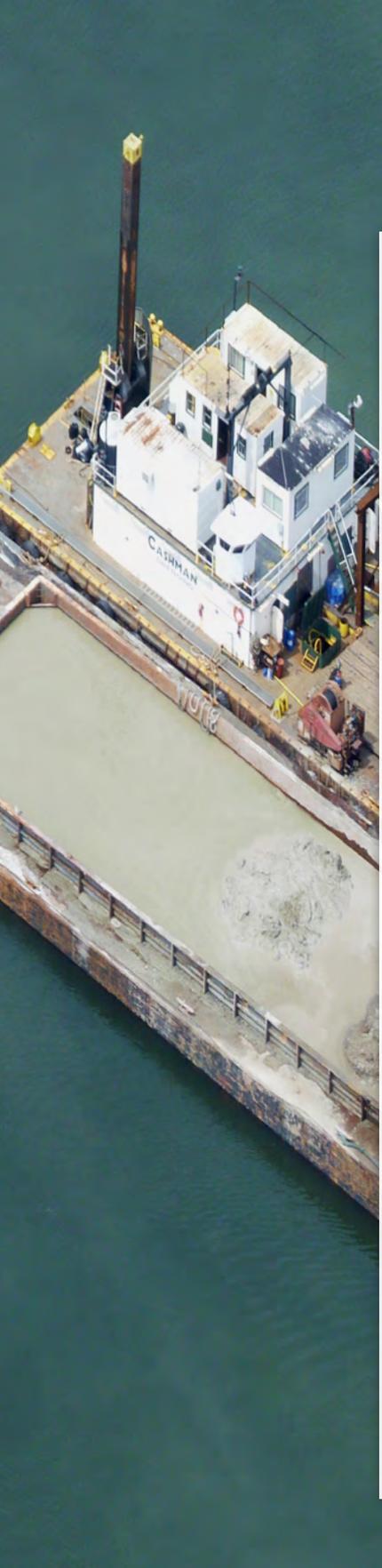




QUALIFICATIONS PACKAGE

ENVIRONMENTAL

CASHMAN



CONTENTS

- Introduction.....3
- Company History.....4
- Locations.....5
- Project Management.....6
- Safety Policies.....7
- Environmental Compliance.....8
- QA/QC.....9
- Project Controls.....10
- Engineering / Drafting.....12
- Material Processing.....13
- Equipment Resources.....14
- Technical Capabilities.....15
- Dredging: Environmental & Remediation.....16
- Dredging: Navigational & Maintenance.....17
- Project Experience.....18
- Relevant Projects19



Jay Cashman, Inc.
549 South Street | Quincy, MA 02169
www.JayCashman.com | 617.890.0600

INTRODUCTION

At Cashman, we understand that communities depend on modern infrastructure to remain competitive in the global market. It is our goal to provide innovative engineering solutions that minimize the risks and costs associated with improving local infrastructure.

As a leading provider of Dredging Services, Cashman Dredging and Marine Contracting creates value for Owners by partnering with clients to develop innovative ideas, maintaining achievable schedules, and conducting our operations under budget. We consistently apply these concepts while maintaining Safety and Quality in all that we do.

Cashman recognizes its responsibility to improve the communities in which we work, whether the work is performed close to home or in the international market. That is why upholding our values of integrity, accountability, safety, and environmental conservation is paramount at each of our work sites.

Utilizing sound engineering and advancing the latest technologies, we execute turnkey environmental dredging and remediation projects across a broad range of services. Not only do we implement the work, we apply our extensive regulatory experience to help Clients navigate the complex permit approval processes.

Much of our work around the country addresses challenges found in remediating contaminated sediments deposited in various waterways. Our precision dredging, cap installation, material separation, dewatering, and solidification/stabilization techniques minimize waste generation and reduce long-term liability while maintaining water quality. This is conducted without disruption, so our Clients can focus on their business and operational goals.



Our managers and engineers implement sustainable solutions through technology, innovation, and experience to meet your dredging needs. Through our processing facility in Elizabeth, New Jersey, we transform dredged sediment into a material that is beneficially reused throughout the region. Our vast fleet of equipment—coupled with our depth of experience—makes us uniquely qualified to tackle our Clients' most demanding challenges with regard to disposal or reuse of construction waste materials.

To learn more about the full scope of Cashman's dredging capabilities, visit www.CashmanDredging.com.

RESTORING ENVIRONMENTS



COMPANY HISTORY

The Cashman Family history in Construction dates back to the late 1800s when relatives of Mr. Jay Cashman, the Founder and Chairman of the Cashman Group of Companies, constructed the iconic Provincetown Pilgrim Monument at the tip of Cape Cod. From an early age, Mr. Cashman shared the same enthusiasm, passion, and know-how for the business as his ancestors.

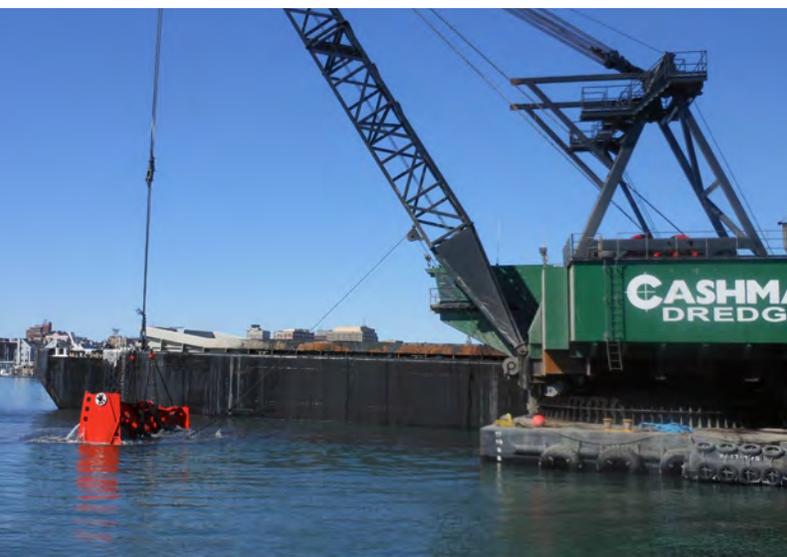
Coming of age through the 1960s and 1970s, Mr. Cashman quickly built a successful track record of performing heavy civil and marine contracting projects throughout the Northeast. Notable work included rebuilding destroyed seawalls and jetties after the Blizzard of '78 and constructing a new marine facility for the Martha's Vineyard Steamship Authority.

In 1994, Mr. Cashman founded Jay Cashman, Inc., which represents the primary heavy civil and marine construction entity within the Cashman Group of Companies. Through the 1990s the firm continued to grow and prosper, executing large-scale heavy civil and marine construction projects including components of such notable regional projects as Boston's Central Artery "Big Dig" Program, the Deer Island Sewer Treatment Facility, Spectacle Island Environmental Remediation and Clean-Up, and the MBTA (Massachusetts Bay Transportation Authority) South Shore/Greenbush Commuter Rail Expansion.

Success on large-scale projects such as these has come as a result of expertise, dedication, safe work practices, and efficient execution. Cashman's history as a quality construction contractor is built through a strong team culture internally and externally that is cultivated with Owners and Joint Venture Partners alike.

Current and recent construction projects performed by Cashman have improved the physical infrastructure in communities and have enhanced local and regional economies. From port development through marine-related oil and gas infrastructure projects throughout the Eastern Seaboard, the Caribbean and beyond, Cashman has diversified its abilities, added expertise and equipment, maintained core competencies, and maintained its focus on safety and quality. The firm's goal is to deliver quality infrastructure with minimal adverse impact to stakeholders by working closely with Owners.

Today, the Cashman Companies have grown to a privately held conglomerate, which include Jay Cashman, Inc.; Cashman Dredging and Marine Contracting Company, LLC; Sterling Equipment; and several related business lines that share resources and expertise across a diverse array of contracting segments and business units. With over 40 years of experience, a high-performance staff of operational and project-related personnel, and a comprehensive portfolio of services and resources, Cashman looks forward to teaming with Clients to take on challenging projects safely and exceed expectations on all fronts.





LOCATIONS

MA

☆ Corporate Headquarters:

549 South Street
Quincy, MA 02169

NY

2877 Richmond Terrace
Staten Island, NY 10303

NJ

650 South Front Street
Elizabeth, NJ 07202

With numerous long-term projects in various parts of the country—for example, our work in Florida and the Carolinas—Cashman often sets up regional offices to more quickly respond to Client needs.

PROJECT MANAGEMENT

The complex nature of dredging and environmental remediation makes it imperative to have an integrated, efficient team of experts managing a project. Cashman operates using a flat corporate organizational structure to ensure Clients have streamlined access to senior project and corporate decision-makers at all times. Having a flat organizational structure also means we are flexible to meet Customers' evolving needs and provide these key benefits:

- **Improved Communication.** Cashman's workforce quickly receives communications regarding safety, project benchmarks, best practices, and other critical messages. Reducing managerial layers enables our workforce to quickly provide managers innovative solutions to everyday problems.
- **Rapid Response to Customer Needs.** Top-level project managers interface directly with superintendents, foremen, engineers, trade craft employees, and laborers, which makes decision-making rapid and enables employees to provide input directly to decision-makers.
- **Operational Flexibility.** Cashman can improve operations by implementing strategic organizational adjustments rapidly. During the course of all project operations, our organization can quickly re-align to meet short-term Customer goals.
- **Efficient Performance and Production.** Cashman employees are more productive when they can take ownership of the work they perform. With our flat organizational structure, we promote basic decision-making at the employee level. This reduces the need to seek managerial decisions for basic tasks and creates an empowered workforce that is dedicated to performing efficient, effective, results-driven work.

Executing this approach is our team of innovative project managers. Cashman project managers are experts in their fields and bring decades of dredging, heavy civil and marine experience to their projects. These leaders support project employees and are available to Customers at all times to discuss project needs and provide direct, rapid support.





SAFETY POLICY

Our Safety Policy is guided by the straightforward goal: *Everyone Goes Home Safe*. Cashman is committed to providing job sites that are free from recognizable hazards. This is achieved by making the safety of all staff and every operation a priority throughout each project, from planning through to completion.

We manage safety issues and concerns by adhering to the following principles:

Compliance. We comply with all applicable safety regulations and requirements and implement programs and procedures to assure compliance.

Prevention. We employ management systems and procedures to identify and correct unsafe conditions. We train our employees to identify potential risk so we may take steps to prevent harm to our employees, other trades on the project, or the community and environment.

Monitoring. We measure our safety performance and efforts. The measurement results allow us to benchmark in order to evaluate our performance against the industry and, more importantly, against our own safety standards, always seeking ways to improve outcomes.

Communication. We communicate our commitment to a safe work environment and expectations at every project location to our employees, vendors, and clients. We share lessons learned throughout the company.

Continuous Improvement. We seek out opportunities on every project location to improve our performance and adherence to these principles.

ENVIRONMENTAL COMPLIANCE

At Cashman, our commitment to the environment is apparent at each work site. Cashman is one of the largest hazardous waste contractors in the United States. As such, our employees take their responsibility to the environment seriously, and we implement all controls necessary to ensure regulatory and permit compliance on every project.

Cashman's environmental responsibility is both regulatory and value-based. The controls implemented on our projects—water quality, erosion, air emissions—support our regulatory compliance. A significant portion of Cashman's business is marine-based, making water quality and erosion controls paramount. Further, large-scale construction equipment is a requirement on each of our projects, which regularly requires air emissions monitoring and / or controls.

These major environmental considerations are frequently regulated through permit compliance. Cashman's employees have significant experience examining and working with permits and permitting agencies such as the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and state-level environmental agencies. Through permit compliance we avoid unnecessary adverse impacts on natural resources. Cashman crews have experience operating on

some of the most strictly regulated sites in the United States, and we provide processes and controls to maintain compliance.

In addition to concerns regarding a project site's existing features, Cashman closely monitors potential environmental impacts resulting from construction or dredging waste. Project sites with contaminated or hazardous waste require additional environmental controls and processes related to waste disposal. We regularly test waste from operations to determine whether site contaminants present additional disposal requirements.

In addition, we strive to operate with the lowest possible environmental footprint possible. Our employees continually seek out new technologies, processes, and controls to minimize our environmental footprint without adding costs to our operations.

Cashman's environmental commitment is present at our headquarters as well, where many elements of an Environmental Management System are in place. We reduce our carbon footprint using solar panels, implementing energy conservation policies, and offering a recycling program at our offices.



QUALITY ASSURANCE & QUALITY CONTROL

Cashman's Quality Policy is rooted in one simple philosophy: *All work meets or exceeds Owner expectations by executing work right the first time, and by employing a culture of continuous improvement in all that we do.*

Infrastructure projects turned over by Cashman are guided through a Quality Assurance / Quality Control (QA/QC) Program that accounts for project conditions, industry standards, and federal, state, and local regulating authorities, permit requirements, and any other standards that govern our worksite. Every member of the Cashman team is tasked with seeking ways to improve the quality of our work processes, products, and services.

We achieve quality in all that we do by:

- Developing work plans that match specification and / or plan requirements.
- Achieving client satisfaction by maintaining continuous communications with Owners.
- Eliminating rework by pushing responsibility for quality through every level of our organization.
- Measuring results by monitoring each key project performance criteria and working regularly to improve our performance.
- Striving for continuous improvement in all that we do by using lessons learned and data to improve our work.

By adhering to these primary objectives, Cashman's rigorous QA/QC Program benefits our Clients, Owners, and ourselves.



