Project value: $3 million)

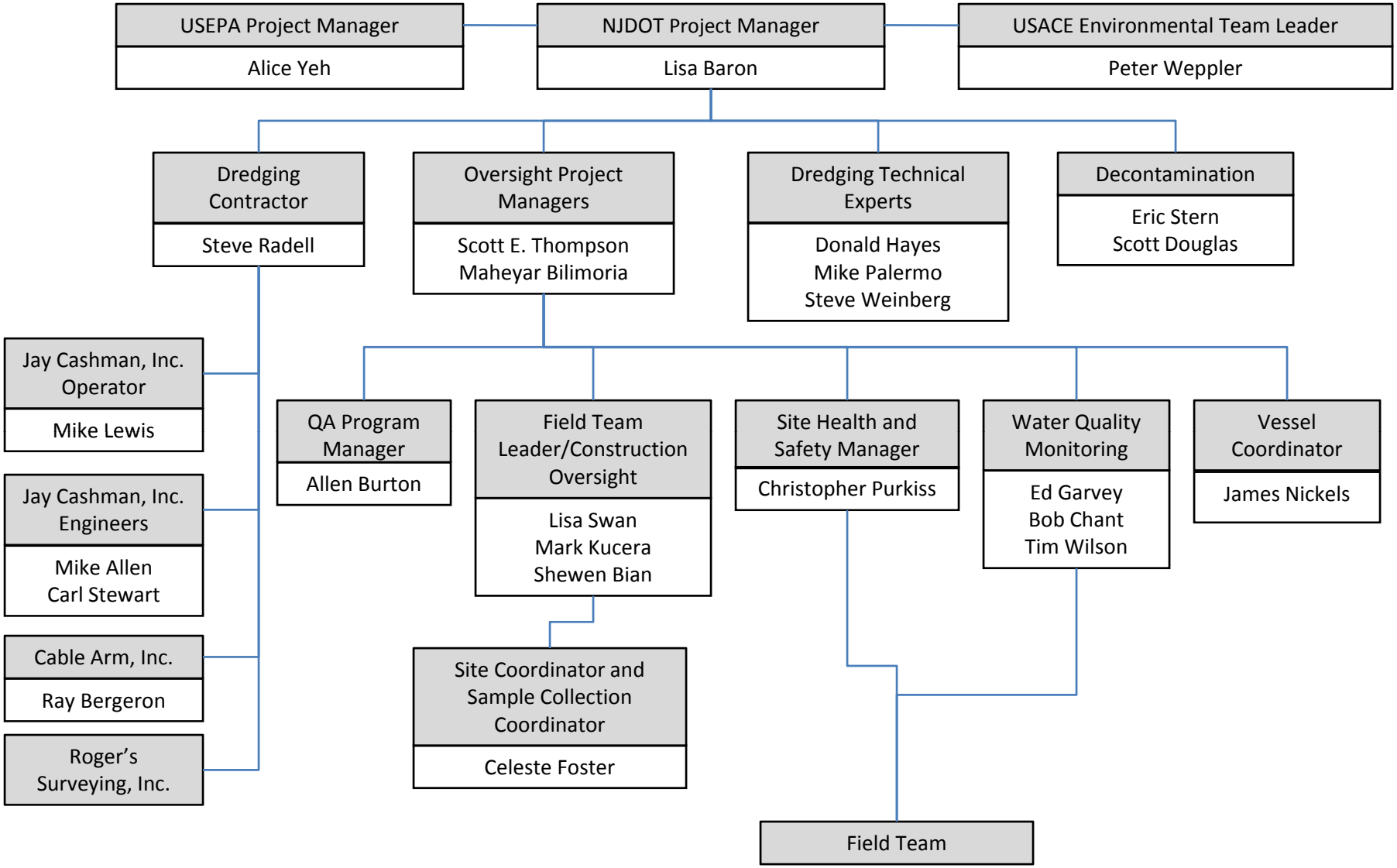
EDUCATION
Technical Courses:
· *NDT Testing*
· *Magnetic Particle Testing*
· *Dye Penetrate Testing*
· *Visual Inspection of Welding Procedures*
· *Hydraulic Dredging*

PROFESSIONAL CERTIFICATIONS
USCG Chief Engineer License: 8000 hp

Proposed Dredging Equipment

Description	Number/Name	Yr. Built	Condition	Size (ft)	Capacity (CY/T)	Production	Engine	HP	Other
Bucket Dredge	Wood II		Good	135		2000cy/dy		250	4100W Manitowac
Environmental Bucket	SN 03286		Good		8CY				
Hopper Barge	SEI 3000	1982	Good	260	4000CY				
Hopper Barge	SEI 3001	1982	Good	260	4000CY				
Hopper Barge	SEI 3002	1983	Good	261	4000CY				
Hopper Barge	SEI 3003	1984	Good	262	4000CY				
Dump Scow	SEI 2000	1963	Good	171	2000CY				
Dump Scow	Joe Verrochi	2002	Very Good	240	4000CY				
Tug	Gunny	1983	Good	65			(2)CATC-18's	1200	
Tug	Pushy	1992	Very Good	25			(2)DetroitDiesel6v71		w/GPS
Tug	Capt. Gary	1978	Very Good	75			(2)16V92GM		w/GPS
Crew Boat	Jay Michael	1999	Very Good	100			Detroit Diesels	1530	Survey Equip./Other

Crew List and Organizational Chart



*Company/agency listed valid at time of implementation. Additional information regarding team members and corresponding company/agency is available on the attached crew list.

Project Organization Chart

Lower Passaic River Restoration Project

Figure 3

February 2009

Environmental Dredging Pilot Study
Crew List

Task/Role	Personnel	Company/Agency at the time of implementation
Overall Project Management	Lisa Baron[1]	NJDOT
	Maheyar Bilimoria[2]	Earth Tech, Inc.
	Scott Thompson	Malcolm Pirnie, Inc.
NJDOT Dredging Specifications	Lisa Baron[1]	NJDOT
	Michael Palermo	Mike Palermo Consulting
	Donald Hayes	University of Utah
	Scott Thompson	Malcolm Pirnie, Inc.
	Maheyar Bilimoria[2]	Earth Tech, Inc.
	Steve Weinberg	USACE
	Scott Douglas	NJDOT
	April Thomman	Earth Tech, Inc.
	John Szeligowski	Earth Tech, Inc.
Inter-Agency Selection Panel for Dredger	Lisa Baron[1]	NJDOT
	Scott Douglas	NJDOT
	Eric Stern	USEPA
	Steve Weinberg	USACE
	Michael Palermo	Mike Palermo Consulting
	Donald Hayes	University of Utah
Dredging Team	Steve Radel	Jay Cashman, Inc.
	Bruce Wood	
	Richie Barber	
	Mike Lewis	
	Anthony Kerley	
	Anthony Carbone	
	Harry Ellis	
	Carl Stewart	
	Jimmy Bauer	
	Dan Gaudet	
	Ray Bergeron	Cable Arm, Inc.
	Darrell Nicholas	
	Sam Harrell	
	John Lajeuanesse	
	Connie Boris	
	Gerald Swain	
	Harry Steves	
Dredging Construction Oversight	Michael Kucera	USACE
	Shewen Bian	
	Ron Connetta	
	Lisa Swan	Earth Tech, Inc.

Environmental Dredging Pilot Study
Crew List

Task/Role	Personnel	Company/Agency at the time of implementation
Water Quality Sampling Team	Robert Chant	Rutgers University
	Chip Haldeman	
	Dave Fugate	
	Eli Hunter	
	Dan Crowell	
	John Zlotnik	
	Tim Wilson	USGS
	Jennifer Bonin	
	Nicholas Smith	
	Ed Garvey	Malcolm Pirnie, Inc.
	Len Warner	
	Liam Bossi	
	Erika Zamek	
	David Foster	
	John Peake	
	David Lewitt	
	John Mulligan	
	Jason Fuller	
	Jermaine Perry	
	Solomon Gbondo-Tugbawa	
	Andrew Schell	
	Maheyar Bilimoria[2]	Earth Tech, Inc.
	Robert Forstner	
	Sameer Ahsan	
	Amit Haryani	
	Roman Senyk	
	Edward Sitler	
	Muhammad Akbar	
General Field Oversight	Lisa Baron[1]	NJDOT
	Peter Weppler	USACE
	Maheyar Bilimoria[2]	Earth Tech, Inc.
	Scott Thompson	Malcolm Pirnie, Inc.
Boat Captains	Richard Henry	USFWS
	Gene Nieminen	
	Jim Nickels	AquaSurvey, Inc.
	Mike Marcello	USACE
	Michael McGuire	
Chain of Custody	Celeste Foster	Earth Tech, Inc.
	John Rollino	
	Florence Rollino	

Environmental Dredging Pilot Study
Crew List

Task/Role	Personnel	Company/Agency at the time of implementation
Chemical Analysis	Jennifer Ferranda	USEPA
	John Birri	USEPA
	Allen Burton	Earth Tech, Inc.
Predictive Hydrodynamic Modeling	Ryan Edison	Earth Tech, Inc.
	Serkan Mahmutoglu	
Health and Safety Officer	Chris Purkiss	Malcolm Pirnie, Inc.
Permitting	Suzanne Dietrick	NJDEP
	David Risilia	
	Richard Tomer	USACE
Decontamination Technology Coordination	Eric Stern	USEPA
	Scott Douglas	NJDOT
	John Sontag	BioGenesis
	Mike Mensinger	Endesco Clean Harbors
	Valerie Montecalvo	Bayshore Recycling
	Frank Montecalvo	
Landside Staging Area/Access Coordination	Brian Davenport	PVSC
	Sheldon Lipke	
	Bob DeVita	
LPR Project Coordination	Alice Yeh	USEPA
	Peter Weppler	USACE
	Scott Nicholson	
	Janine McGregor	NJDEP
	Reyhan Mehran	NOAA
	Tim Kubiak	USFWS