PROJECT CONTROLS

At Cashman, we understand and live by the adage that “Time is money.” In the heavy civil and marine construction industry where daily costs can exceed \$100,000, it is paramount that Cashman provide controls over project costs and schedule as they relate to the past, present and future. Project Controls are used to monitor and scrutinize project health and forecasts, as well as to develop improvements to our operations for future, similar projects.

The foundation of Project Cost Controls begins with **PROJECT ESTIMATES**, in which detailed work breakdown structures relate costs and duration elements for discrete



tasks. Accurate estimates provide the basis for successful operations. As a result, Cashman uses HCSS HeavyBid®, an industry-leading software package that provides

access to historical company and subcontractor cost information.

Schedule Control is maintained on all sizes of projects and contract types to ensure projects are on pace with performance expectations. Cashman’s **SCHEDULES** present a comprehensive view of project performance, providing visual impacts of time and cost savings related to schedule changes, project modifications, revisions, and other updates.

Integration of cost information, probability analysis, subcontractors, suppliers and third-party activities are all typical components of an overall project schedule. Regularly updated schedules measure our as-bid expectations versus as-built scenarios, as well as resource allocation and performance.

Scheduling functions are



typically executed by a dedicated scheduler using Primavera P6 Professional Project Management®. Our scheduler creates baseline schedules that are resource-loading during the bidding and contract execution stages, and maintains as-built durations, resource utilization, and revisions as they are encountered during contract execution.

Weekly and monthly schedule reviews and summary reports are executed and distributed, as required, to Cashman’s Project Management and Client Teams. Our scheduling capability, enhanced by personnel and software, enables more informed decisions and provides a better understanding of progress being made against the overall goals of the project.

COST CONTROLS

COST CONTROLS are an equally important aspect of Cashman's integrated Project Controls. Cost elements of a project, while integrated into our project schedules, have distinct components that are maintained and managed on a daily basis throughout the course of a project.

Cost elements of each project are monitored using Viewpoint®



construction software, which provides visibility of our initial budget, cost tracking, purchasing commitments and cost accruals, requests for equitable adjustments, and forecasting.

We ensure that all cost elements of a project—past, present, and future—are accounted for, and regular reports are generated to determine a project's health.

Projects undergo regular management reviews to identify potential improvements. Our chosen software suite streamlines our reporting functions and simplifies our ability to make decisions about project improvements, markets, and commodities.

Schedule, Cost and Operational Performance metrics, other media, and data files are all linked together through *CashmanLink*, a proprietary internal reporting system to give Senior Management instantaneous access, updates and feedback on the health of a project from anywhere with an internet connection. Clients or Owners can also be provided with a dedicated project-specific portal to selected information and reporting tools to allow for improved communications / data flow and reporting.



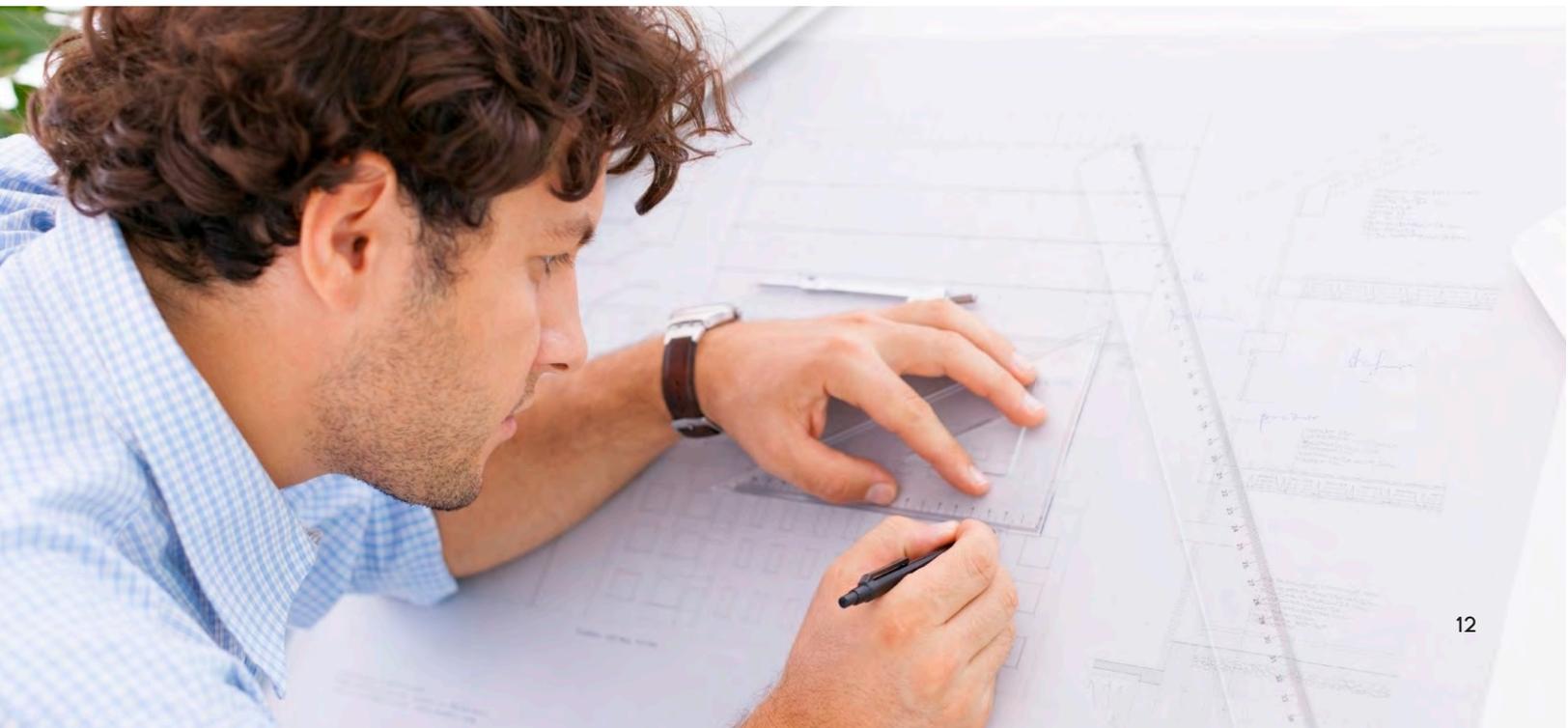
ENGINEERING & DRAFTING SERVICES

The success of any project depends on proper design and engineering. Cashman's in-house design and engineering capabilities are focused on safe, cost-efficient, and proven design and engineering techniques related to the constructability of projects.

In-house drafting services utilize the latest versions of AutoCAD and Bentley Microstations to provide detailed models, drawings, and renderings as necessary to support bidding and operations. Drafting revisions and updates over the course of a project, along with as-builts upon completion, are maintained through a document control process. This process allows for a complete history of the progression of a design / drawing package.

Cashman's in-house engineering services are typically limited to construction and installability. To execute Design-Build (D-B) or Public / Private Partnership projects, Cashman works with a select group of third-party Design and Engineering partners. Cashman's Engineering Department maintains licensed professional engineers in a wide variety of disciplines (civil, mechanical, and survey) in several different states along the Eastern Seaboard.

Cashman's Engineering and Design Department has a history of providing innovative solutions to complex problems. Our engineering and design professionals provide a combination of backgrounds in design engineering and operations. This allows Cashman to select best practices and design / engineering excellences from a variety of markets, including: dredging, oil and gas, industrial power, heavy civil / marine, environmental, and mechanical / electrical. This diversity is one of Cashman's strengths and allows us to offer Clients and Owners solutions that may not have been apparent to contractors with a more singular focus.



MATERIAL PROCESSING

Cashman lowers overall project costs through highly efficient material processing operations. Material processing solutions are driven by our Clients' objectives, the physical constraints of a work site, and the contaminant profile of the material. Cashman assesses the unique characteristics of each project site, and provides solutions that fit those needs.

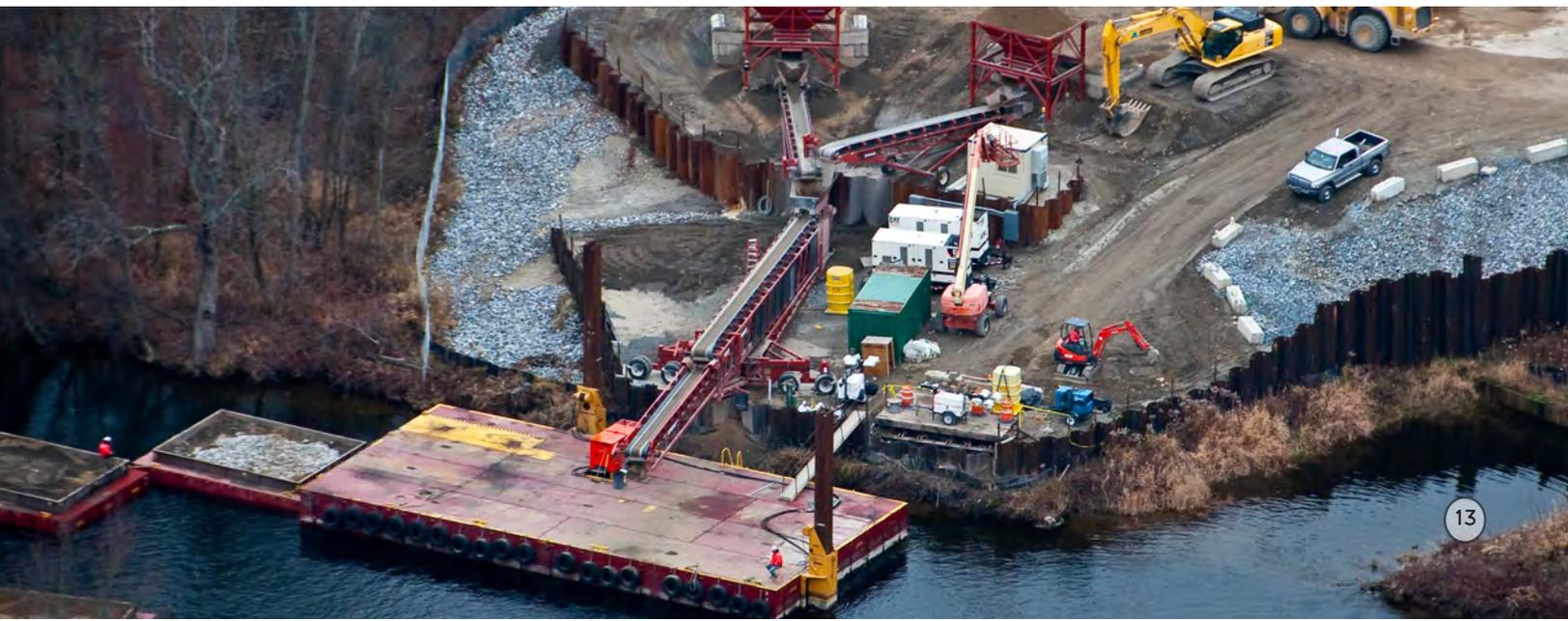
Clients that will beneficially reuse material can frequently use passive dewatering techniques such as dewatering through geotextile tubes. Clients that require landfill disposal for materials within the *Toxic Substances Control Act* (TSCA) frequently rely on mechanical means and methods to press material dry to reduce the overall weight, and ultimately the ultimate disposal price. Cashman develops its solution for mechanical processing based on our analysis of disposal costs and transportation fees. In doing so, we optimize the percent solid to provide the most cost-effective solution.

As part of the comprehensive material processing solutions Cashman provides, we own and operate the Cashman Marine Terminal, a full-service, permanent processing facility in the

heart of the industrial center of New Jersey. The facility is the first of its kind in the area and offers easy access to various ports, waterways, and Superfund Sites throughout the Northeast.

Cashman is permitted to provide in-barge processing, pugmill processing, and mechanical processing at the facility. We chose the most appropriate method based on the project needs and Client requirements. The Cashman Marine Terminal can accept maintenance sediments from ports and access channels not suitable for Historic Area Remediation Site (HARS) placement as well as impacted sediments such as those from Combined Sewer Overflow (CSO). Additionally, the site currently holds the following permits: Waterfront Development Permit, Air Permit, Water Discharge Permit, and Water Quality Certificate.

It always is our goal to find beneficial reuses for processed materials whenever possible. To date, materials processed at the Cashman Marine Terminal have been used for site remediation, brownfield development, and mine reclamation projects.



EQUIPMENT RESOURCES

Our expansive fleet of highly specialized hopper, hydraulic, backhoe and clamshell dredges, dump scows, and drilling / blasting equipment is capable of working in any offshore environment, and separates us from the field in this demanding work.