NJDEP= New Jersey Department of Environmental Protection
NJDOT= New Jersey Department of Transportation
NOAA= National Oceanic and Atmospheric Administration
PVSC= Passaic Valley Sewerage Commissioners
USACE= United States Army Corps of Engineers
USEPA= United States Environmental Protection Agency
USFWS= United States Fish and Wildlife Service
USGS= United States Geological Survey

1. Currently employed at the United States Army Corps of Engineers.
2. Currently employed at Tetra Tech, Inc.

Debris Records

Debris Records

Debris Record Summary Sheet

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
27	The dredge technology details described below are not provided in either the draft EDPS Report or the Contractor submittals. Debris records. Debris present in the LPR will significantly impact the performance and feasibility of dredging. During the second day of dredging operations (Dec. 6) metal debris damaged the clamshell bucket gasket. The draft EDPS Report does not contain photos of the bucket damage or photos of the debris causing the damage.	Photographs of debris field	Not available.
28	Navigation Hazards. At least three of the EDPS research vessels encountered submerged hazards while traversing the river, resulting in damaged propellers requiring replacement (Section 3.5.2, Pg. 3-23). The locations and types of submerged hazards recorded were not provided in the draft EDPS, nor was an attempt made to correlate this debris with the project debris survey data to assess the effectiveness of the survey at identifying debris.	Records of locations and types of submerged hazards	Records are not available since vessels that encountered hazards were water quality monitoring vessels, not dredging vessels. Note that water quality vessels frequently entered shallow areas to collect monitoring data. Dredging vessels did not encounter navigational hazards associated with shallow areas.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Records of Locations and Types of Submerged Hazards

Source: Communication between David Foster (Malcolm Pirnie, Inc.) and Steve Raedel (Jay Cashman, Inc.) and Ray Bergeron (Cable Arm, Inc.)

Water quality vessels frequently entered shallow areas to collect monitoring data and encountered navigational hazards. Dredging vessels did not encounter these navigational hazards since they did not enter shallow areas. If hazards were encountered, they would have been noted in the daily logs. Note that a small piece of metal did damage the bucket gasket on December 6, 2008, which is documented on the daily log. However, no photographs of this piece of metal were collected.

[redacted]

Other Requests

[redacted]

Summary Sheet for Other Requests

Comment Number	Extracted Comment from Cooperating Party Group Letter (dated December 7, 2007)	Information Requested	Status on Request
29	The horizontal and vertical accuracy of the sediment cores was not discussed in the draft EDPS Report.	Horizontal and vertical accuracy of the sediment cores.	Provided in binder.
30	Permitting. The draft EDPS Report does not describe what environmental permits were required for the EDPS; therefore we conclude that no permits were obtained for the project. It was also not discussed in the draft EDPS whether ARAR packages were prepared and submitted for the EDPS under the USACE Nationwide Permit Program or not; therefore we conclude that these requirements were not met by the EDPS. Please provide a succinct review of permitting requirements and status including relevant exemptions.	Records of permits.	Provided in binder.
31	Video and Photographic Documentation. Time stamped digital video and time stamped photographic documentation of the entire environmental dredging operation was required under the contract. If these contract-required deliverables were provided by the Contractor, they should be documented in the report and a means of providing the deliverables (e.g., website or CD) should be provided to the reader. Due to the omission of this information, it is presumed that these materials were not provided by the contractor.	Video of dredging operations.	Available upon request.

** A complete response to the comments will be provided in the final version of the Environmental Dredging Pilot Study Report. Material presented in this document only addresses the data request.

Horizontal and Vertical Accuracy of Historical Sediment Cores

Source: Earth Tech, Inc. and Malcolm Pirnie, Inc. "Data Summary and Evaluation Report" (March 2005)

Depth of water: ± 0.5 feet
Horizontal position: ± 3 feet
Depth of sediment penetration: ± 2.5 centimeters
Depth within the sediment core: ± 1 centimeter

Records of Permits

Source: Provided by Lisa Baron (USACE)

Permit Date	Department	Document Description
8/12/2004	NJDOT	Application for Federal Consistency/Water Quality Certification under the Clean Water Act.
2/7/2005	NJDEP	Revocable License issued by the NJDEP (Bureau of Tidelands Management) to NJDOT.
5/6/2005	NJDOT	Letter from NJDOT enclosing a copy of the signed and recorded Acceptance of Revocable License.
7/26/2005	USEPA	Letter from USEPA to USACE requesting Nationwide Permit Number 38.
8/4/2005	USEPA	Letter from USEPA to NJDEP requesting Federal Consistency Determination and Water Quality Certification.
8/23/2005	USEPA	Letter from USEPA to NJDEP (Bureau of Tidelands Management) requesting a Tidelands License.
8/23/2005	USEPA	Application for Federal Consistency/Water Quality Certification under the Clean Water Act.
9/21/2005	NJDEP	Letter from NJDEP to USEPA stating review of tidelands dredging license application.
10/6/2005	NJDEP	Letter stating approval of Federal Consistency/Water Qualification Certification under Clean Water Act.
11/14/2005	USACE	Letter from USACE to NJDEP stating that the Nationwide Permit Number 38 is not required.

NJDEP = New Jersey Department of Environmental Protection
NJDOT= New Jersey Department of Transportation
USACE = United States Army Corps of Engineers
USEPA = United States Environmental Protection Agency

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
LAND USE REGULATION PROGRAM
BUREAU OF TIDELANDS MANAGEMENT
P. O. Box 439
TRENTON, NEW JERSEY 08625-0439

APPLICATION FOR LICENSE OR EASEMENT

DATE 8/12/04

FILE #_____

Application is hereby made, in accordance with N.J.S.A. 13:1B-13 and N.J.S.A. 12:3-10 for a revocable license to use and occupy State's lands under water; subject to such terms and conditions contained therein or as may be imposed by law.

APPLICANT

1. NAME (Mr./Mrs./Ms.) LISA BARON
2. ADDRESS 1035 PARKWAY Ave. Trenton NJ 08625-0837
3. BUSINESS NEW JERSEY DEPARTMENT OF TRANSPORTATION
4. PHONE # 609-530-4779

WHERE LICENSE IS LOCATED

5. CITY OR MUNICIPALITY SEE TABLE 1
6. COUNTY TABLE 1
7. NAME OF WATERWAY PASSAIC River - 17 miles
8. LOT & BLOCK NA

INTENDED USE

9. EPA, NJDOT + Rutgers plan to install temporary monitoring equipment in the channel to collect data on salinity, suspended solids, currents, etc. for a hydrodynamic study pursuant to the Feasibility Study.

NAME AND ADDRESS OF THE UPLAND AND ADJOINING OWNERS

10. NA

PERMITS REQUIRED: (11)

TYPE: Federal Consistency Water Quality Certificate

DATE APPLIED: 8/5/04

GENERAL REMARKS (12)

This study is part of the WRDA/CERCLA Lower Passaic River Remediation + Restoration Feasibility Study with USEPA + USACE.

NOTICE: IN MAKING THIS APPLICATION, APPLICANT UNDERSTANDS THAT NO WORK SHALL BE PERFORMED BY THE APPLICANT UNLESS AND UNTIL THE LICENSE IS DELIVERED, AND ALSO ONLY IF THE APPLICANT HAS OBTAINED A PERMIT TO PERFORM SAID WORK. THE ISSUANCE OF A PERMIT IS SUBJECT TO AN INDEPENDENT DETERMINATION BY THE STATE.

(13)
SIGNATURE Lisa A Baron

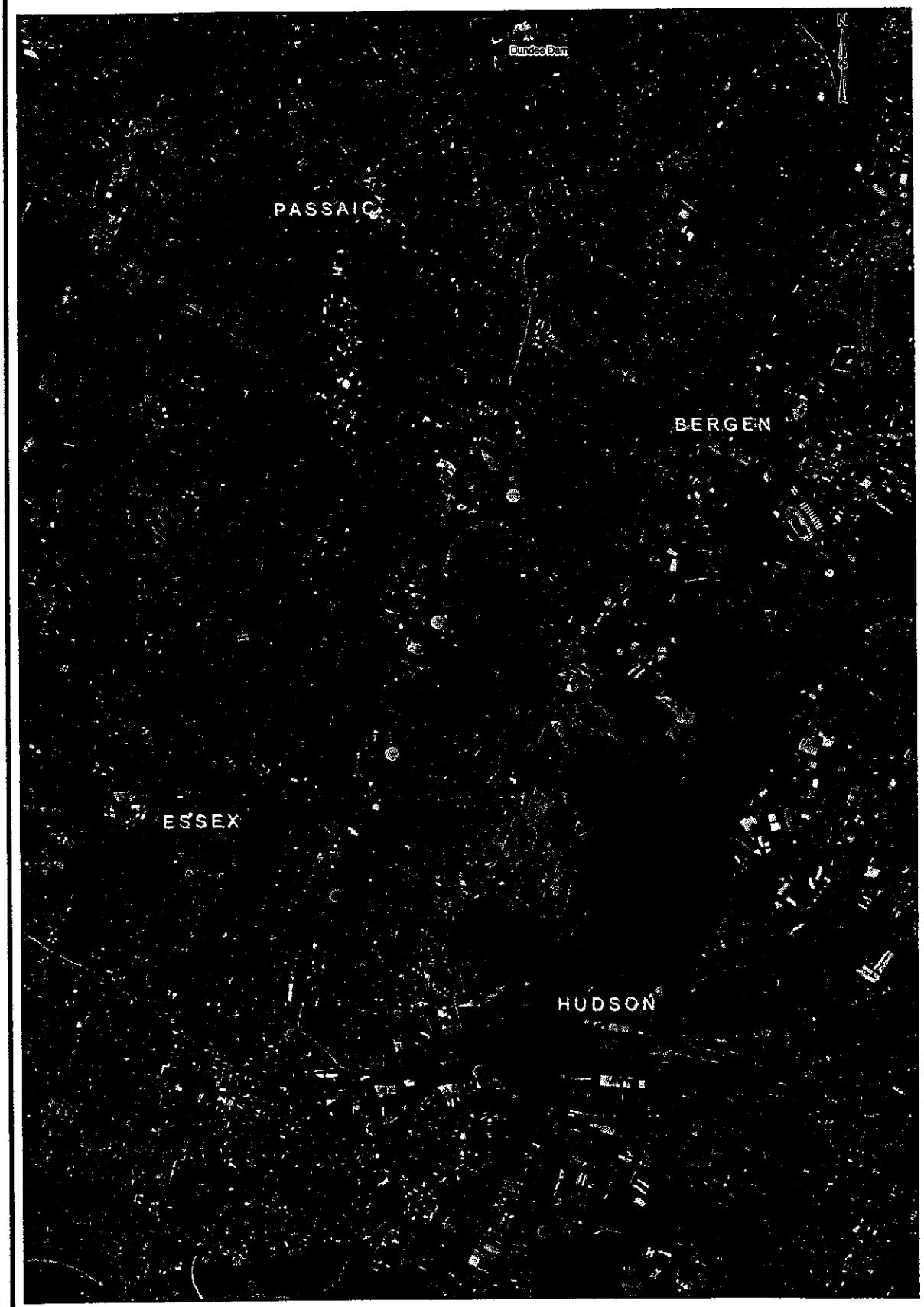
PRINT NAME Lisa A. Baron

TITLE Project Manager

ATTEST (14)