Equipment	Quantity
Heavy Construction (excavators, loaders, material handlers, skid steers)	52
Heavy Equipment Attachments (buckets, grapples, hammers, shears)	74
Cranes: 15 Ton to 150 Ton	11
Cranes: 150+ Tons	15
ABS Barges	14
Deck Barges	32
Dumpscows	5
Hopper Barges	10
Spud Barges	29
Carpenter Barge	1
Vehicles: pickups to OTRs	115
Support Vessels (tugs, skiffs, survey boats)	46
Monitoring: PID, LEL, RAD, survey, GPS blade control	12
Communications: Radios to SAT Coms	60
Welding: 300 amp to digital orbital	41
Other (ATVs, compressors, light plants, threaders, benders)	63
TOTAL	580



TECHNICAL CAPABILITIES

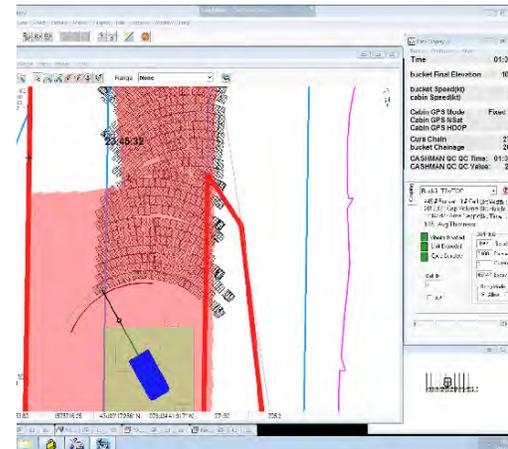
Customized, innovative solutions are what make Cashman an industry leader in dredging, environmental remediation, and marine construction. We challenge each of our employees to find ways to contribute to developing technology, methods and equipment that improve production, save time, and reduce costs—benefitting our Clients and our business.

We employ a custom-developed software system to maximize results for debris removal, dredging and capping. Capabilities include:

- GPS-guided system for precision removal to within 0.1 ft. in three dimensions results in full positioning control in each bucket movement.
- Pre-engineering bucket position layout for guaranteed overlap and minimal bucket bites.
- Full suite of compliance data collection including playback, and bucket count with positions.
- Shoreside support for QC monitoring to view bucket activity on screen.

The diversity of the Cashman fleet allows the company to execute dredging contracts of all sizes and with varying degrees of complexity.

While the right equipment is a necessity, Cashman is also one of the most experienced companies in the industry. We have safely dredged millions of cubic yards of all material types—hard rock, contaminated sediment, sand, and silt. Cashman is very proud to have completed the sixth and final year removing the majority of PCBs from the Upper Hudson River in one of the largest and most successful environmental cleanup projects ever undertaken in the United States. The EPA called the project “a historic achievement” and determined the project removed 100 percent of the PCBs targeted for removal—more than 2.76 million cubic yards of sediment from a 40-mile stretch of river.



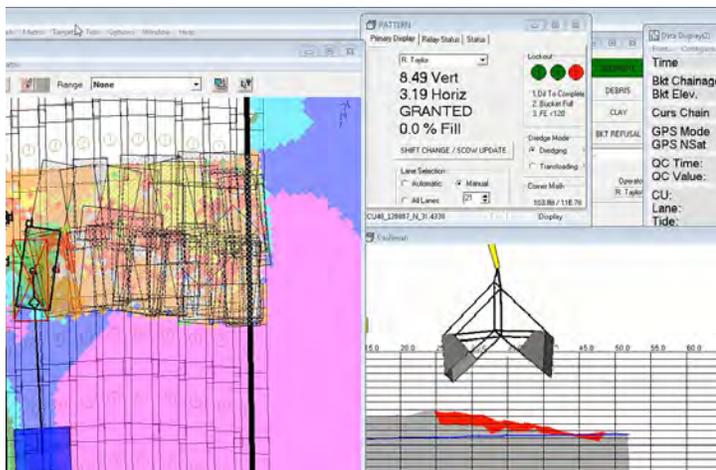
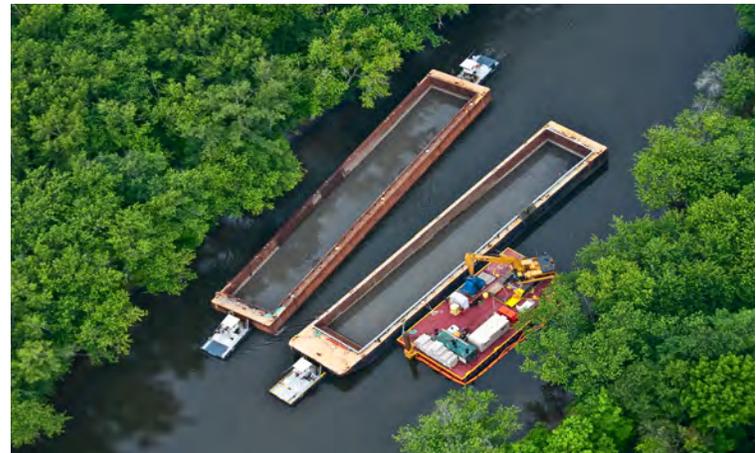
DREDGING

ENVIRONMENTAL

Cashman is one of the most experienced environmental remediation contractors in the country. We provide dredging services for remediation dredging, capital and maintenance dredging, beach renourishment, marine drilling and blasting, and subaqueous capping. Our environmental restoration expertise spans a broad range of services including pond and lagoon restoration, sludge and sediment dewatering and processing, landfill operations, and wetland habitat development.

Our experience includes one of the largest environmental remediation projects in U.S. history, a six-year program to remove / remediate contaminated sediment on a 40-mile stretch of the Hudson River in upstate New York. Cashman also performed environmental remediation during Boston's Central Artery project, which included upland disposal of ~80,000 cubic yards of contaminated soil and hazardous waste. In addition to this large-scale dredging work, Cashman has performed smaller-scale environmental remediation, dewatering, and upland processing throughout the East Coast.

Confined aquatic disposal (CAD) cells are increasingly becoming an option for the management of contaminated sediments, and Cashman has constructed several CAD cells on behalf of our clients in New Bedford, MA and Norwalk, CT.



Cashman's dredging operations are conducted with strict adherence to dredge limits that may require minimal over-dredging. The dredge prism boundaries are also strictly adhered to, in order to maintain slope stability of existing banks, provide protection of environmentally and culturally sensitive areas, and to protect against cross-contamination of previously dredged areas.

BACKFILL & CAPPING

Capping techniques provide Clients an alternative or supplement to dredging on environmental remediation projects. Cashman provides highly efficient capping techniques that maximize cap accuracy and reduce material waste. Using automated controls, we reduce the likelihood of human error and achieve cap thickness and placement accuracy standards that are among the best in the industry.

Our method of backfill and capping relies on computer drivers to control the opening of the bucket a predetermined amount. This method provides a measured flow of material to evenly cover targeted areas.

NAVIGATIONAL

Port expansion projects involve the deepening of channels to allow access by larger, deeper draft ships; excavation of turning basins; or providing landfill for expansion of port facilities. The Army Corps of Engineers selected Cashman to deepen Newark Bay and Arthur Kill Channel to 50 feet using an array of large backhoe, clamshell dredges, and drilling and blasting equipment in 2010. This critical project allowed the port to accept New-Panamax ships upon completion of the expanded Panama Canal. In 2011 and 2013, the Army Corps awarded Cashman additional contracts to complete the next phases of deepening on the adjacent Arthur Kill Channel.

In 2010, Cashman acquired the trailing suction hopper dredge *Atchafalaya*, making it one of only four firms in the country able to perform this specialized type of dredging.

Today, Cashman Dredging and Marine Contracting is regarded as a leader in dredging with the equipment and resources to complete nearly any project. Recent navigational or deepening projects include work in Florida on the Dania Cut-Off Canal Deepening project. This project's goal was to increase navigation depths within the Dania Cut-Off Canal to facilitate increased mega-yacht service and repair business, as well as increased shipping services.

Cashman Dredging also performed dredging and disposal services to deepen ferry berths as part of Hurricane *Sandy* recovery at the Port Imperial Intermodal Ferry Terminal in Weehawken, New Jersey.



MAINTENANCE

Cashman Dredging and Marine Contracting provides maintenance dredging services to a wide array of federal and municipal clients and owners. The Army Corps awarded a \$3.9 million contract to perform maintenance dredging of the Jamaica Bay Federal Channel at Rockaway Inlet in New York that required dredging of 434,395 cubic yards with offshore disposal at an Historic Area Remediation Site (HARS) located 12 miles away from the area. Cashman received 'above average' reviews for our efforts to work through, and in spite of, results of Hurricane *Sandy* in 2012. Other maintenance dredging work includes in Tampa Bay, in Brooklyn at Paerdegat Basin, the Kennebec River in Maine, and the Norwalk and Mystic Rivers in Connecticut, among others.



Cashman Dredging and Marine Contracting has undertaken some of the largest dredging projects in U.S. history. Providing an array of integrated solutions ranging from environmental and navigational dredging to pond and industrial dredging, Cashman's experience is second to none. Considered a leader in environmental and remediation dredging, we have earned a reputation for precision and quality. Time and time again, clients choose Cashman as their dredging contractor, knowing that our team is adept at completing challenging projects on time, and on budget.

PROJECT EXPERIENCE

The safe removal of impacted underwater sediments is a growing environmental concern. Over the last decade Cashman has emerged as the industry leader in sediment remediation dredging projects. We provide cleaner waterways through innovative dredging, capping, and processing techniques developed for major clients on the East and Gulf Coasts as well as in the Caribbean.

Cashman offers Owners minimal risk to execute their sediment remediation projects safely, on schedule, accurately, and at a predictable cost. Our experience includes remediating PCBs in environments where concentrations exceed 100 ppm, heavy metals, DNAPL (dense non-aqueous phase liquids), and other hazardous chemicals. Our crews work on heavily trafficked waterways, including on riverine and open-water environments.

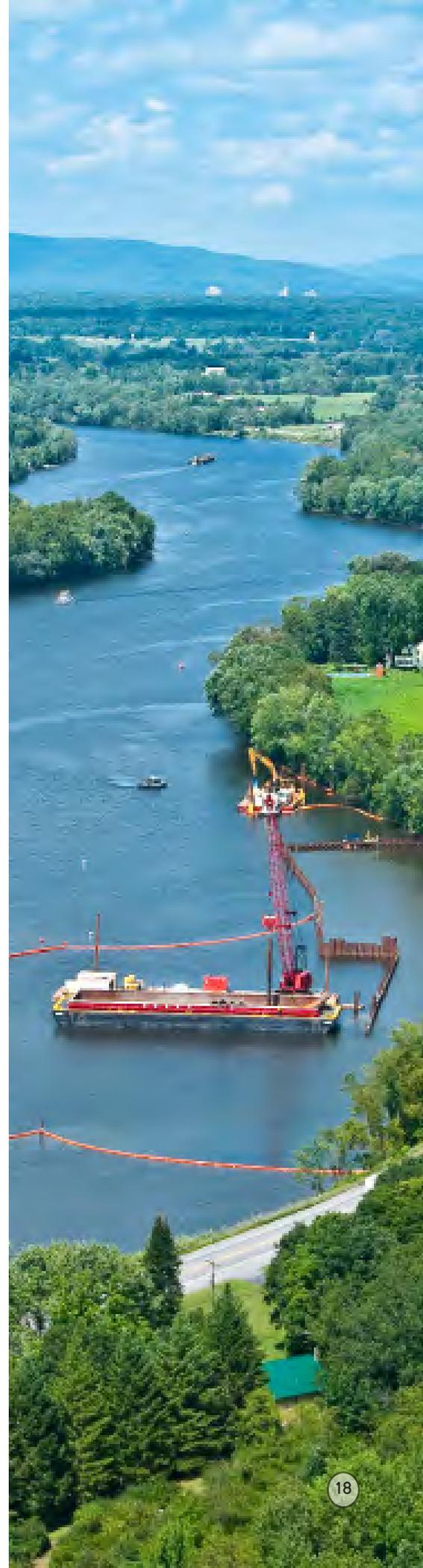
Clients that select Cashman work with a team that will solve complex remediation problems and meet all regulatory requirements. Our historic work on the upper Hudson River Sediment Remediation Project in New York resulted in dredging and remediation of more than 2.76 million cubic yards of PCB- / TSCA-impacted sediment, and placing more than 1.1 million tons of cap.

Cashman also performed environmental remediation during Boston's Central Artery / Tunnel project, which included upland disposal of ~80,000 cubic yards of contaminated soil and hazardous waste. In addition to this large-scale dredging work, Cashman has performed smaller-scale environmental remediation, dewatering, soil removal, and upland processing.

Cashman has more than 250 highly qualified employees that focus on meeting our Clients' needs. We maintain significant financial resources to manage work across various business lines, and we have the capability to bond individual projects valued up to \$350 million and aggregate up to \$750 million. Cashman's standards for success require our employees to develop innovations for each project to meet Customer demands. Cashman's significant equipment and personnel assets enable us to add value to each project we execute.

Cashman operates in full compliance with all laws, regulations, and contractual requirements in each element of our work, including:

- Dredging
- Cover Material Placement
- Water Treatment and Discharge
- Transportation and Disposal of Impacted Sediments



An aerial photograph of a wide river with a bridge in the distance. The river is blue, and there are construction barges and equipment in the water. The surrounding area is green with trees and some buildings.

SELECT PROJECTS

- Hudson River Sediment Remediation / Summary 2009-2015
- Hudson River Sediment Remediation / Phase 2 / Year 4 (2014)
- Hudson River Sediment Remediation / Phase 2 / Year 3 (2013)
- Hudson River Remediation / Phase 2 / Pier Construction (2011-12)
- Hudson River Sediment Remediation / Phase 2 / Year 2 (2012)
- Hudson River Sediment Remediation / Phase 2 / Year 1 (2011)
- Hudson River Sediment Remediation / Phase 1 (2009-2010)
- Paerdegat Basin Remediation Dredging, Brooklyn, NY
- Arthur Kill Channel Navigation Improvement/Remediation, NY-NJ
- Kill Van Kull Contaminated Sediment Dredging, Newark Bay, NJ
- New Bedford Dredging/Offshore Disposal Plus CAD Cells Construction
- East Chester Creek Environmental Dredging
- Port Imperial Intermodal Ferry Terminal Remediation Dredging
- North Point Park Remediation / Development, Boston, MA
- Central Artery / Tunnel Link Remediation / Soil Disposal, Boston, MA
- Boston Harbor Outfall Tunnel Ventilation System, Boston, MA

HUDSON RIVER SEDIMENT REMEDIATION PHASE 1, 2009 PHASE 2, 2011-2015

Cashman Dredging was part of the "world-class team" assembled to conduct the largest PCB sediment remediation project in U.S. history. More than 2.76 million cubic yards of sediment from a 40-mile stretch of the upper Hudson River between Fort Edward and Troy, NY were removed, and 100 percent of the PCBs targeted by the EPA have been addressed.

PROJECT INFORMATION

Location: Upper Hudson River,
Fort Edward - Troy, NY

Contractor:
Cashman Dredging and
Marine Contracting Co., LLC

Contract Dates:
Phase 1: 2009
Phase 2: 2011-2015

Dollar Value:
Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:
General Electric

Owner / Contact Details:
Timothy Kruppenbacher
518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:
Parsons



"This project is the most extensive dredging project undertaken in the nation, and its success is a historic achievement for the recovery of the Hudson River."

U.S. Environmental Protection Agency (EPA)



CASHMAN

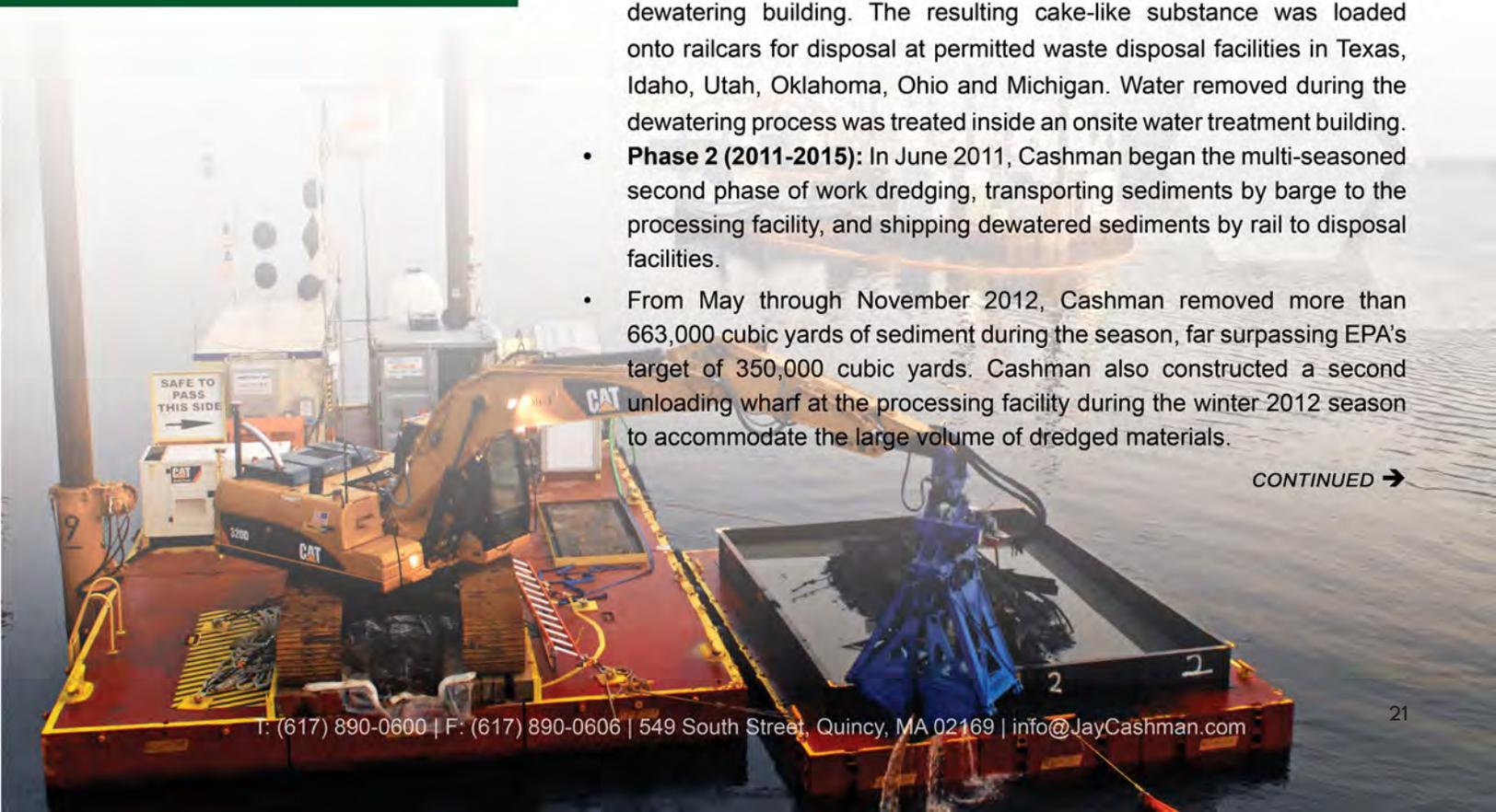
**HUDSON RIVER
SEDIMENT
REMEDiation
PHASE 1, 2009-2010
PHASE 2, 2011-2015**

**FORT EDWARD -
TROY, NY**

PROJECT HIGHLIGHTS

- **Phase 1 (2009-10):** In July 2008, GE awarded Cashman Dredging a contract to perform the first year of dredging on what has become the largest environmental remediation project in U.S. history. Cashman crews worked 24 hours a day, six days a week, for six months, to complete the first phase of work. Ultimately, 288,000 cubic yards of sediment were removed during this first phase, surpassing EPA's 2009 target.
- Sediments were removed from the river bottom by mechanical dredges stationed on flat deck barges. The sediments were loaded onto hopper barges that, when filled, were pushed by tugboats to a processing, treatment & transportation facility that had been constructed for the project on the Champlain Canal one mile upstream from the Hudson River.
- At the facility, free water was pumped from the barges, large debris removed, and sediments lifted from the barges where it moved through sizing equipment to separate out debris, gravel, rocks and sand. Water was extracted from the finer sediment in a 41,000-square-foot sediment dewatering building. The resulting cake-like substance was loaded onto railcars for disposal at permitted waste disposal facilities in Texas, Idaho, Utah, Oklahoma, Ohio and Michigan. Water removed during the dewatering process was treated inside an onsite water treatment building.
- **Phase 2 (2011-2015):** In June 2011, Cashman began the multi-seasoned second phase of work dredging, transporting sediments by barge to the processing facility, and shipping dewatered sediments by rail to disposal facilities.
- From May through November 2012, Cashman removed more than 663,000 cubic yards of sediment during the season, far surpassing EPA's target of 350,000 cubic yards. Cashman also constructed a second unloading wharf at the processing facility during the winter 2012 season to accommodate the large volume of dredged materials.

CONTINUED →





CASHMAN

**HUDSON RIVER
SEDIMENT
REMEDiation
PHASE 1, 2009-2010
PHASE 2, 2011-2015**

**FORT EDWARD -
TROY, NY**

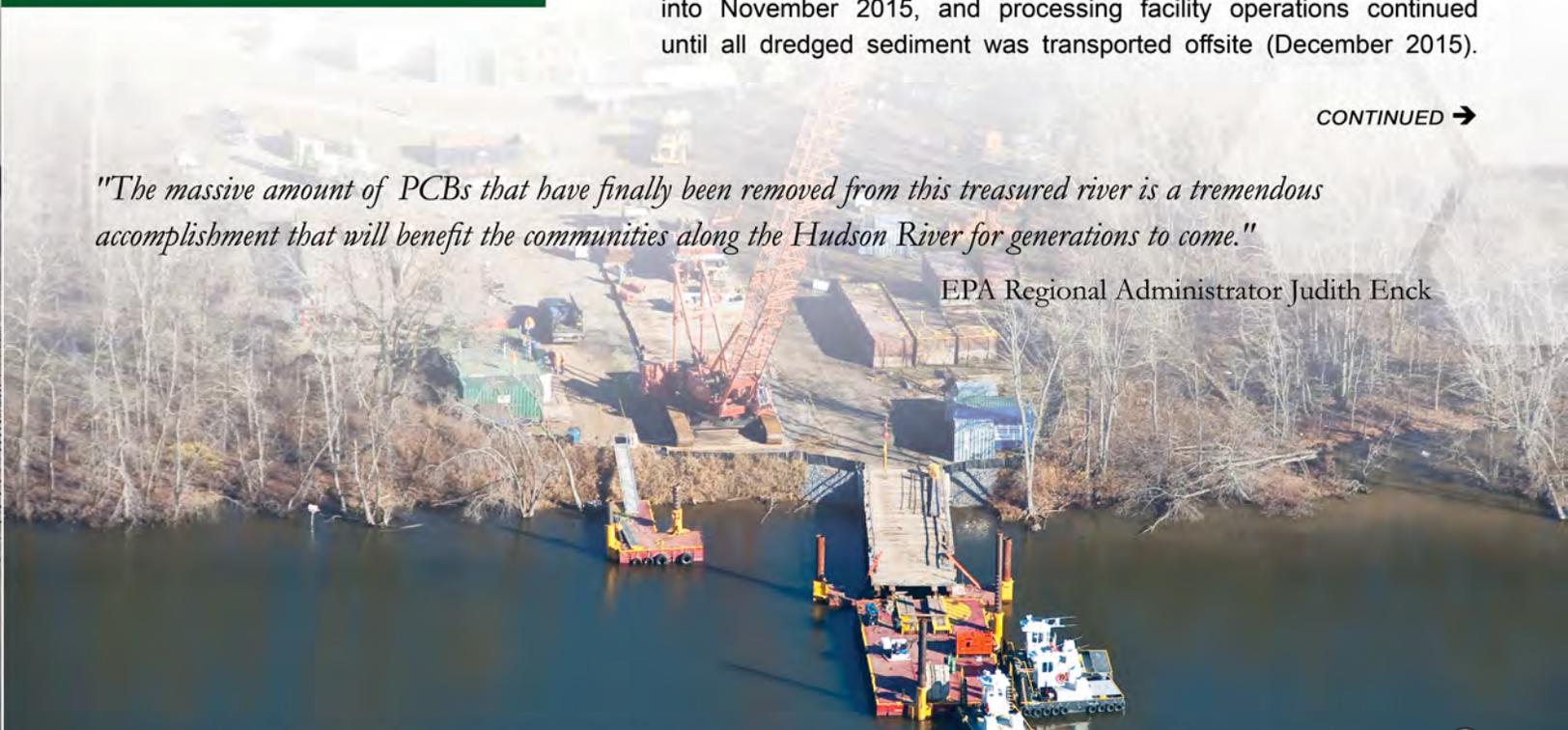
PROJECT HIGHLIGHTS (Continued)

- From April through November 2013, more than 628,000 cubic yards of sediment were removed.
- The 2014 season commenced in early May; good weather and low river flows allowed Cashman to remove more than 583,000 cubic yards, again exceeding goals. During this phase, dredging techniques and technologies were refined, which enabled industry-leading dredging precision while also increasing dredge productivity across a wide range of varied site conditions, from extremely shallow water to work in front of dams.
- The final season of dredging was performed from May to October 2015. Approximately 250,000 cubic yards of PCB-impacted sediment were targeted for removal in 2015.
- Several logistically challenging areas were dredged in 2015, including those near dams and shallow areas around islands. As in 2014, dredging also continued in a two-mile section of river near Fort Miller that is inaccessible by boat.
- Backfilling of previously dredged areas with clean material extended into November 2015, and processing facility operations continued until all dredged sediment was transported offsite (December 2015).

CONTINUED →

"The massive amount of PCBs that have finally been removed from this treasured river is a tremendous accomplishment that will benefit the communities along the Hudson River for generations to come."

EPA Regional Administrator Judith Enck





CASHMAN

**HUDSON RIVER
SEDIMENT
REMEDiation
PHASE 1, 2009-2010
PHASE 2, 2011-2015**

**FORT EDWARD-
TROY, NY**

PROJECT SUMMARY

- GE used PCBs in the manufacture of electrical equipment at two plants on the Upper Hudson River. When available, the company held valid permits to use and discharge the compound but discontinued its use in the mid-1970s when PCB use was phased out in the United States.
- Officials at the New York State Department of Environmental Conservation have concluded that, as a result of GE's thorough cleanups at its former manufacturing facilities in Upstate New York, the sites are no longer significant sources of PCBs to the Hudson River.
- The project, conducted in two phases and through six construction seasons (2009 and 2011-2015) was one of the largest and most logistically complex environmental dredging projects ever performed in the United States. EPA called the project "a historic achievement," one that is meeting public health and environmental objectives.
- EPA also determined the project removed 100 percent of the PCBs targeted for removal — more than 2.76 million cubic yards of sediment containing 310,000 pounds of PCBs from a 40-mile stretch of river.



Cashman Dredging is proud to have been part of the "world-class" team of dredging experts and environmental engineers GE assembled to plan, design, and conduct this historic project.

HUDSON RIVER SEDIMENT REMEDIATION PHASE 2, YEAR 4 (2014)

One of the largest polychlorinated biphenyl (PCB) sediment remediation projects in U.S. history.