Table 1

MUNICIPALITY	COUNTY	AREA_SQ_MI	AREA_ACRES	POP90	POPDEN90_S
EAST RUTHERFORD BORO	BERGEN	4.055	2595.09	7902	1949
GARFIELD CITY	BERGEN	2.207	1412.23	26727	12110
LYNDHURST TWP	BERGEN	5.021	3213.26	18262	3637
NORTH ARLINGTON BORO	BERGEN	2.462	1575.40	13790	5601
RUTHERFORD BORO	BERGEN	2.902	1857.32	17790	6130
WALLINGTON BORO	BERGEN	1.054	674.28	10828	10273
EAST NEWARK BORO	HUDSON	0.116	74.03	2157	18595
HARRISON TOWN	HUDSON	1.329	850.42	13425	10102
KEARNY TOWN	HUDSON	10.152	6497.42	34874	3435
CLIFTON CITY	PASSAIC	11.420	7308.51	71742	6282
PASSAIC CITY	PASSAIC	3.218	2059.75	58041	18036
BELLEVILLE TWP	ESSEX	3.409	2181.93	34213	10036
NEWARK CITY	ESSEX	26.005	16642.93	275221	10583
NUTLEY TWP	ESSEX	3.398	2174.42	27099	7975



LEGEND:

- EPA Moorings
- NJDOT Moorings

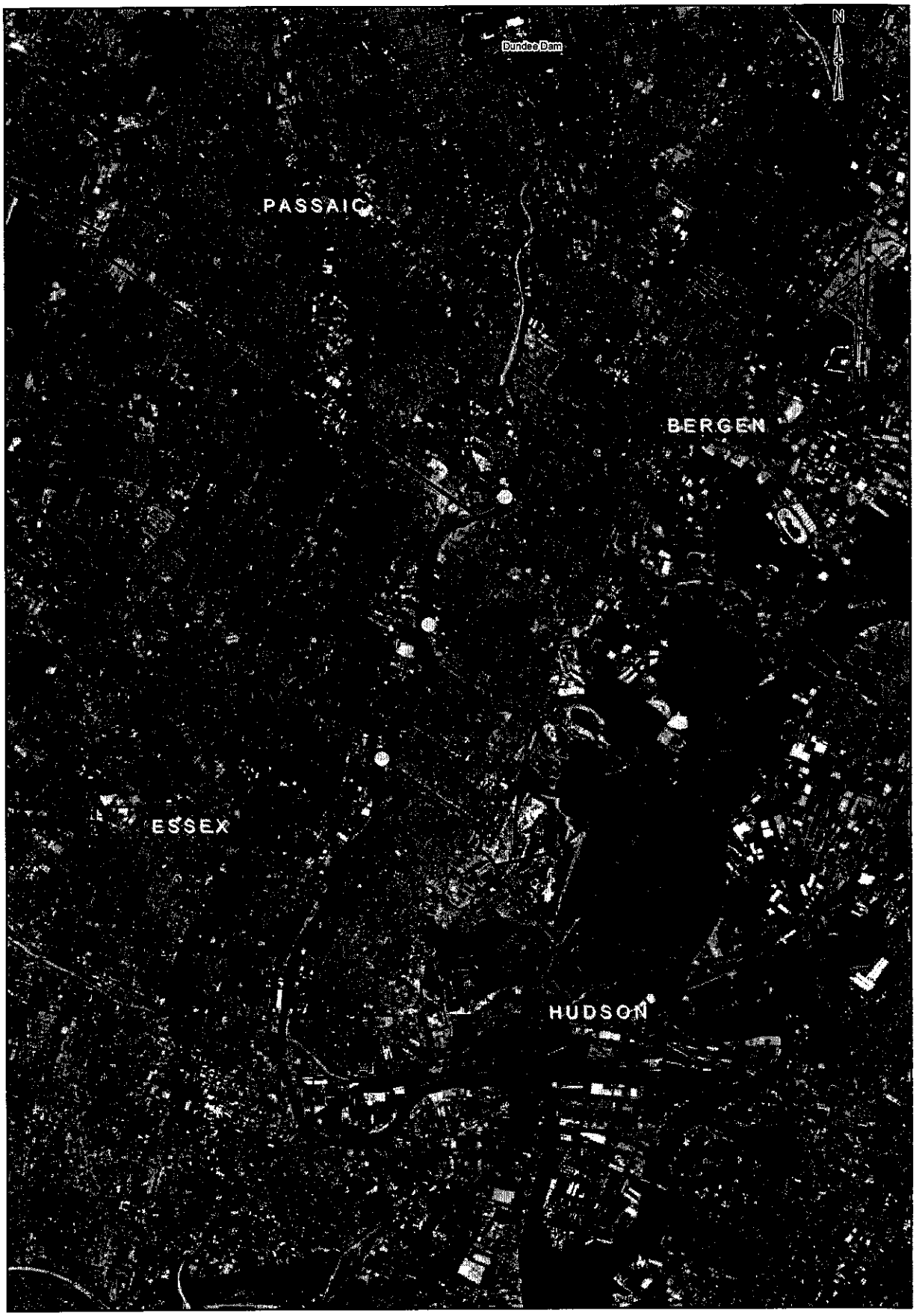
0 0.5 1 2 Miles

MALCOLM PIRNIE

PASSAIC RIVER SUPERFUND SITE
PROPOSED MOORING LOCATIONS

MALCOLM PIRNIE, INC.

FIGURE 1



LEGEND:

- EPA Moorings
- NJDOT Moorings

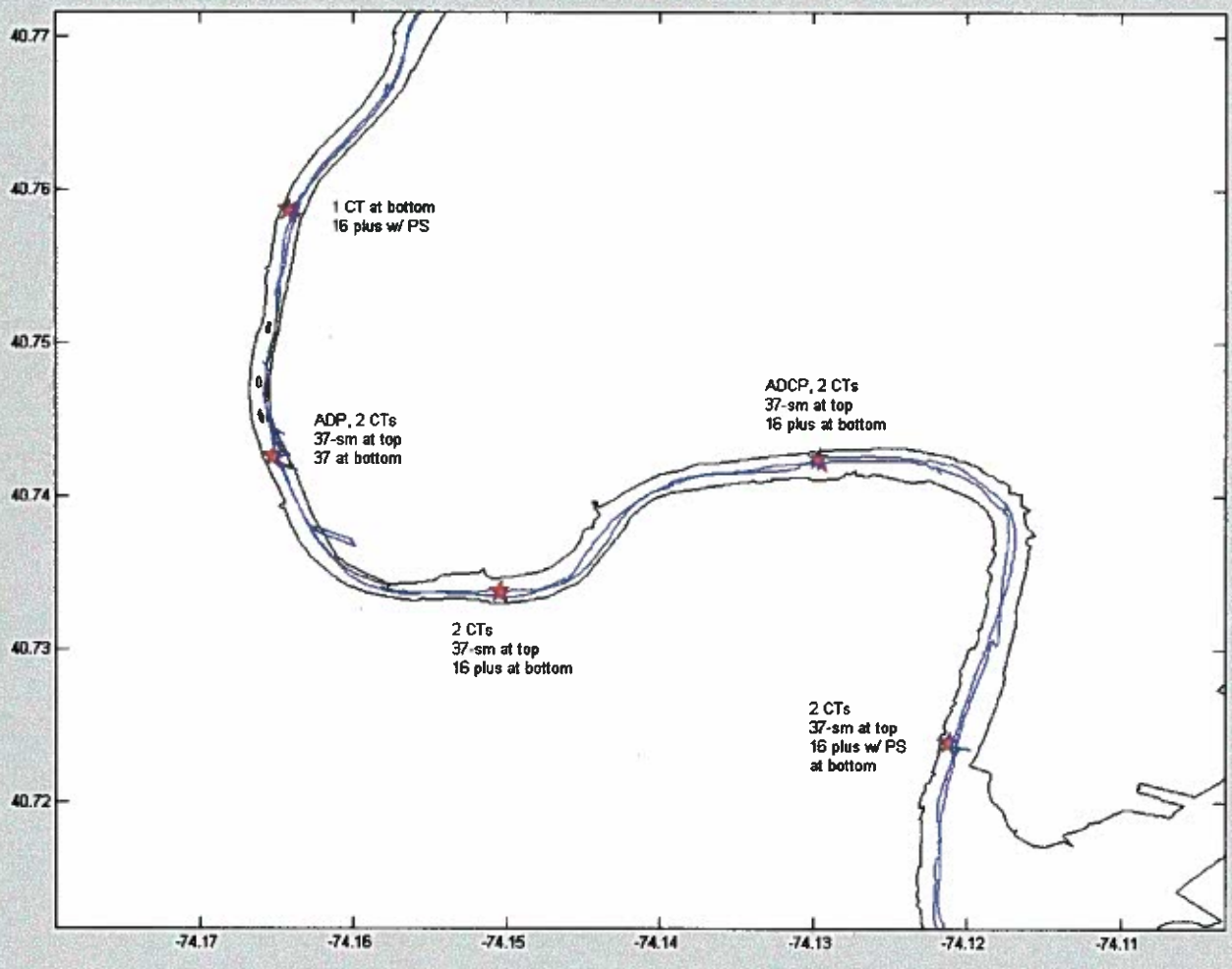
0 0.5 1 2 Miles

MALCOLM PIRNIE

PASSAIC RIVER SUPERFUND SITE
PROPOSED MOORING LOCATIONS

MALCOLM PIRNIE, INC.