PROJECT INFORMATION

Location:

Fort Edward, NY

Contractor:

Cashman Dredging

Contract Dates:

March 2014 – Dec. 2014

Dollar Value:

Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:

General Electric

Owner Contact / Details:

Timothy Kruppenbacher /

518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:

Parsons





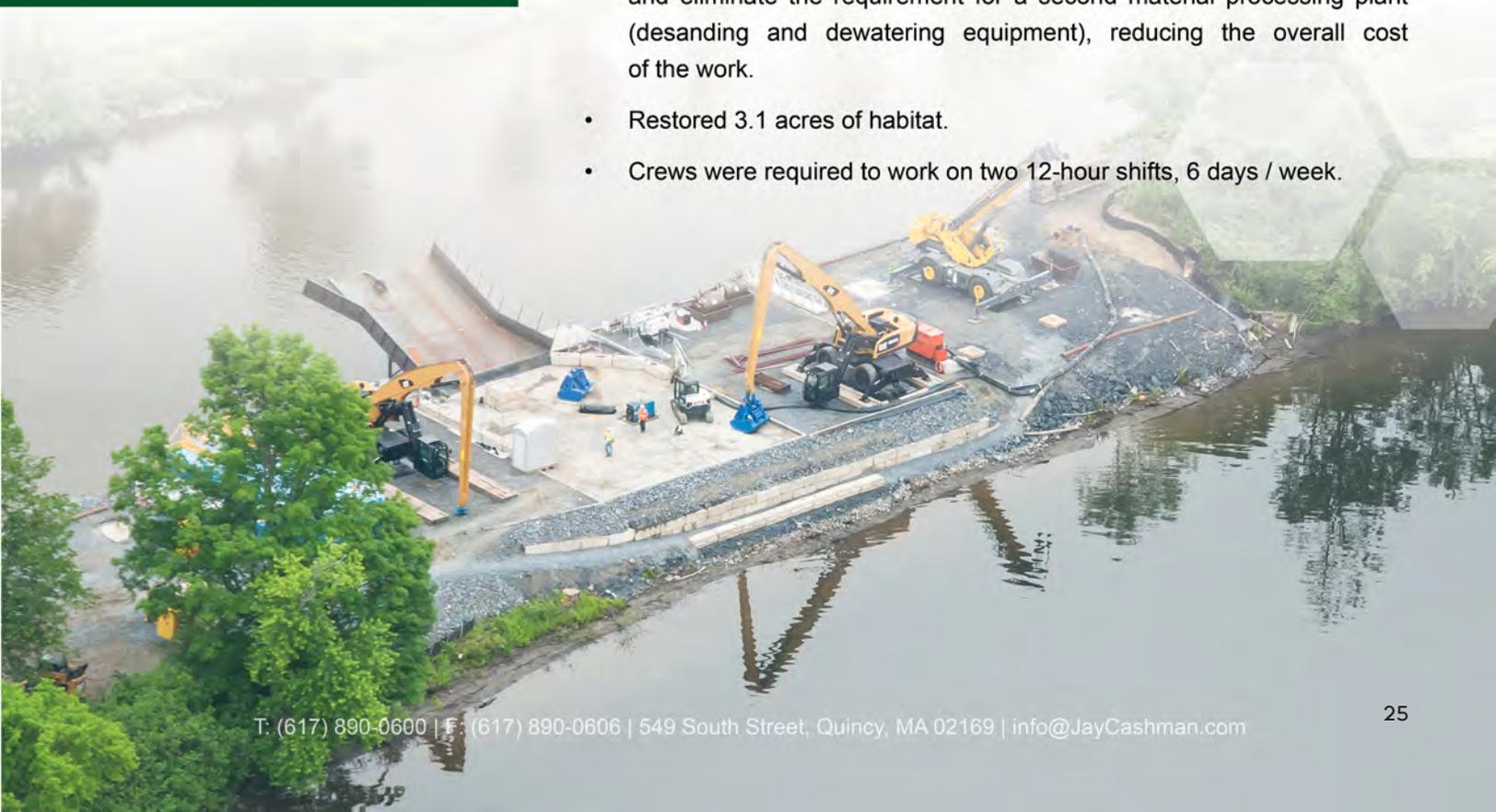
CASHMAN

**HUDSON RIVER
SEDIMENT
REMEDIATION
PHASE 2, YEAR 4
FORT EDWARD, NY**

The Phase 2 remediation work begun in 2011 continued through the 2014 season for the largest environmental dredging project in U.S. history. Dredging took place over a 40-mile stretch of the Upper Hudson River between Fort Edward and Troy, NY. Good weather and low river flows allowed Cashman to remove more than 583,000 cubic yards of sediment this season, exceeding the 350,000-cubic-yard goal established by EPA.

PROJECT HIGHLIGHTS

- Removal of over 583,000 cubic yards of PCB-impacted materials from the Hudson River with the use of hydraulic clamshell dredges.
- Mechanically placed over 500,000 tons of single- and multi-layer backfill and capping layers.
- Designed and constructed a transloading facility, named the Isthmus Transloading Area (ITA), to access a landlocked portion of the river and eliminate the requirement for a second material processing plant (desanding and dewatering equipment), reducing the overall cost of the work.
- Restored 3.1 acres of habitat.
- Crews were required to work on two 12-hour shifts, 6 days / week.



HUDSON RIVER SEDIMENT REMEDIATION PHASE 2, YEAR 3 (2013)

One of the largest polychlorinated biphenyl (PCB) sediment remediation projects in U.S. history.

PROJECT INFORMATION

Location:

Fort Edward - Troy, NY

Contractor:

Cashman Dredging

Contract Dates:

March 2013 – Dec. 2013

Dollar Value:

Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:

General Electric

Owner Contact / Details:

Timothy Kruppenbacher /
518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:

Parsons





CASHMAN

**HUDSON RIVER
SEDIMENT
REMEDiation
PHASE 2, YEAR 3**

**FORT EDWARD -
TROY, NY**

The Phase 2 remediation work begun in 2011 continued through the 2013 season for the largest environmental dredging project in U.S. history. Dredging took place over a 40-mile stretch of the Upper Hudson River between Fort Edward and Troy, NY. From April 29 through Nov. 6, Cashman removed more than 628,000 cubic yards of sediment from the Upper Hudson River, again surpassing EPA's annual goal for removal.

PROJECT HIGHLIGHTS

- Removal of over 628,000 cubic yards of PCB-impacted materials from the Hudson River with the use of hydraulic clamshell dredges.
- Crews were required to work on two 12-hour shifts, 6 days / week.
- At this point, the project was 70 percent completed.



HUDSON RIVER SEDIMENT REMEDATION / PHASE 2 PIER CONSTRUCTION

To support one of the largest polychlorinated biphenyl (PCB) sediment remediation projects in U.S. history, Cashman constructed a second barge unloading wharf.

PROJECT INFORMATION

Location: Fort Edward, NY
Contractor: Cashman Dredging
Contract Dates:
Mar. 2011 – Feb. 2012
Dollar Value:
Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:
General Electric
Owner Contact / Details:
Timothy Kruppenbacher /
518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:
Parsons





CASHMAN

**HUDSON RIVER
SEDIMENT
PIER CONSTRUCTION
PHASE 2
FORT EDWARD -
TROY, NY**

Cashman proposed the construction of a second barge unloading wharf along the Champlain Canal to support additional barge unloading operations at the processing facility.

PROJECT HIGHLIGHTS

Construction included:

- Rock-socketed piles, and steel sheet piling.
- Demolition and salvaging of structures and materials.
- Slope revetments with rip-rap and geotextiles.
- Building of a structural steel superstructure and framework.
- Cast-in-place concrete deck and curbs, pavement, and flexible membrane liner restoration.
- Installation of dolphin and walkways.
- The barge haul-and-breasting winch system, barge fender system, and primary utilities were brought to the area.



HUDSON RIVER SEDIMENT REMEDIATION PHASE 2, YEAR 2

One of the largest polychlorinated biphenyl (PCB) sediment remediation projects in U.S. history.

PROJECT INFORMATION

Location:

Fort Edward-Troy, NY

Contractor:

Cashman Dredging

Contract Dates:

Mar. 2012 – Dec. 2012

Dollar Value:

Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:

General Electric

Owner Contact / Details:

Timothy Kruppenbacher /

518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:

Parsons





CASHMAN

**HUDSON RIVER
SEDIMENT
REMEDiation
PHASE 2, YEAR 2
FORT EDWARD-
TROY, NY**

The remediation work begun in 2009 continued through the 2012 season for the largest environmental dredging project in U.S. history. Dredging took place over a 40-mile stretch of the Upper Hudson River between Fort Edward and Troy, NY. More than 663,000 cubic yards of sediment are removed during the season, far surpassing EPA's annual target of 350,000 cubic yards

PROJECT HIGHLIGHTS

- Removal of over 663,000 cubic yards of PCB-contaminated materials from the Hudson River with the use of hydraulic clamshell dredges.
- Production surpassed the volume of sediment removed from the River in the first two seasons of dredging combined (2009 and 2011), or 649,000 cubic yards.
- Mechanically placed over 497,000 tons of single- and multi-layer backfill and capping layers.
- Crews were required to work on two 12-hour shifts, 6 days / week with 6 dredges, 17 hopper barges, 7 deck barges, 17 tug boats, and 10 miscellaneous support vessels.



HUDSON RIVER SEDIMENT REMEDIATION PHASE 2, YEAR 1 (2011)

One of the largest polychlorinated biphenyl (PCB) sediment remediation projects in U.S. history.

PROJECT INFORMATION

Location:

Fort Edward, NY

Contractor:

Cashman Dredging

Contract Dates:

Mar. 2011 – Feb. 2012

Dollar Value:

Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:

General Electric

Owner Contact / Details:

Timothy Kruppenbacher /

518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:

Parsons





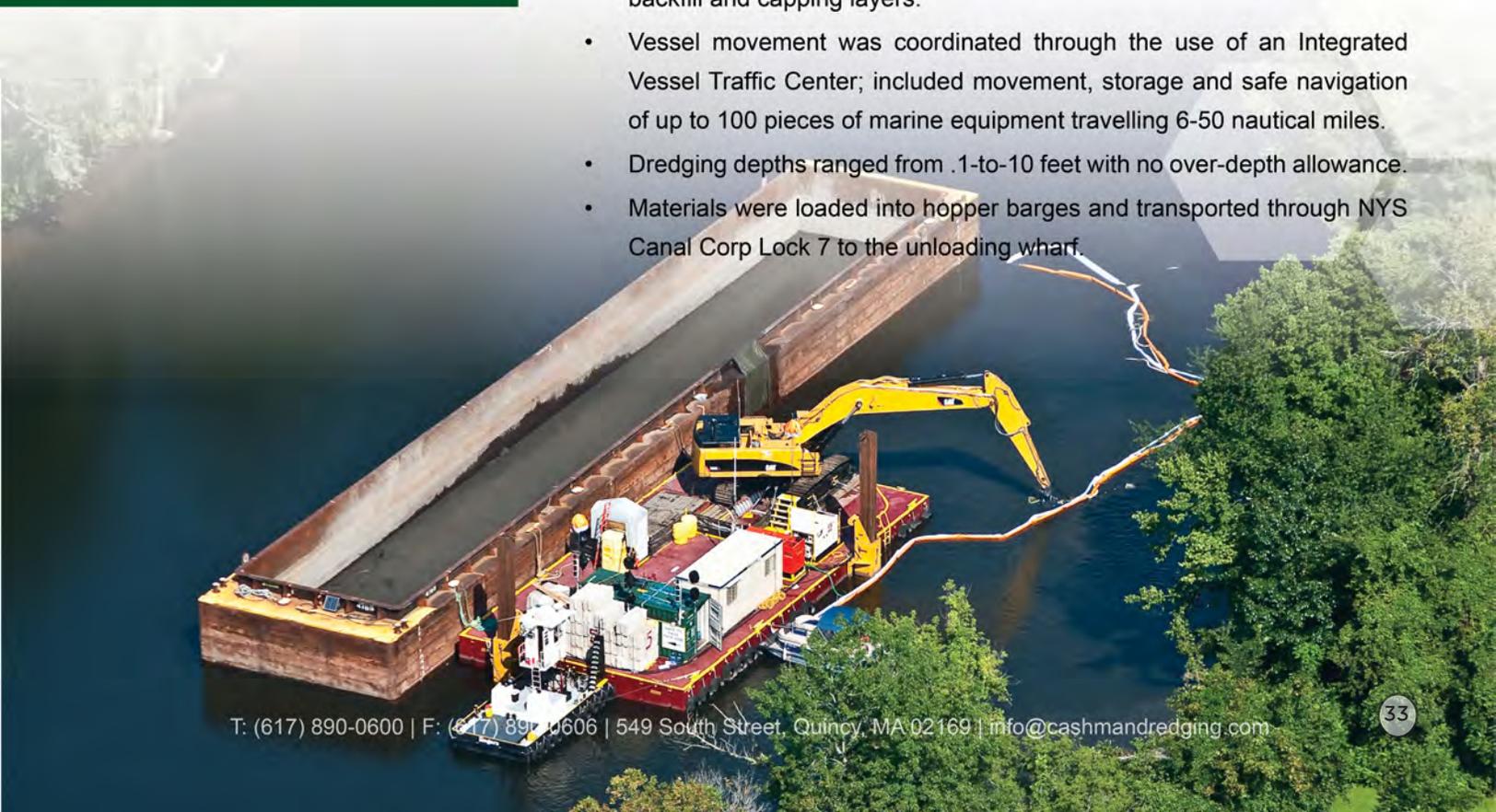
CASHMAN

**HUDSON RIVER
SEDIMENT
REMEDATION
PHASE 2, YEAR 1
FORT EDWARD-
TROY, NY**

Cashman's crews resume dredging in 2011 in the Hudson River, transporting sediments by barge to a Fort Edward processing facility, and shipping dewatered sediments by rail to disposal facilities located outside of New York State. EPA anticipated this phase of the project would take five years to complete, but all dredging was completed by 2015.

PROJECT HIGHLIGHTS

- TSCA-regulated material was impacted by PCBs, and the project was overseen by the EPA.
- Hydraulic clamshell dredges were used to remove 360,000 cubic yards of PCB-impacted material; crews handled land / tree clearing as well.
- Barges worked in as little as 1.5 feet of water, with high currents and rapidly changing water surface elevations.
- Mechanically placed over 2 million square feet of single- and multi-layer backfill and capping layers.
- Vessel movement was coordinated through the use of an Integrated Vessel Traffic Center; included movement, storage and safe navigation of up to 100 pieces of marine equipment travelling 6-50 nautical miles.
- Dredging depths ranged from .1-to-10 feet with no over-depth allowance.
- Materials were loaded into hopper barges and transported through NYS Canal Corp Lock 7 to the unloading wharf.



HUDSON RIVER SEDIMENT REMEDIATION PHASE 1 (2009-2010)

One of the largest polychlorinated biphenyl (PCB) sediment remediation projects in U.S. history.

PROJECT INFORMATION

Location:

Fort Edward - Troy, NY

Contractor:

Cashman Dredging

Contract Dates:

April 2009 – Dec. 2010

Dollar Value:

Contractually Confidential

OWNER INFORMATION

Awarding Authority / Owner:

General Electric

Owner Contact / Details:

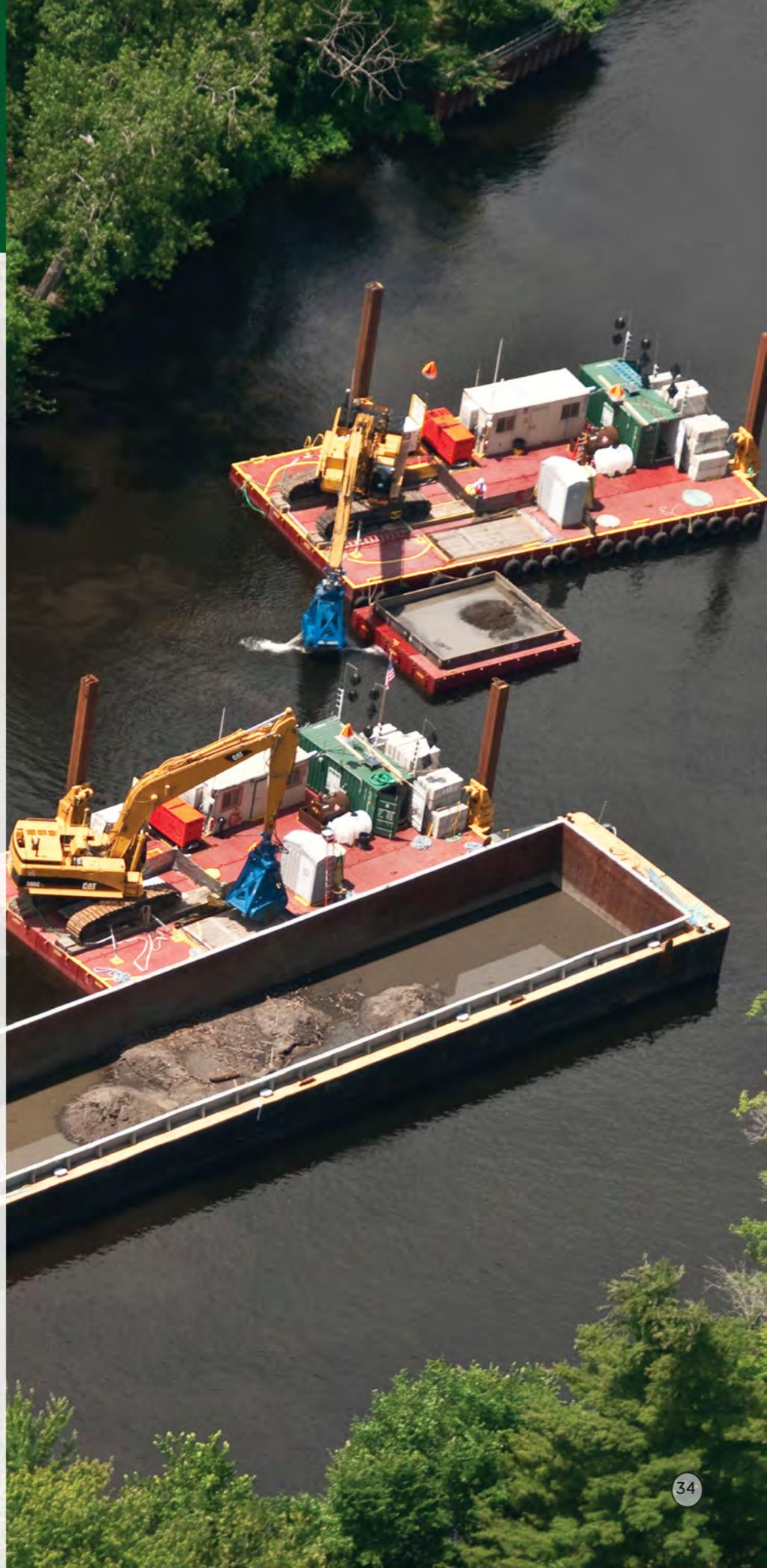
Timothy Kruppenbacher /

518.746.5700

ENGINEER INFORMATION

Project Engineers / Managers:

Parsons





CASHMAN

HUDSON RIVER SEDIMENT REMEDiation PHASE I (2009-10)

FORT EDWARD-
TROY, NY

GE began the first phase of the environmental dredging project EPA selected for the Upper Hudson; it became the largest PCB sediment remediation project in U.S. history. The project required dredging of TSCA-regulated, PCB-impacted materials from the River and navigation material from the Champlain Canal.

PROJECT HIGHLIGHTS

- Ultimately, 288,000 cubic yards of sediment were removed, surpassing EPA's target for sediment removal.
- Precision dredging was conducted to a specified tolerance.
- More than 50 acres of river bottom were backfilled or capped. Required the installation of more than 200,000 tons of multi-layer sub-aqueous caps.
- Included the construction and removal of a 60,500-square-foot sheet pile cofferdam, along with dredging both inside and outside the sheeting.
- Included the placement of different shoreline protection measures, depending on shoreline cut depth and river velocity.
- Required working 24 hours a day / 6 days per week in two 12-hour shifts with up to 15 dredge platforms, 20 hopper barges, 10 deck barges, 17 tug boats, and 13 support vessels.
- Additional work included:
 - o Initial tree trimming and removal along shoreline.
 - o Debris removal of previously identified targets prior to dredging.
 - o Installation of re-suspension control devices including a rock dike with flow control valves, a silt curtain access gate, and conventional silt curtains.
 - o Real-time turbidity monitoring of dredging and backfill operations.
 - o Quality-of-life monitoring of noise, light, odor and navigational impacts.
 - o Support of archeologists and divers in the investigation, evaluation, and removal of the underwater remains of a wooden boat.



PAERDEGAT BASIN DREDGING

Paerdegat Basin is one of 10 sites in the New York City Green Infrastructure Program, a multiagency effort to meet New York State Department of Environmental Conservation (NYSDEC) requirements to reduce combined sewer overflow (CSO) and improve overall water quality in the NYC Harbor.

PROJECT INFORMATION

Location:

Brooklyn, NY

Contractor:

Cashman Dredging

Contract Dates:

Jan. 2013 – July 2014

Dollar Value:

\$8.85 Million

OWNER INFORMATION

Awarding Authority / Owner:

New York City Department of
Environmental Protection (NYCDEP)

Owner Contact / Details:

Nayan Sheh | P: 718.595.6129

ENGINEER INFORMATION

Project Engineers/Managers:

AECOM

Engineer Contact / Details:

Michael F. Paterno, P.E. /

P: 917.675.0338





PAERDEGAT BASIN DREDGING BROOKLYN, NY

PROJECT HIGHLIGHTS

- Dredged 24,000 cubic yards of sediment from two areas of Paerdegat Basin (Head End and Mouth End).
- Dredged 5,500 cubic yards of sand at the Mouth End for navigation that was shipped and reused for a brownfield redevelopment project.
- Dredged 18,500 cubic yards of CSO sediment from the Head End, which was classified as Class C-contaminated material and required extensive environmental protection measures during and after dredging.
- Processed the CSO sediment at the Cashman Marine Terminal in Elizabeth, NJ and then shipped the material to be reused for a mine reclamation project.
- Installed articulated concrete mats for scour protection adjacent to outfall structures and a sand cap along the Head End area.

INNOVATIVE TECHNOLOGY

- Utilized engineering controls for mitigating boaters, emissions and noise.
- Employed bucket positioning technology to specify cut depth, minimize overdredging, and reduce disposal costs.
- Used bucket positioning technology for accurate, precise sand cap installation.

CUSTOM SOLUTIONS

- Used shallow-draft dredges and barges to optimize dredging precision, which is a unique approach in the area.
- Utilized the same dredge for both dredging activities and sand cap installation, reducing costs.



ARTHUR KILL CHANNEL NAVIGATION IMPROVEMENT PROJECT

Deepened the Newark Bay and Arthur Kill Channels from a depth of 42-to-47 feet to a depth of 52 feet to accommodate New-Panamax container vessels.

PROJECT INFORMATION

Location:

Newark Bay & Arthur Kill Channels,
New York / New Jersey

Contractor:

JV Northeast Dredging Equipment
Company, LLC
(Cashman 50% Owner)

Contract Dates:

Dec. 2010 – Oct. 2011

Dollar Value:

\$115.0 Million

OWNER INFORMATION

Awarding Authority / Owner:

USACE, New York District

Owner Contact / Details:

Bryce Wisemiller /
917.790.8307

ENGINEER INFORMATION

Project Engineers / Managers:

Cashman Dredging





CASHMAN

**ARTHUR KILL
CHANNEL
NAVIGATION
IMPROVEMENT
PROJECT**

**NEW YORK/
NEW JERSEY**

PROJECT HIGHLIGHTS

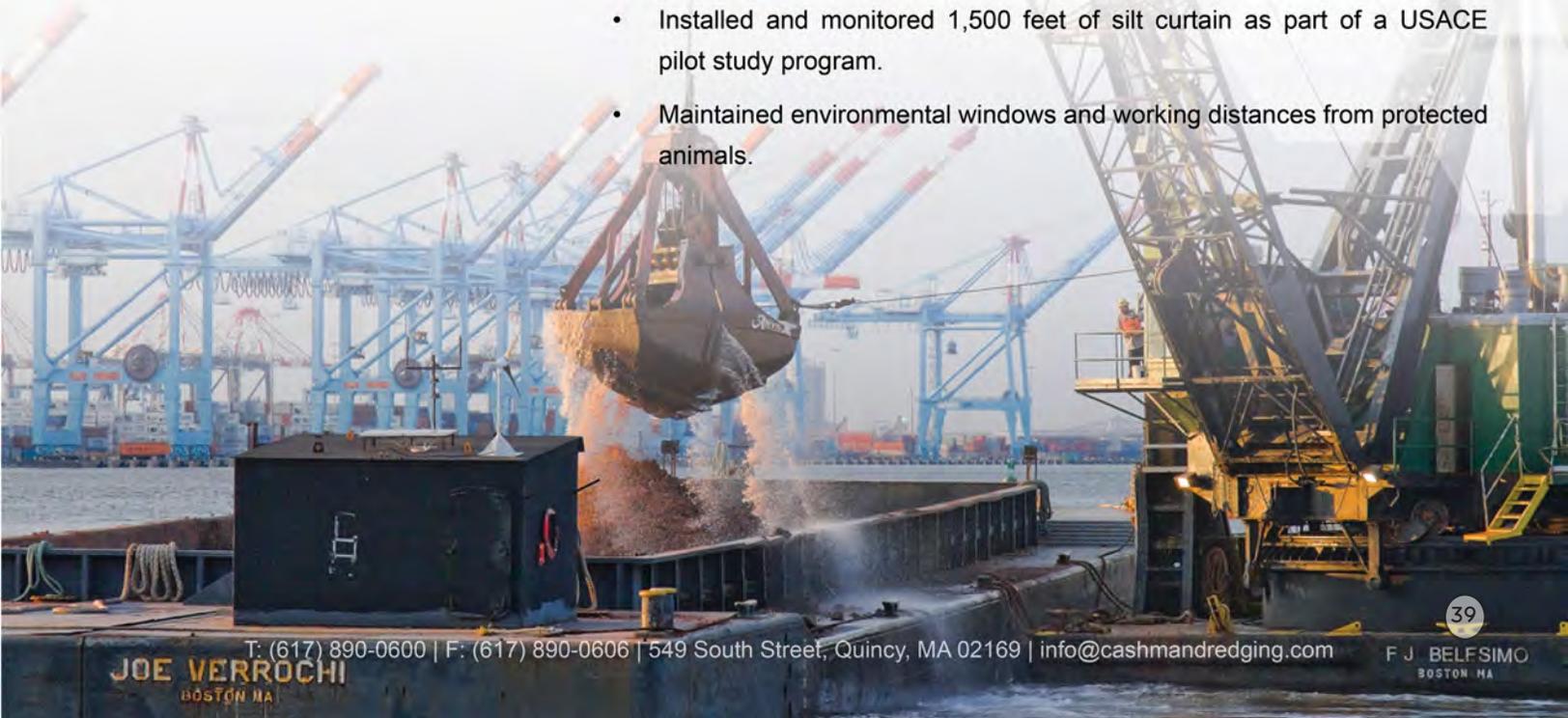
- Drilled and blasted 2.1 million square feet of rock.
- Dredged 2.9 million cubic yards of silt, clay, sand, and blasted rock.
- Transported rock to Axel Carlson Reef construction site located 45 nautical miles off the coast of New Jersey.
- Processed and transported suitable rock material to the Historic Area Remediation Site (HARS) 25 nautical miles away.
- Processed and transported suitable silt material to the HARS for the Mud Dump Site (MDS) capping project.
- Processed and transported silt material not suitable for the HARS to an approved, permitted upland disposal facility for beneficial reuse.