FIGURE 1


40.77
40.76
40.75
40.74
40.73
40.72
-74.17
-74.16
-74.15
-74.14
-74.13
-74.12
-74.11
1 CT at bottom
16 plus w/ PS
ADP, 2 CTs
37-sm at top
37 at bottom
ADCP, 2 CTs
37-sm at top
16 plus at bottom
2 CTs
37-sm at top
16 plus at bottom
2 CTs
37-sm at top
16 plus w/ PS
at bottom

File No. 04-0306-T

REVOCABLE LICENSE/LEASE

THE STATE OF NEW JERSEY:

TO ALL TO WHOM THESE PRESENTS SHALL COME OR MAY CONCERN:

GREETING:

WHEREAS, the State of New Jersey owns the lands now or formerly under water hereinafter described,

AND WHEREAS, the Tidelands Resource Council in the Department of Environmental Protection is empowered under N.J.S.A. 13:1B-13 to approve licenses/leases of lands now or formerly under tidewater;

AND WHEREAS, the licensee/lessee herein represents that it is the owner of the land abutting and adjoining the said lands now or formerly under tidewater;

AND WHEREAS, NEW JERSEY DEPARTMENT OF TRANSPORTATION, has applied to the Tidelands Resource Council in the Department of Environmental Protection, for a license/lease to an area of land now or formerly under tidewater for temporary mooring equipment in the channel of the Passaic River, as shown on Figure 1 entitled "Passaic River Superfund Site, Proposed Mooring Locations", prepared by Malcolm Pirnie and located in Essex, Passaic, Hudson and Bergen Counties.

AND WHEREAS, the said Department of Environmental Protection, by a majority of the members of the Tidelands Resource Council, having due regard for the public interest, have agreed to grant said applicant a license/lease for a period of one (1) year, revocable at the pleasure of the Tidelands Resource Council of the Department of Environmental Protection as hereinafter described.

Prepared By:
Jo Ann Cubberley
Manager
Bureau of Tidelands Management
(N.J.S.A.46:15-1.1(a)(b)

NOW THEREFORE, the State of New Jersey acting by and through the said Tidelands Resource Council of the Department of Environmental Protection in consideration of the premises and of the terms, covenants and conditions herein contained, does hereby authorize, allow and license/lease to the said NEW JERSEY DEPARTMENT OF TRANSPORTATION to use the area of land as described above, situate upon the lands of the State now or formerly under tidewater;

This license/lease is made subject to the limitation that the licensee/lessee herein shall not improve or develop the above described lands flowed by tide nor appropriate said lands to its own exclusive use unless and until a permit, pursuant to N.J.S.A. 12:5-3, is obtained for that purpose.

This license/lease, authority and privilege is to continue one (1) year from 1/18/05 to 1/18/06 unless revoked or otherwise terminated as hereinafter provided by the said Tidelands Resource Council of the Department of Environmental Protection.

This license/lease is made and accepted upon the express condition that the license may be assigned or otherwise transferred by the said licensee/lessee to any other person or persons, only upon written consent of the Manager of the Bureau of Tidelands Management of the Department of Environmental Protection. Forms are available from the Bureau for this purpose.

It is distinctly understood and mutually agreed between the parties of these presents that the payment of the annual rentals or fees on the days and times appointed shall be of the essence of this contract. It is the responsibility of the licensee to remit the annual rental within 30 days of the due date stated above. The licensee/lessee may elect to make application for a license/lease renewal at the expiration of the said period of one (1) year. The State of New Jersey does not covenant and is not bound to make any renewal of the license/lease. If any such renewal is granted, it shall be at such valuation and terms as may be fixed by the said Tidelands Resource Council of the Department of Environmental Protection.

AND the said NEW JERSEY DEPARTMENT OF TRANSPORTATION, as aforesaid, does hereby agree to and with the State of New Jersey, that it the said NEW JERSEY DEPARTMENT OF TRANSPORTATION, will at the termination thereof, promptly quit, surrender and vacate the above described premises, to the satisfaction of the Tidelands Resource Council of the Department of Environmental Protection, of the State of New Jersey aforesaid, , or occasioned by or through the acts of the said NEW JERSEY DEPARTMENT OF TRANSPORTATION.

AND IT IS EXPRESSLY AGREED AND PROVIDED that the said Tidelands Resource Council of the Department of Environmental Protection, Bureau of Tidelands Management, may withdraw, terminate or revoke the license/lease hereby given and all the rights and privileges thereunder at any time prior to the expiration of the said terms above, upon notice to the said NEW JERSEY DEPARTMENT OF TRANSPORTATION by passing a resolution to that effect, and that upon passage of such resolution by the said Tidelands Resource Council of the Department of Environmental Protection, Bureau of Tidelands Management, the said license/lease and all rights and privileges thereupon shall cease and terminate.

IT IS ALSO PROVIDED, that this license/lease is made upon the condition and limitation, that if the said licensee/lessee is not the record owner of any parts of the land adjacent to the land hereby licensed/leased on the date of delivery of this license/lease, then in that event, this license/lease and all of the covenants herein on the part of the State shall be void with respect to the land herein licensed/leased as to which the said licensee/lessee is not the record owner on said date, and the licensed/leased land shall automatically revert to the ownership of the State, but without any diminution of the fees or consideration paid upon the delivery of this instrument.

It is further understood and agreed upon by the licensee/lessee herein and the heirs, successors and assigns, that by acceptance of this document, the licensee/lessee acknowledges that the issuance of this license/lease shall not be construed to in any way affect the State's right, title or ownership of land now or formerly under tidewater lying shoreward of the licensed/leased area.

AND PROVIDED FURTHER that nothing in this instrument contained shall in any manner affect the rights of any shore owner as now existing under the Laws of the State of New Jersey.

STATE OF NEW JERSEY)

COUNTY OF MERCER)

BE IT REMEMBERED that on this 18th day of January, 2005, before me a Notary Public of New Jersey, personally appeared Jo Ann Cubberley, Manager, Bureau of Tidelands Management, Land Use Regulation Program, Department of Environmental Protection, who being duly sworn on her oath deposes and makes proof to my satisfaction, that she is the Manager, Bureau of Tidelands Management, Land Use Regulation Program and she has been authorized by proper resolution of the Tidelands Resource Council, and she has signed this document as an act pursuant to said resolution.

Sworn to me and Subscribed
before me the date aforesaid

Record & Renew
New Jersey Dept of Trans.
1035 Parkway Avenue
P.O. Box 616
Trenton, NJ 08625

Mary Ann Herman
A Notary Public of New Jersey

MARY ANN HERMAN
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES 2/28/07

IN WITNESS WHEREOF, the said Tidelands Resource Council of the Department of Environmental Protection, Bureau of Tidelands Management, has caused these presents to be signed by its Manager of the Bureau of Tidelands Management of the Department of Environmental Protection on this 18th day of June in the year Two Thousand ~~Four.~~ Five

Jo Ann Cubberley, Manager
Bureau of Tidelands Management
Land Use Regulation Program
Department of Environmental Protection

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
LAND USE REGULATION PROGRAM
BUREAU OF TIDELANDS MANAGEMENT
P. O. BOX 439
TRENTON, NEW JERSEY 08625-0439

ACCEPTANCE OF REVOCABLE LICENSE

FILE #: 04-0306-T

DATE: 2/7/05

TO THE BUREAU OF TIDELANDS MANAGEMENT:

The undersigned hereby accepts the revocable license issued by the Department of Environmental Protection, Bureau of Tidelands Management, to NJ Department of Transportation, dated 1/18/05, subject to all the terms thereof and applicable laws, rules and regulations, with the understanding that the obtaining of a revocable permit is a condition precedent to performing any work within the licensed area, the issuance of such permit being within the sole and absolute discretion of the State. I further understand that it is my responsibility to pay the annual fees on time and if these fees are not paid, the State may commence action to compel payment. The license has been recorded in the County Clerk's Office in Deed Book _____ at page _____ and a copy of page one of that recorded license is attached.

Lisa A Baron
Applicant's Signature

_____
Applicant's Signature

Notary:
Diane Saylor

DATE: March 17, 2005
(This form shall be properly notarized.)

DIANE SAYLOR
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires On April 1, 2006

State of New Jersey

DEPARTMENT OF TRANSPORTATION
1035 Parkway Avenue
PO Box 600
Trenton, New Jersey 08625-0600

Richard J. Codey
Acting Governor

John F. Lettiere
Commissioner

Please Reply To:
NJDOT
Office of Maritime Resources
PO Box 837
Trenton, NJ 08625-0837
Phone: 609-530-4770
Fax: 609-530-4860

May 6, 2005

Ms. Jo Ann Cubberley, Manager
Bureau of Tidelands Management
Land Use Regulation Program
New Jersey Department of Environmental Protection
P.O. Box 439
Trenton, New Jersey 08625-0439

Dear Ms. Cubberley:

Enclosed is a copy of the signed and recorded Acceptance of Revocable License dated 1/18/05 for the Lower Passaic River Restoration Project's hydrodynamic survey program. NJDOT has recorded the license in Essex County. We apologize for the delay in getting you the copy for your file. Please let me know if you have any questions at 609-530-4779.

The Project Managers from the other funding agencies in this joint Superfund-Water Resources Development Act study are Alice Yeh at EPA and Scott Nicholson at USACE. I appreciate the work you have done to date to help the partner agencies move forward on the Lower Passaic River Restoration Project and hope that we may continue to work together in the future.

Sincerely,

Lisa A. Baron
Project Manager
Office of Maritime Resources

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

JUL 26 2005

Richard L. Tomer
Chief, Regulatory Branch
United States Army Corps of Engineers
New York District
26 Federal Plaza
New York, NY 10278-0090

Dear Mr. Tomer:

The Lower Passaic River Restoration Project is being conducted by the U.S. Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, and the U.S. Army Corps of Engineers (USACE) under the Water Resources Development Act (WRDA), with the New Jersey Department of Transportation (NJDOT) as local sponsor. The other partner agencies involved in the Project are New Jersey Department of Environmental Protection, National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. The Environmental Dredging Pilot is one component of a comprehensive Study that will produce a watershed plan for remediation and restoration of the Lower Passaic River. For EPA, the Lower Passaic River Study Area (i.e., the 17-mile tidal stretch of the Passaic River, from Dundee Dam to Newark Bay) is part of the Diamond Alkali Superfund Site, as defined in a June 22, 2004 Administrative Order on Consent.

At this time, we request that you authorize the conduct of the Environmental Dredging Pilot, which is an integral part of the Lower Passaic River Restoration Study, under Nationwide Permit #38 of the Nationwide Permit Program.

This Pilot has been planned by the partner agencies to provide critical input for the Feasibility Study evaluation of alternatives required under CERCLA and WRDA (Section 312, Environmental Dredging). The primary purpose of the proposed activity is to collect data regarding dredging performance, productivity, resuspension rates, and contaminated sediment treatability. The Pilot is planned for October 2005 and will take place in the Harrison Reach of the Lower Passaic River. Detailed information on the Pilot, including maps showing the location of the Pilot study-area within the Diamond Alkali Superfund Site, is presented in the "Project Plans for Environmental Dredging Pilot Study" dated June 2005 that was delivered to Scott Nicholson, Project Manager at USACE, on June 20, 2005. A copy can be provided to you or your staff, if needed.

Your effort to accommodate this action is appreciated. Should you need additional technical information, please contact Lisa Baron of NJDOT at 690-530-4779 or me at 212-637-4427.

Sincerely yours,

Alice Yeh
Project Manager
Emergency and Remedial Response Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

AUG - 4 2005

Suzanne Dietrick, Chief
Office of Dredging and Sediment Technology
New Jersey Department of Environmental Protection
401 East State Street
Trenton New Jersey 08625

Dear Ms. Dietrick:

This letter is to request that you issue a Federal Consistency Determination and Water Quality Certification (FCD/WQC) for the Lower Passaic River Restoration Project to allow for the implementation of the Environmental Dredging Pilot Study.

This request is being made on behalf of the partner agencies, including the U.S. Environmental Protection Agency (EPA) conducting the work under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended and the U.S. Corps of Engineers (USACE), with New Jersey Department of Transportation (NJDOT) as local sponsor, conducting the work under the Water Resources Development Act. As you may be aware, the other partner agencies who have reviewed the Dredging Pilot work plans include the New Jersey Department of Environmental Protection, National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. The Pilot is part of a comprehensive study that will produce a watershed plan for remediation and restoration of the Lower Passaic River. For EPA, the Lower Passaic River Study Area (i.e., the 17-mile tidal stretch of the Passaic River, from Dundee Dam to Newark Bay) is part of the Diamond Alkali Superfund Site, as defined in a June 22, 2004 Administrative Order on Consent.

This Pilot has been planned by the partner agencies to provide critical input for the Feasibility Study evaluation of alternatives required under CERCLA and WRDA (Section 312, Environmental Dredging). The primary purpose of the proposed activity is to collect data regarding dredging performance, productivity, resuspension rates, and contaminated sediment treatability. The Pilot is planned for October 2005 and will take place in the Harrison Reach of the Lower Passaic River. Detailed information on the Pilot, including maps showing the location of the Pilot study-area within the Diamond Alkali Superfund Site, is presented in the "Project Plans for Environmental Dredging Pilot Study" dated June 2005 that was delivered to David Risilia of your staff by Lisa Baron of NJDOT on July 11, 2005.

Should you have any questions on the Dredging Pilot, please call Lisa Baron of NJDOT at 690-530-4779 or me at 212-637-4427.

Sincerely yours,

Alice Yeh

Alice Yeh
Project Manager
Emergency and Remedial Response Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

AUG 2 3 2005

Ms. Jo Ann Cubberley, Manager
Bureau of Tidelands Management
Land Use Regulation Program
New Jersey Department of Environmental Protection
P.O. Box 439
Trenton, New Jersey 08625-0439

Dear Ms. Cubberley:

This letter is to request that you issue a Tidelands License for the Lower Passaic River Restoration Project to allow for the implementation of the Environmental Dredging Pilot Study scheduled to take place over 5 days during the week of October 24, 2005.

This request is being made on behalf of the partner agencies, including the U.S. Environmental Protection Agency (EPA) conducting the work under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended and the U.S. Corps of Engineers (USACE), with New Jersey Department of Transportation (NJDOT) as local sponsor, conducting the work under the Water Resources Development Act. As you may be aware, the other partner agencies who have reviewed the Dredging Pilot work plans include the New Jersey Department of Environmental Protection, National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. The Pilot is part of a comprehensive study that will produce a watershed plan for remediation and restoration of the Lower Passaic River. For EPA, the Lower Passaic River Study Area (i.e., the 17-mile tidal stretch of the Passaic River, from Dundee Dam to Newark Bay) is part of the Diamond Alkali Superfund Site, as defined in a June 22, 2004 Administrative Order on Consent.

This Pilot has been planned by the partner agencies to provide critical input for the Feasibility Study evaluation of alternatives required under CERCLA and WRDA (Section 312, Environmental Dredging). The primary purpose of the proposed activity is to collect data regarding dredging performance, productivity, resuspension rates, and contaminated sediment treatability. The Pilot is planned for the week of October 24, 2005 and will take place in the Harrison Reach of the Lower Passaic River. Detailed information on the Pilot is presented in the "Project Plans for Environmental Dredging Pilot Study" dated June 2005 that was delivered to David Risilia and is posted on www.ourpassaic.org. A summary of the pilot, with location maps, is provided with the application.

Should you have any questions on the Dredging Pilot, please call Lisa Baron of NJDOT at 690-530-4779 or me at 212-637-4427.

Sincerely yours,

Alice Yeh

Alice Yeh
Project Manager
Emergency and Remedial Response Division

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
LAND USE REGULATION PROGRAM
BUREAU OF TIDELANDS MANAGEMENT
P. O. Box 439
TRENTON, NEW JERSEY 08625-0439

APPLICATION FOR LICENSE OR EASEMENT

DATE 8/23/05

FILE # _____

Application is hereby made, in accordance with N.J.S.A. 13:1B-13 and N.J.S.A. 12:3-10 for a revocable license to use and occupy State's lands under water; subject to such terms and conditions contained therein or as may be imposed by law.

APPLICANT

1. NAME (Mr./Mrs./Ms.) Alice Yeh
2. ADDRESS USEPA, Region 2, 290 Broadway, NY, NY 10007
3. BUSINESS _____
4. PHONE # 212-637-4427

WHERE LICENSE IS LOCATED

5. CITY OR MUNICIPALITY NEWARK
6. COUNTY ESSEX
7. NAME OF WATERWAY PASSAIC River
8. LOT & BLOCK NA

INTENDED USE

9. SEE ATTACHED - ENVIRONMENTAL DREDGING AND DECONTAMINATION PILOT FOR THE LOWER PASSAIC RIVER RESTORATION Project - feasibility STUDY.

NAME AND ADDRESS OF THE UPLAND AND ADJOINING OWNERS

10. BENJAMIN MOORE & Co - 134 LISTER Ave., Newark City
DIAMOND ALKALI SITE (Tierra Solutions) - 80 LISTER Ave.
Newark City

PERMITS REQUIRED: (11)

TYPE: FEDERAL CONSISTENCY DETERMINATION and Water QUALITY CERTIFICATE (FCD/WQC (ATTACHED)

DATE APPLIED: August 4, 2005

GENERAL REMARKS (12)

SEE ATTACHED

NOTICE: IN MAKING THIS APPLICATION, APPLICANT UNDERSTANDS THAT NO WORK SHALL BE PERFORMED BY THE APPLICANT UNLESS AND UNTIL THE LICENSE IS DELIVERED, AND ALSO ONLY IF THE APPLICANT HAS OBTAINED A PERMIT TO PERFORM SAID WORK. THE ISSUANCE OF A PERMIT IS SUBJECT TO AN INDEPENDENT DETERMINATION BY THE STATE.

(13)
SIGNATURE Alice Yeh

PRINT NAME Alice Yeh

TITLE Project Manager

ATTEST (14)

LOWER PASSAIC RIVER ENVIRONMENTAL DREDGING AND DECONTAMINATION TECHNOLOGY DEMONSTRATION

The Environmental Dredging Demonstration and Sediment Decontamination Technology Demonstration is part of the Lower Passaic River Restoration Feasibility Study, a joint effort of Federal and State Agencies to remediate and restore the Lower Passaic River Basin. The purpose of the overall Feasibility Study is to develop a comprehensive watershed-based plan for the remediation and restoration of the Lower Passaic River. During this pilot-scale demonstration project, approximately 5,000 cubic yards of contaminated sediment will be dredged from a 1-acre area in the Harrison Reach of the Passaic River (Figures 1 and 2). It is anticipated that this dredging will be performed over a 5-day period beginning the week of October 24, 2005.

The objective of the dredging demonstration project is to study dredging productivity and sediment resuspension for the Lower Passaic River. Evaluating the feasibility of dredging requires the collection of data to determine the resuspension production rate, the resuspension release rate, and the resuspension export rate and to perform a mass balance. In addition, equipment performance, dredging production rates, turbidity levels, and engineering controls will be evaluated. The Institute of Marine and Coastal Sciences at Rutgers University, Water Resources Division of the United States Geological Survey, the USACE, USEPA, and NJDOT/OMR with the consulting team will conduct the sampling, monitoring, and other activities during the Environmental Dredging Pilot Study.