NEW TECHNOLOGY

- Used an Automated Disposal Surveillance System (ADISS) and an Automatic Identification System (AIS) for vessel tracking.

CUSTOM SOLUTIONS

- Installed and monitored 1,500 feet of silt curtain as part of a USACE pilot study program.
- Maintained environmental windows and working distances from protected animals.



KILL VAN KULL CONTRACT 8 DREDGING

This Army Corps Contract covered dredging of heavy materials and rock, with disposal in open waters as well as upland. The dredging included contaminated sediments.

PROJECT INFORMATION

Location:

Newark Bay, NJ

Contractor:

Cashman Dredging

Contract Dates:

Aug. 2003 – Oct. 2004

Dollar Value:

\$35.5 Million

OWNER INFORMATION

Awarding Authority / Owner:

USACE, New York District

Owner Contact / Details:

Sam DiDato / 917.790.6248





CASHMAN

**KILL VAN KULL
CONTRACT 8
DREDGING
NEWARK BAY, NJ**

The Kill Van Kull is a tidal strait between Staten Island, NY and Bayonne, NJ and is one of the most heavily travelled waterways in the Port of New York and New Jersey. Historically it has been one of the most important channels for the commerce of the region, providing a passage for marine traffic between Upper New York Bay and the industrial towns of northeastern New Jersey.

PROJECT HIGHLIGHTS

- The high volume of marine traffic in the Newark Bay area required continuous coordination with the US Coast Guard, harbor pilots, and the Port Authority of New York & New Jersey (PANYNJ).
- To achieve a 45-foot channel depth, this project required dredging of 1.3 million cubic yards of material for offshore disposal, and additional upland disposal of 200,000 cubic yards of contaminated sediment for beneficial re-use.
- Cashmas conducted dredging 24/7 at a rate of ~6,000 cubic yards per day, while maintaining total port access.
- Offshore disposal was controlled with GPS guidance for precise placement of materials.
- Sub-aqueous drilling and blasting was performed to remove bedrock materials including diabase.
- The fleet of equipment included a specialized drill barge, the backhoe dredge *Capt. A.J. Fournier*, three ocean-going dredge scows, and two clamshell dredges.



DREDGING / OFFSHORE DISPOSAL PLUS CAD CELL CONSTRUCTION /DISPOSAL

Cashman excavated 150,000 cubic yards of material from the Norwalk River at a rate of 1,500 cubic yards per day. This project was one of the first where Cashman constructed a confined aquatic disposal (CAD) cell.

PROJECT INFORMATION

Location: Norwalk Harbor, CT

Contractor:
Cashman Dredging and Marine
Contracting Co., LLC

Contract Dates:
Nov. 2005 - Feb. 2006

Dollar Value:
\$3.8 Million

OWNER INFORMATION

Awarding Authority / Owner:
USACE New England District

Owner Contact / Details:
Maurice Beaudoin / 978.318.8223





DREDGING / OFFSHORE DISPOSAL WITH CAD CELL CONSTRUCTION

NORWALK RIVER, CT

Cashman excavated 150,000 cubic yards of material from the Norwalk River at a rate of 1,500 cubic yards per day. This project was one of the first where Cashman constructed a confined aquatic disposal (CAD) cell. We have noticed that CAD cells are increasingly becoming the selected option for the management of unacceptably contaminated sediments. This approach can provide an acceptable compromise when cost, logistics, regulatory acceptance, environmental risk, and perception of various alternatives are considered.

PROJECT HIGHLIGHTS

- Approximately 29,000 cubic yards of the material were contaminated with polyaromatic hydrocarbons (PAHs) and heavy metals.
- Cashman constructed a confined aquatic disposal (CAD) cell with a template for depositing contaminated material on the project site.
- Remaining spoils were disposed of offshore via bottom dumping scows at the approved Long Island Sound Disposal Site (LISDS).
- The project was performed under the supervision and regulation of the USACE and was completed in accordance with all applicable regulations.



NEW BEDFORD HARBOR DREDGING AND CAD CELL 2

Cashman constructed the confined aquatic disposal (CAD) cell for the relocation of PCB-contaminated sediments within New Bedford Harbor.

PROJECT INFORMATION

Location:

New Bedford Harbor, MA

Contractor:

Cashman Dredging and Marine
Contracting Co., LLC

Contract Dates:

Aug. 2009 - Oct. 2009

Dollar Value:

\$2.8 Million

OWNER INFORMATION

Awarding Authority / Owner:

City of New Bedford, Harbor
Development Commission

Owner Contact / Details:

John Simpson / 508.961.3000

ENGINEERS / MANAGERS

APEX Companies, LLC





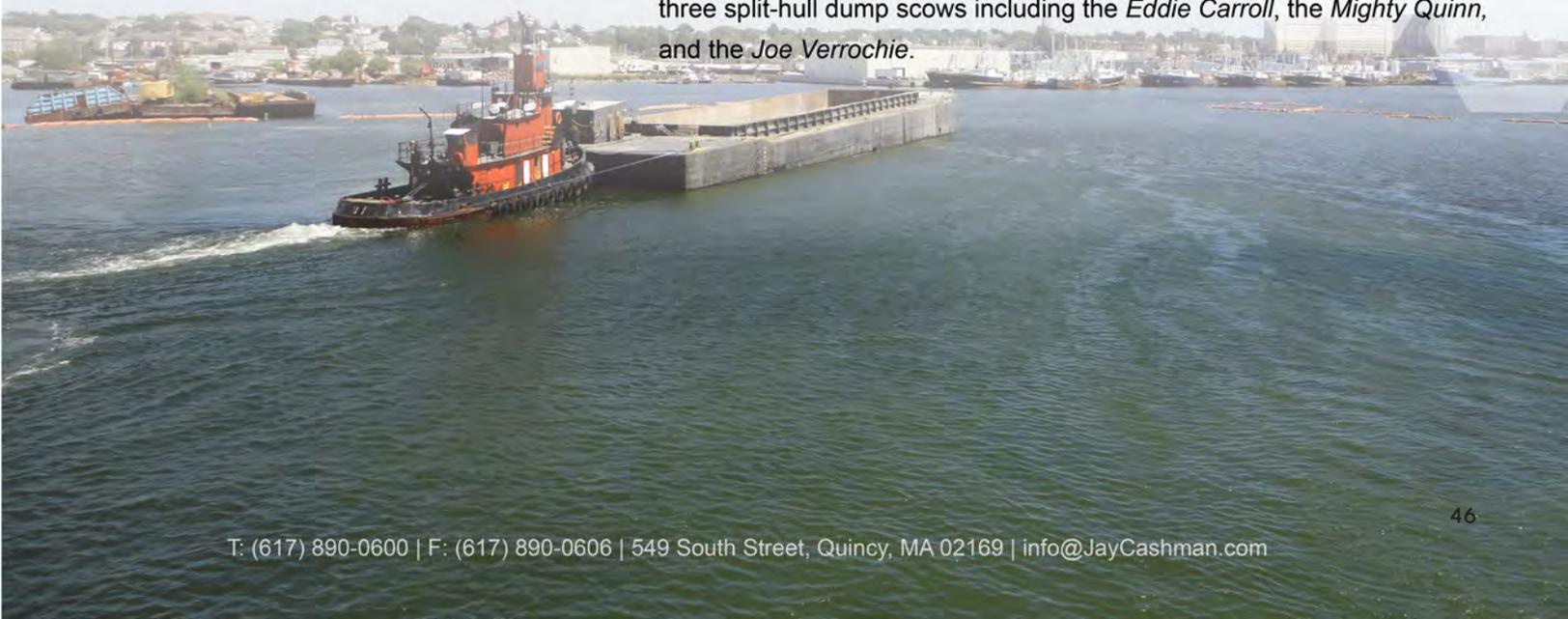
NEW BEDFORD HARBOR DREDGING AND CAD CELL 2

NEW BEDFORD
HARBOR, MA

The New Bedford Harbor CAD (confined aquatic disposal) cells that Cashman constructed were part of the EPA's accelerated Superfund project to clean up PCB contamination of the New Bedford Harbor. The Lower Harbor CAD cell (LHCC) was designed to contain ~300,000 cubic yards of sediments dredged as part of the EPA Superfund cleanup, and this work was done in two phases. A CAD cell was also used as part of the New Bedford Marine Commerce Terminal project (which Cashman completed in 2014). A variety of mechanical dredging equipment was used, including excavator dredges, mechanical clamshells, and a drilling and blasting platform.

PROJECT HIGHLIGHTS

- For CAD cell 2, Cashman dredged ~121,000 cubic yards of material, at a rate of 3,000 cubic yards per day, utilizing the *Captain A.J. Fournier* excavator dredge.
- Cashman constructed the confined aquatic disposal (CAD) cell for the relocation of PCB-contaminated sediments within the Harbor.
- Sediment removed during the construction of the CAD cell was loaded into split-hull dump scows and transported to the authorized Massachusetts Bay Disposal Site.
- Cashman-owned and -operated equipment utilized on the project consisted of the *Captain A.J. Fournier* excavator dredge, tug boats, and three split-hull dump scows including the *Eddie Carroll*, the *Mighty Quinn*, and the *Joe Verrochie*.



EAST CHESTER CREEK MAINTENANCE DREDGING

PROJECT INFORMATION

Location:

East Chester, NY

Contractor:

Cashman Dredging

Contract Dates:

Jun. 2010 – Sep. 2010

Dollar Value:

\$2.9 Million

OWNER INFORMATION

Awarding Authority/Owner:

US Army Corps of Engineers,
New York District

Owner Contact/ Details:

Soon Lew / 917.790.8531

ENGINEER INFORMATION

Project Engineers / Managers:

USACE, New York District





CASHMAN

**EAST CHESTER
CREEK
MAINTENANCE
DREDGING
EAST CHESTER, NY**

PROJECT HIGHLIGHTS

- Cashman performed maintenance dredging of the East Chester Creek Federal Navigation Channel.
- Removed 25,000 cubic yards of material utilizing a CAT-375 excavator mounted on flexi-float barge system.
- A 5-cubic yard CY TGS environmental hydraulic clamshell bucket was used to load maintenance material into hopper barges.
- Material was dredged to a project grade of -8' with an over depth of -1'.
- Loader hopper barges were dewatered into a decanting barge using a 6-inch Godwin hydraulic pump.
- Hopper barges were moved to an offloading and processing facility with ultimate disposal at a permitted landfill site.



PORT IMPERIAL INTERMODAL FERRY TERMINAL DREDGING & DISPOSAL SERVICES

*Cashman was contracted to deepen
ferry berths as part of Hurricane
Sandy recovery.*

PROJECT INFORMATION

Location:

Weehawken, NJ

Contractor:

Cashman Dredging

Contract Dates:

Oct. 2013 -- Feb. 2014

Dollar Value:

\$4.3 Million

OWNER INFORMATION

Awarding Authority/Owner:

New Jersey Transit Corporation

Owner Contact / Details:

Nick Valente / 973.491.7211

ENGINEER INFORMATION

Project Engineers / Managers:

URS Corporation





**PORT IMPERIAL
INTERMODAL FERRY
TERMINAL DREDGING &
DISPOSAL SERVICES
WEEHAWKEN, NJ**

PROJECT HIGHLIGHTS

- Mechanically dredged 38,000 cubic yards of material.
- All material was processed at the Cashman Marine Terminal in Elizabeth, NJ.
- Half of the processed material was trucked offsite to a mine reclamation project in Pennsylvania.
- The other half of the processed material was transported by barge to a Brownfield site for reuse and redevelopment.

NEW TECHNOLOGY

- Conducted hydrographic surveys.

CUSTOM SOLUTIONS

- Developed a custom sediment trap solution to remove material from under the docks, which allowed ramps to remain ADA-compliant at low tide.



NORTH POINT PARK REMEDIATION / DEVELOPMENT

North Point Park is a 14-acre park on the East Cambridge waterfront completed in 2007 as part of the Boston “Big Dig” mitigation. Cashman conducted site remediation and restoration as part of the development of this waterfront park.

PROJECT INFORMATION

Location:

East Cambridge / Boston, MA

Contractor:

Jay Cashman, Inc.