The 5,000 cyd of sediment will be transported to Bayshore Recycling in Keasby NJ for offloading and treatment. The objective of the sediment decontamination technology demonstration project is to show that Passaic River sediments, contaminated with dioxins, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), metals, pesticides, herbicides, and other contaminants can be treated to meet applicable criteria for the appropriate beneficial use end product (e.g., cement, light weight aggregate, manufactured soil, glass, etc.). The decontamination project will collect data to perform a contaminant mass balance and determine the economic viability of the treatment process for commercial scale applications. Sediment washing (BioGenesis) and thermal destruction technology (Endesco Clean Harbor) will be conducted to produce manufactured soil and cement products. The decontaminated material will likely be placed at a landfill for final disposition.

The critical timing of the pilot to be completed by November is a result of the availability of the decontamination vendors in the region, the occurrence of a neap tide to maximize the ability to detect resuspension due to dredging against ambient turbidity, and safety concerns due to weather.

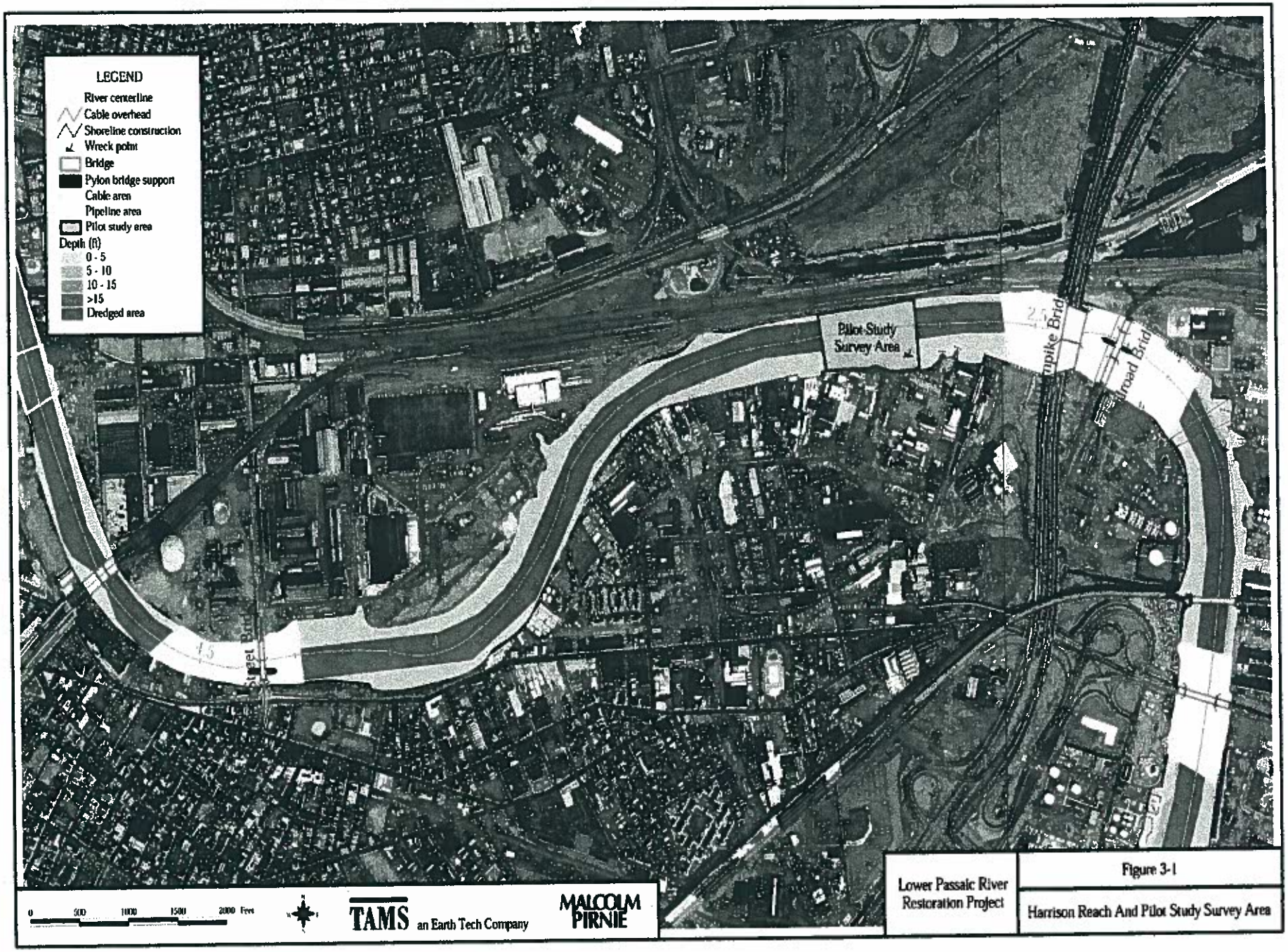
To date, pilot planning activities consisted of the following components:

1. Data Collection and Background – In order to establish baseline conditions and evaluate applicable technologies, several data collection and background activities have been completed. These activities include both general and site specific studies. Project Plans for Geophysical Surveys and Sediment Coring (TAMS/ET and MPI,

June 2004a) and a Dredging Technology Review Report have been prepared by TAMS/ET and MPI (TAMS/ET and MPI, June 2004b). A detailed characterization of the Pilot Study Survey Area has been presented in the Final Data Evaluation and Summary Report (TAMS/ET and MPI, May 2005).

2. Hydrodynamic Modeling – A hydrodynamic model has been developed to provide an estimate of the amount of sediment leaving the study area and to aid in determining the placement of monitoring equipment. Modeling results are presented in the Environmental Dredging Pilot Study Hydrodynamic Modeling Report (ET, 2005).
3. Dredging Design – A design, including plans, specifications, and the NJDOT bid package (TAMS/ET and MPI May 2005), has been developed for the removal of approximately 5,000 cubic yards of contaminated river sediment from the Harrison Reach. NJDOT will use this design to procure the dredging contractor.
4. Monitoring Plan – A monitoring plan has been prepared to outline procedures for the collection of data related to resuspension. The details of the monitoring plan are presented in the Project Plans for Environmental Dredging Pilot Study (TAMS/ET and MPI, June 2005).
5. Decontamination – Two separate technologies, sediment washing (BioGenesis) and thermal treatment (Endesco Clean Harbors) will be employed to gather data regarding the effectiveness of decontamination. The work plans for the decontamination pilots are currently under preparation.

All of the above documents are posted on www.ourpassaic.org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Bridge
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Pilot study area
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Dredged area
Pilot Study Survey Area
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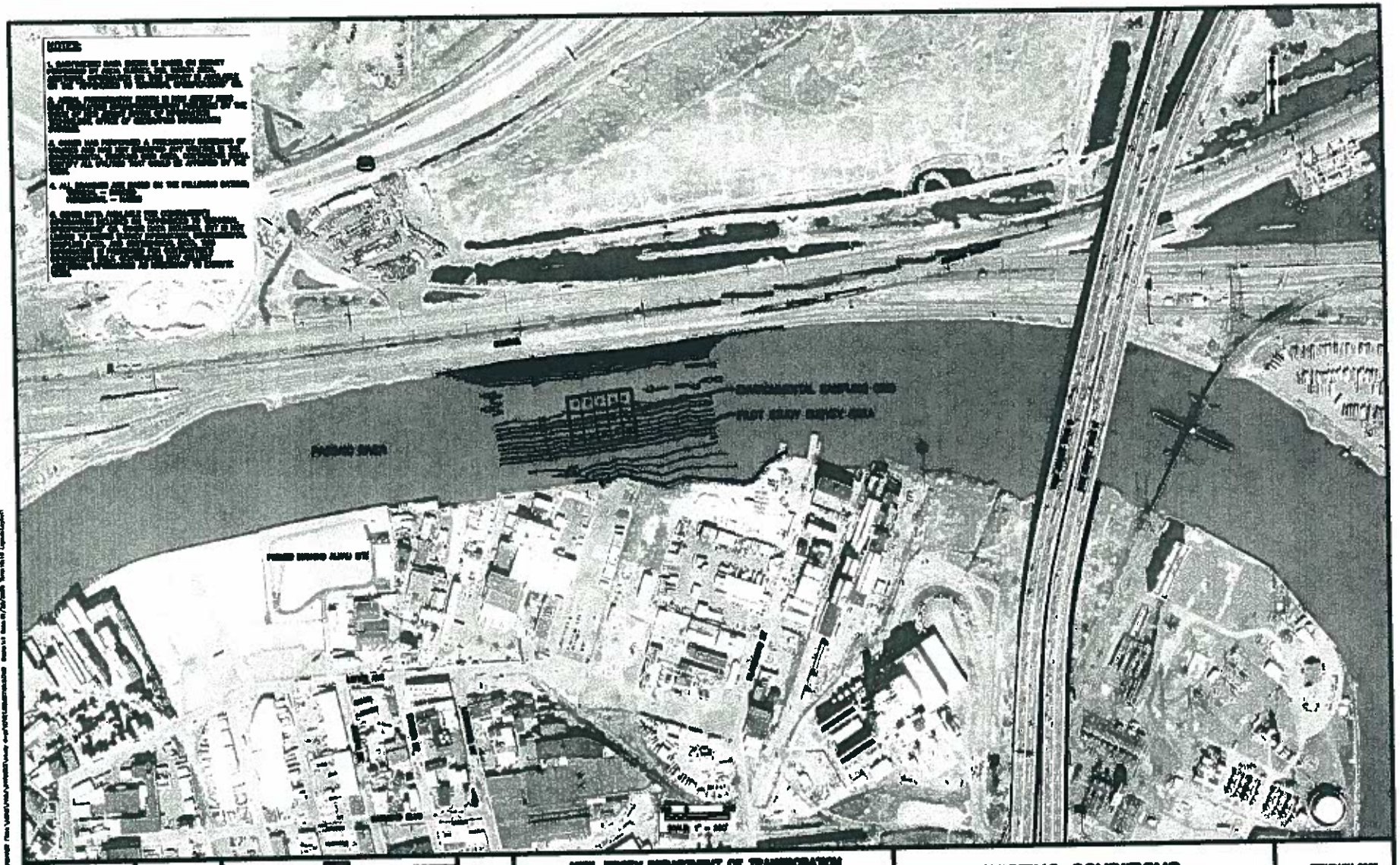
TAMS an Earth Tech Company
MALCOLM PIRNIE
Lower Passaic River Restoration Project
Figure 3-1
Harrison Reach And Pilot Study Survey Area