Contract Dates:

Dec. 2002 – Apr. 2007

Dollar Value:

\$32.0 Million

OWNER INFORMATION

Awarding Authority / Owner:

Massachusetts Turnpike Authority

Owner Contact:

Jack Wright

(With Weston & Sampson since 2012)

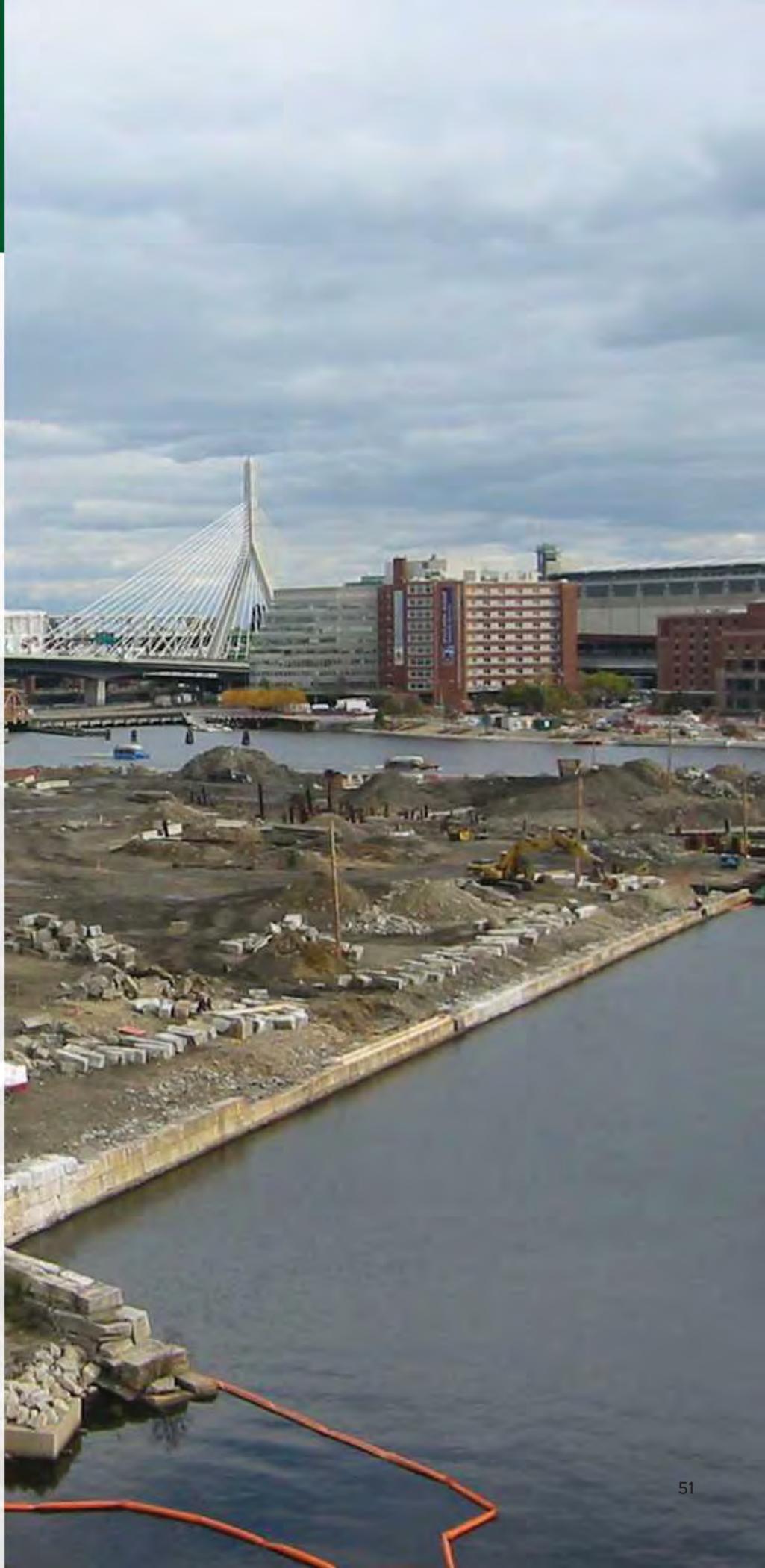
Owner Contact:

508.698.3034 | wrightj@wseinc.com

ENGINEER INFORMATION

Project Engineers / Managers:

Bechtel, Parsons, Brinkerhoff (BPB)





NORTH POINT PARK DEVELOPMENT GREATER BOSTON, MA

North Point Park is a 14-acre park on the East Cambridge waterfront completed in 2007 as part of the Boston “Big Dig” mitigation. Cashman was contracted to conduct site remediation and restoration as part of the development of this waterfront park.

PROJECT HIGHLIGHTS

- Site remediation / preparation, demolition and removal of existing structures.
- Excavated 100,000 cubic yards including 80,000 cubic yards of contaminated soil / hazardous waste (metals, PCBs, ACM, RCRA and TPH) that was tested, managed, treated and disposed of in accordance with MassDEP regulations.
- Constructed 1,000 linear feet of water feature, including dredging and installation of steel sheetpile wall, liners and riprap used as a cut-off to leach contamination.
- Constructed 2,500 linear feet of H-pile-supported granite seawall and installed 15,000 cubic feet of stone masonry structures.
- Installed utilities, including 24”-72” storm drains, sanitary sewer lines, 8”-16” water lines, and electric and communication utilities.
- Constructed five vehicle bridges, including erecting structural steel and form, and placing 2,000 cubic yards of cast-in-place concrete.
- Constructed roadways (lighting, bituminous paving, granite curb and concrete sidewalks), and installed park improvements (landscaping, irrigation, ornamental railings and playground equipment).

CA/T CONTRACT 15A2 CHARDON STREET TO CHARLES RIVER

Construction of the Chardon Street to Charles River link of I-93 in Boston required building three highway tunnels (two-to-four lanes wide each) directly below the existing elevated highway. The Cashman team supported the existing structure with major underpinners at 19 highway bents on the Central Artery / Tunnel (CA/T) Contract C15A2 for the "Big Dig" in downtown Boston.

PROJECT INFORMATION

Location: Boston, MA

Contractor: Joint Venture:
Cashman, Kiewit, Atkinson

Contract Dates:
July 1997 - Oct. 2002

Dollar Value: \$346 Million

OWNER INFORMATION

Awarding Authority / Owner:
MassDOT

Owner Contact / Details:
Joe Allegro / 617.951.6000

ENGINEER INFORMATION

Project Engineers / Managers:
Bechtel, Parsons, Brinckerhoff





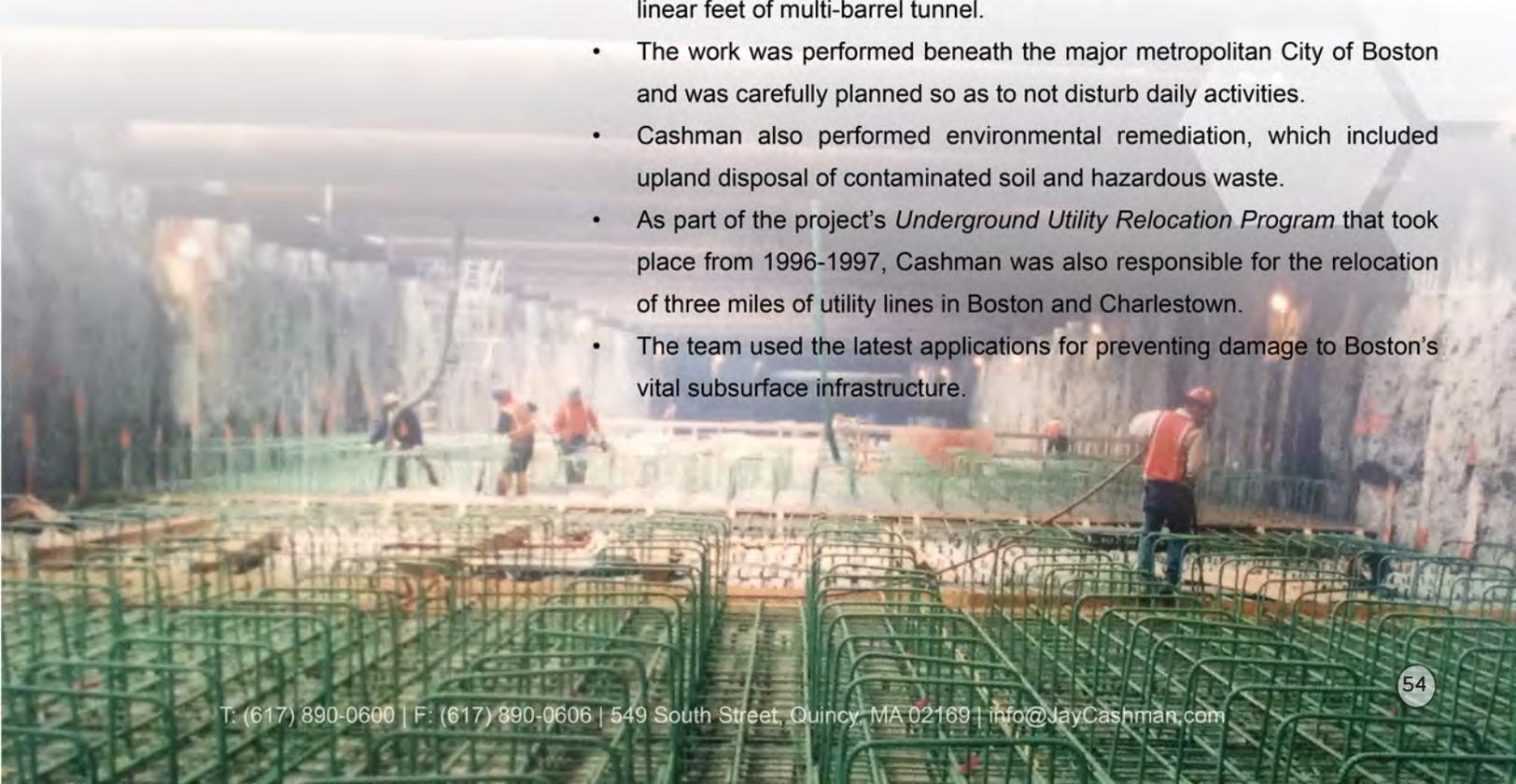
CASHMAN

**CA/T C15A2
CHARDON STREET
TO CHARLES RIVER
BOSTON, MA**

In 1991, after almost a decade of planning, construction began on Boston's Central Artery/Tunnel (CA/T) Project, which removed an elevated highway and created a tunnel system below the city. This tunnel replaced the 6-lane elevated highway built in the 1950s and connected some important areas and highways in the city. The CA/T Project significantly reduced traffic congestion and improved mobility in one of America's oldest and most congested major cities. Cashman completed several Contracts on this Project. Construction of the Chardon Street to Charles River link of I-93 in Boston required building three highway tunnels (two-to-four lanes wide each) directly below the existing elevated highway. The Cashman team supported the existing structure with major underpinners at 19 highway bents on the Central Artery / Tunnel (CA/T) Contract C15A2 for the "Big Dig" in downtown Boston.

PROJECT HIGHLIGHTS

- While maintaining existing daily traffic of +180,000 vehicles overhead, the Cashman team installed ~420,000 square feet of slurry wall and ~2,000 linear feet of multi-barrel tunnel.
- The work was performed beneath the major metropolitan City of Boston and was carefully planned so as to not disturb daily activities.
- Cashman also performed environmental remediation, which included upland disposal of contaminated soil and hazardous waste.
- As part of the project's *Underground Utility Relocation Program* that took place from 1996-1997, Cashman was also responsible for the relocation of three miles of utility lines in Boston and Charlestown.
- The team used the latest applications for preventing damage to Boston's vital subsurface infrastructure.



BOSTON HARBOR OUTFALL TUNNEL VENTILATION PIPING SYSTEM

Cashman was part of the team responsible for the historic changes in secondary sewage treatment that helped clean up Boston Harbor. The team designed and installed a steel caisson ventilation system providing a water-tight connection at the sea-bed interface in 120 feet of water. Work was performed at 55 diffuser locations, nine miles offshore in Boston Harbor.

PROJECT INFORMATION

Location:

Boston Harbor, MA

Contractor:

JV: Jay Cashman, Inc./ Interbeton

Contract Dates:

Sept. 2000 - Dec. 2000

Dollar Value:

\$12.2 Million

OWNER INFORMATION

Awarding Authority / Owner:

Massachusetts Water
Resources Authority (MWRA)





BOSTON HARBOR OUTFALL TUNNEL VENTILATION PIPING SYSTEM

BOSTON HARBOR, MA

The effluent outfall for the Deer Island Treatment Plant was an important part of the MWRA's wastewater management program. This outfall, which started up in September of 2000, discharges treated sewage (effluent), into Massachusetts Bay instead of into the shallower waters of the Harbor, which has helped the Harbor's recovery. The outfall begins with a deep rock tunnel extending under Massachusetts Bay to a point about 9.5 miles east of Deer Island. The outfall site was chosen after considerable scientific and technical study and extensive public participation. Cashman, which had also been involved with the Deer Island Treatment Plant Project, re-mobilized our deep-water jack-up barge used on the initial MWRA Outfall Diffusers contract to provide the final connections to the Outfall Tunnel using an innovative ventilation pipe system.

PROJECT HIGHLIGHTS

- Cashman engineers developed an innovative method to permit construction of the final connection of the Outfall Tunnel for the Deer Island Project.
- Work was performed at 55 diffuser locations, nine miles offshore.
- Designed a steel caisson "ventilation" system providing a water-tight connection at the sea-bed interface in 120 feet of water.
- Installed the ventilation system and final connections in approximately three months.
- Cashman received the prestigious NOVA Award for "Innovation in Construction" from the Construction Innovation Forum.



549 South Street
Quincy, MA 02169
617.890.0600
www.JayCashman.com