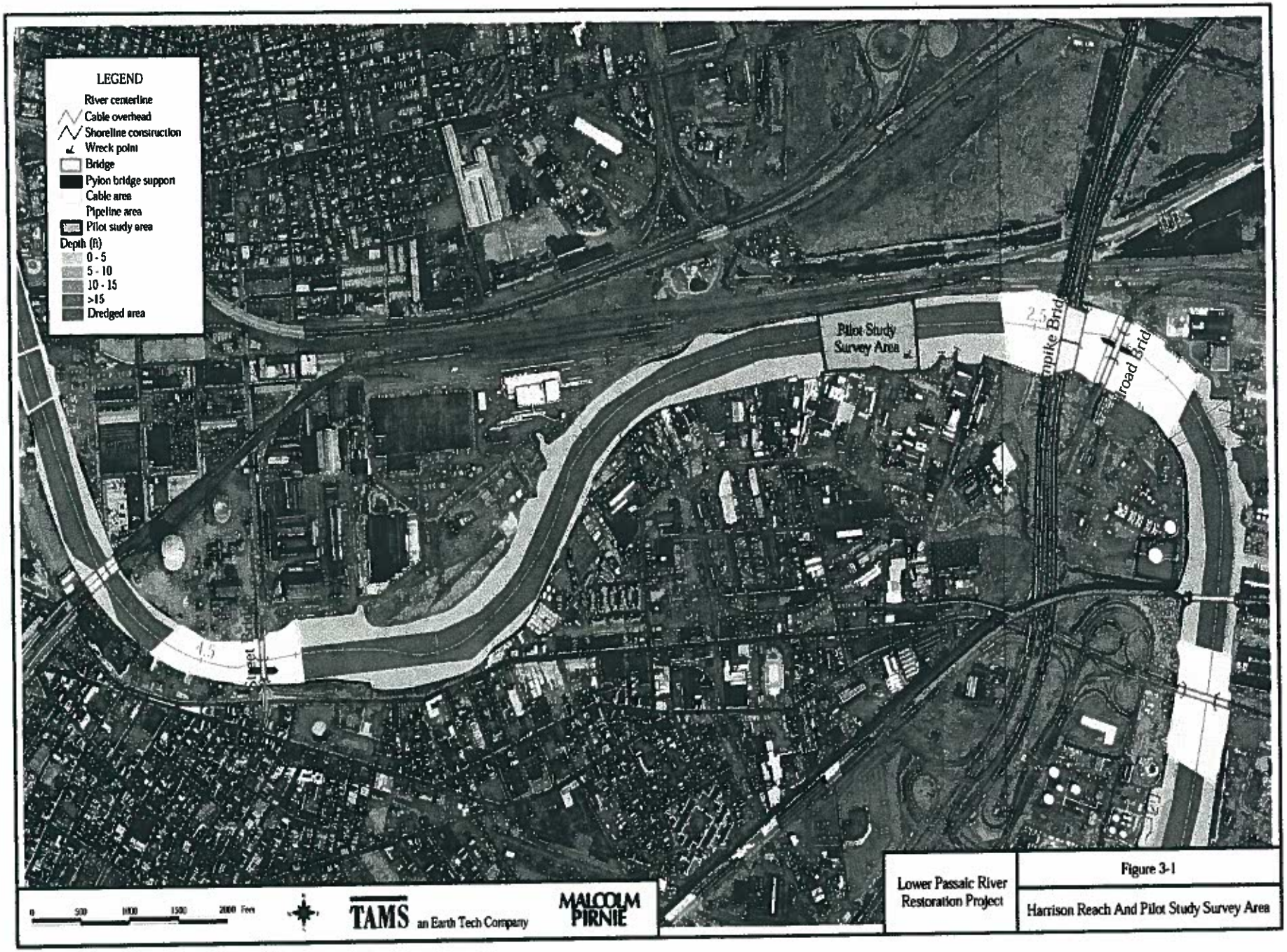


MALCOLM PIRNIE | TAMS

NEW JERSEY DEPARTMENT OF TRANSPORTATION
OFFICE OF MARITIME RESOURCES
LOWER PASSAIC RIVER DREDGING PILOT STUDY
CONSTRUCTION CONTRACT NO. XXXXXXXX

EXISTING CONDITIONS SITE PLAN

FEBRUARY XXXX
SHEET 1 OF 3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TAMS an Earth Tech Company
MALCOLM PIRNIE
Lower Passaic River Restoration Project
Figure 3-1
Harrison Reach And Pilot Study Survey Area

MALCOLM PIRNIE | TAMS

NEW JERSEY DEPARTMENT OF TRANSPORTATION
OFFICE OF MARINE RESOURCES
LOWER PASSAIC RIVER DREDGING PILOT STUDY
CONSTRUCTION CONTRACT NO. XXXXXXXX

EXISTING CONDITIONS
SITE PLAN

State of New Jersey
Department of Environmental Protection

Richard J. Codey
Acting Governor

Bradley M. Campbell
Commissioner

Bureau of Tidelands Management
P.O. Box 439
Trenton, NJ 08625-0439
609-292-2573

September 21, 2005

U.S. Environmental Protection Agency
Attn: Alice Yeh, Project Manager
290 Broadway
New York, NY 10007-1866

RE: U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2, tidelands dredging license for Dredging Pilot Lower Passaic River project

FILE : #05-0395-T

Dear Ms. Yeh:

The application identified above is tentatively scheduled to be considered by the Tidelands Resource Council at its meeting on Wednesday, October 5, 2005. The meeting of the Council will be held at the offices of the Bureau of Tidelands Management, 9 Ewing Street, 1st Floor, Trenton, NJ. The meeting begins at 10:00 a.m.

You are not required to attend this meeting. However, if you want to attend the meeting, please call me before Thursday, September 29, 2005 at (609) 777-1944. I will set aside a specific time for this application to be heard by the Council, so that you do not have to attend the entire meeting.

If you have any other questions, please do not hesitate to contact me at the above-given telephone number.

Sincerely,

Mary Ann Herman
Secretary
Tidelands Resource Council

C: Lisa Baron, Office of Maritime Resources/NJ DOT

State of New Jersey

Richard J. Codey
Acting Governor

Department of Environmental Protection

Bradley M. Campbell
Commissioner

Site Remediation Program
Office of Dredging and Sediment Technology
P.O. Box 028
Trenton, NJ 08625
(609) 292-1250
FAX (609) 777-1914

October 6, 2005

Ms. Alice Yeh
United States Environmental Protection Agency Region 2
290 Broadway New York, NY 10007-1866

Re: Federal Consistency Determination/Water Quality Certificate
Lower Passaic River Restoration Project Pilot Study
City of Newark; Essex County
NJDEP File No. 0000-04-0020.1

Dear Ms. Yeh:

This letter is forwarded in response to your August 1, 2005 request for a Federal Consistency (FC), as required by Section 307 of the federal Coastal Zone Management Act (16 USC 1451 et seq.) and Water Quality Certification (WQC) as required by Section 401 of the federal Clean Water Act (33 USC 1251 et seq.) for the dredging of the Lower Passaic River Restoration Project. This FC/WQC serves to authorize a one-time environmental dredging event removing approximately 5,000 cubic yards of sediment from the Passaic River Harrison Reach identified as river mile 2.85.

The subject dredging activity encompasses approximately 1.5-acre area of river bottom or an area 300' in length by 225' in width. The maximum project depth is –15' below mean low water (MLW) plus 0.5 overdredge. The maximum volume of material to be removed (including overdredge) as part of this dredging pilot is approximately 5,000 cubic yards (cy) of material. The dredged material is to be mechanically dredged via an environmental clamshell bucket, loaded into watertight scows and transferred to the Bayshore Recycling Facility located in Keasbey, NJ. Subsequently, the dredged material will be divided into two quantities of 2,500 cy. respectively and sent to two decontamination technology vendors identified as BioGenesis and the Endesco/ Clean Harbors facility.

The authorized work is identified within the document entitled "Lower Passaic River Dredging Pilot Study", dated June 2005 and in the NJDOT Project Specifications, specifically the section entitled **"DIVISION 200 – EARTHWORK SECTION 201 – DREDGING"**. The authorized site plans consist of three sheets entitled "New Jersey Department of Transportation, Office of Maritime Resources, Lower Passaic River Dredging Pilot Study, dated August 2005.

Subsequent to treatment, and prior to final deposition, the treated dredged material is subject to the oversight of the Superfund Innovative Technology Evaluation (SITE) Program Quality Assurance Project Plan (QAPP). It is understood that the EPA and NJDOT will require the two decontamination vendors to apply for and obtain an Acceptable Use Determination (AUD) from the Department prior to final placement of the subject treated dredged material. The decontamination vendor will also be required to

secure all necessary permits and approvals for the proposed upland placement site for the material. This information would then be submitted to NJDOT and USEPA as part of the contract procurement procedure for the treatability studies. The Department finds this process acceptable provided the EPA submits a request for an amendment to this federal consistency determination once an acceptable permitted upland site is identified.

The Rules on Coastal Zone Management (N.J.A.C. 7:7E et. Seq.) constitute New Jersey's enforceable policies under its federally approved Coastal Zone Management Program. The Lower Passaic River Restoration Project Pilot Study Dredging Project has been reviewed under the following Rules on Coastal Zone Management: Navigation Channels (7:7E-3.7), Ports (7:7E-3.11), Maintenance Dredging (7:7E-4.6), Dredged Material Disposal (7:7E-4.8), Dredged Material Disposal on Land (7:7E-7.12), Marine Fish and Fisheries (7:7E-8.2) and Water Quality (7:7-8.4). Based on the above summary of details of the project as presented in the August 1, 2005 request for a FC/WQC and supporting information, **I have CONDITIONALLY determined that Lower Passaic River Restoration Project Study is consistent with the Rules on Coastal Zone Management and New Jersey's federally approved Coastal Management Program provided that all of the activities are performed as depicted on the referenced plans and that all specifications and conditions are adhered to by the applicant.**

I have also reviewed this project for potential water quality impacts. Provided that the following conditions are met, I have determined that this project is not likely to cause a violation of New Jersey's Surface Water Quality Standards (N.J.A.C. 7:9B-1.1 et seq.). **Therefore, this determination includes the State's Water Quality Certification pursuant to Section 401 of the federal Water Pollution Control Act (33 USC 1251 et seq.) subject to the following conditions:**

1. Dredging is prohibited between November 15th and May 31st of any given year in order to protect the early life stages of winter flounder.

2. All material removed via this project shall only be dredged using a closed clamshell "environmental" bucket dredge.

3. Dredged material shall be placed deliberately in the barge in order to prevent spillage of material overboard.

4. No discharge of dredged material decant water is permitted.

5. The dredge shall be operated so as to maximize the bite of the clamshell bucket.

6. The clamshell bucket shall be lifted slowly through the water column, generally 2 feet per second or less.

7. All barges or scows used to transport sediment shall be of solid hull construction or be sealed with concrete.

8. The gunwales of the dredge scows shall not be rinsed or hosed during dredging.

9. Only bucket rinse water from this project may be discharged into the Passaic River and this shall be limited to conditional release only within the dredging contract area.

10. The bucket rinse water holding tank(s) shall be watertight.

11. The bucket rinse water shall be held in a tank a minimum of 24 hours after the last addition of water to the rinse water holding tank. Said water shall only be discharge after the mandatory 24-hour retention time.

    Should the contractor wish to reduce the required holding time, the contractor shall demonstrate that the reduced holding time is sufficient to meet a total suspended solids (TSS) background value of 30 mg/L. The total suspended solids shall be determined through gravimetric analysis. No discharge shall be permitted from the rinse water holding tank until the results of the gravimetric analysis have confirmed that the 30-mg/L-background level has been achieved. No additional water shall be added to the rinse water holding tank between the time of sample acquisition and discharge. Upon successful demonstration that the reduced holding time is sufficient to meet the TSS background level of 30 mg/L, the monitoring of TSS may be suspended and the demonstrated settling time shall replace the 24 hour minimum. A successful demonstration of the reduced holding time efficiency shall be determined once three consecutive TSS analyses have confirmed that the 30 mg/L action level has been achieved by the reduced holding time.

    Should the contractor wish to demonstrate this reduced holding time, all records including time of last addition of rinse water holding tank, time of TSS sampling and the results of TSS sampling shall be submitted to the NJDEP as soon as they become available, together with a request for a reduced holding time.

12. During pumping of the rinse water from the holding tank, care shall be taken to avoid resuspending or pumping sediment that has settled in the tank.

13. REPORTING REQUIREMENTS: At the completion of the environmental dredging pilot, the EPA shall submit the following information to the Department. This information shall be submitted within six months of contract completion.

- Start and finish date of contract
- Post-dredge hydrographic survey
- Completed "Notice of Completion of Work" attached.

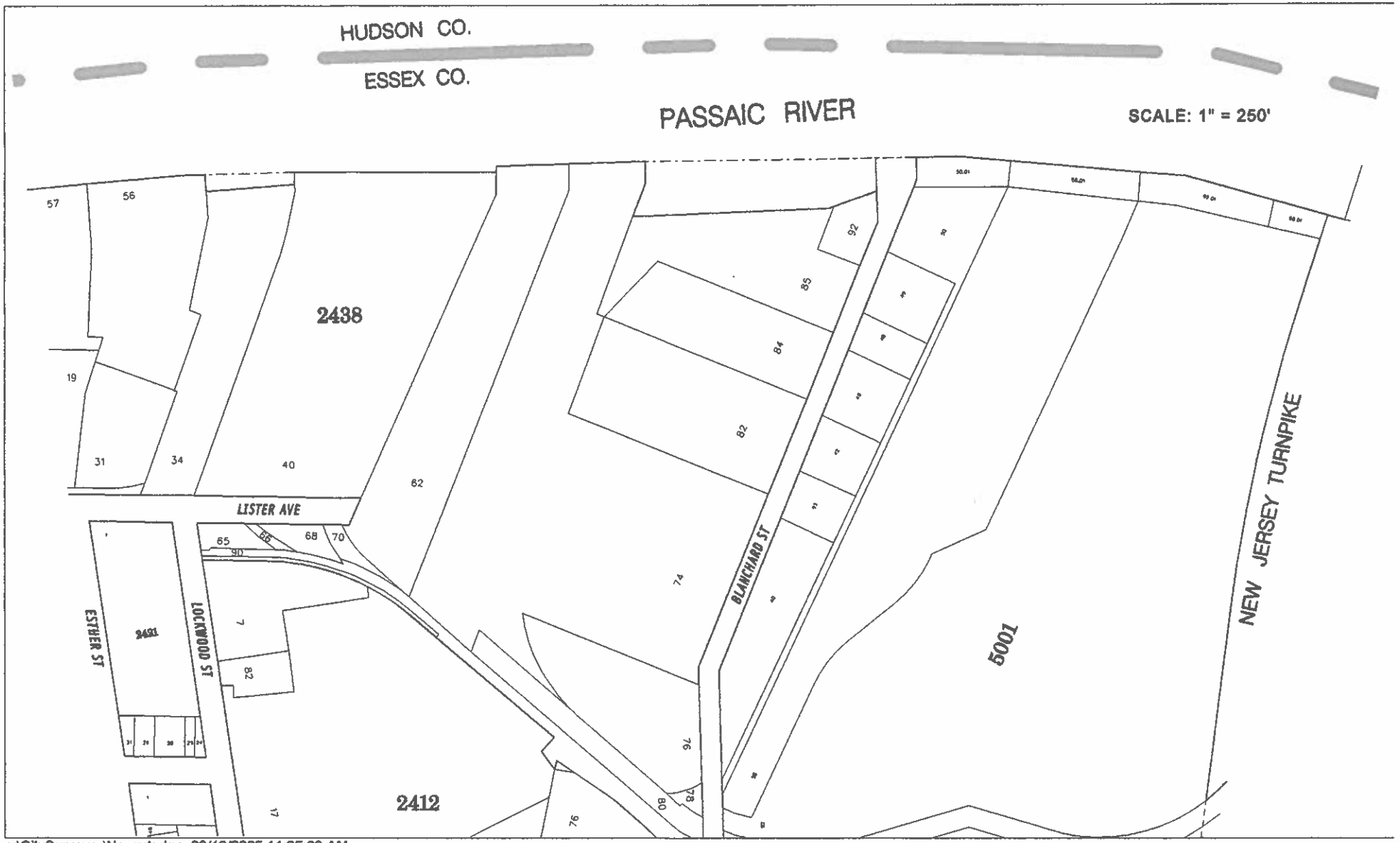
14. EPA shall require the two decontamination vendors to apply for and obtain an Acceptable Use Determination (AUD) from the Department prior to final placement of the subject treated dredged material.

Should you have any questions regarding this determination and certification, please do not hesitate to contact me at (609) 292-9342.

Sincerely,

David Q. Risilia, Acting Chief
Office of Dredging and Sediment Technology

C: Lisa Baron, NJDOT, Office of Maritime Resources
Joanne Cubberley, Bureau of Tidelands Management



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DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
ATTENTION OF

Regulatory Branch

November 14, 2005

SUBJECT: Application Number 2005-00923-J2 for the United States Environmental Protection Agency

Ms. Alice Yeh
United States Environmental Protection Agency
Emergency and Remedial Response Division
290 Broadway
New York, New York 10007

Dear Ms. Yeh:

This is in response to your letter regarding the Environmental Dredging Pilot Project, which is an integral part of the Lower Passaic River Restoration Study. The Pilot Project is now scheduled to be conducted from December 5 - 9, 2005. You indicated that the project is being conducted in conjunction with the U.S. Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended.

Your letter stated that the Environmental Dredging Pilot activities would be performed in a 17-mile tidal stretch of the lower Passaic River, which is part of the "Lower Passaic River Study Area portion of the Diamond Alkali Superfund Site", as defined in a June 22, 2004 Administrative Order on Consent. Your letter requested a determination on the applicability of Nationwide Permit Number 38 for the project.

In accordance with Nationwide Permit Number 38, which can be found at Part II of the *Federal Register* dated January 15, 2002 (67 FR 2020-2095):

> "Activities undertaken entirely on a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the CWA or section 10 of the Rivers and Harbors Act."

Pursuant to discussions between EPA Region 2 and the New York District of the U.S. Army Corps of Engineers concerning the subject activity, it is our understanding that the subject activities will be done in accordance with the *Federal Register* citation noted above.

Based upon the information provided, a Department of the Army permit is not required. You are to contact appropriate state and local

government officials to ensure that the subject work is performed in compliance with their requirements.

Your request was assigned Application Number 2005-00923-J2 for filing purposes. Please use that file number for any future correspondence on this matter.

If any questions should arise concerning this matter, please contact me at (917) 790-8510.

Sincerely,

Richard L. Tomer
Chief, Regulatory Branch

CC: Lisa Baron, NJOMR
Suzanne Dietrick, NJDEP
Scott Nicholson, USACE
Ellen Simon, USACE

Videos of Dredging Operations

Videos of dredging operations are available upon request.

Please send inquiries to:

Dr. AmyMarie Accardi-Dey
Malcolm Pirnie, Inc.
104 Corporate Drive
White Plains, NY 10602-0751