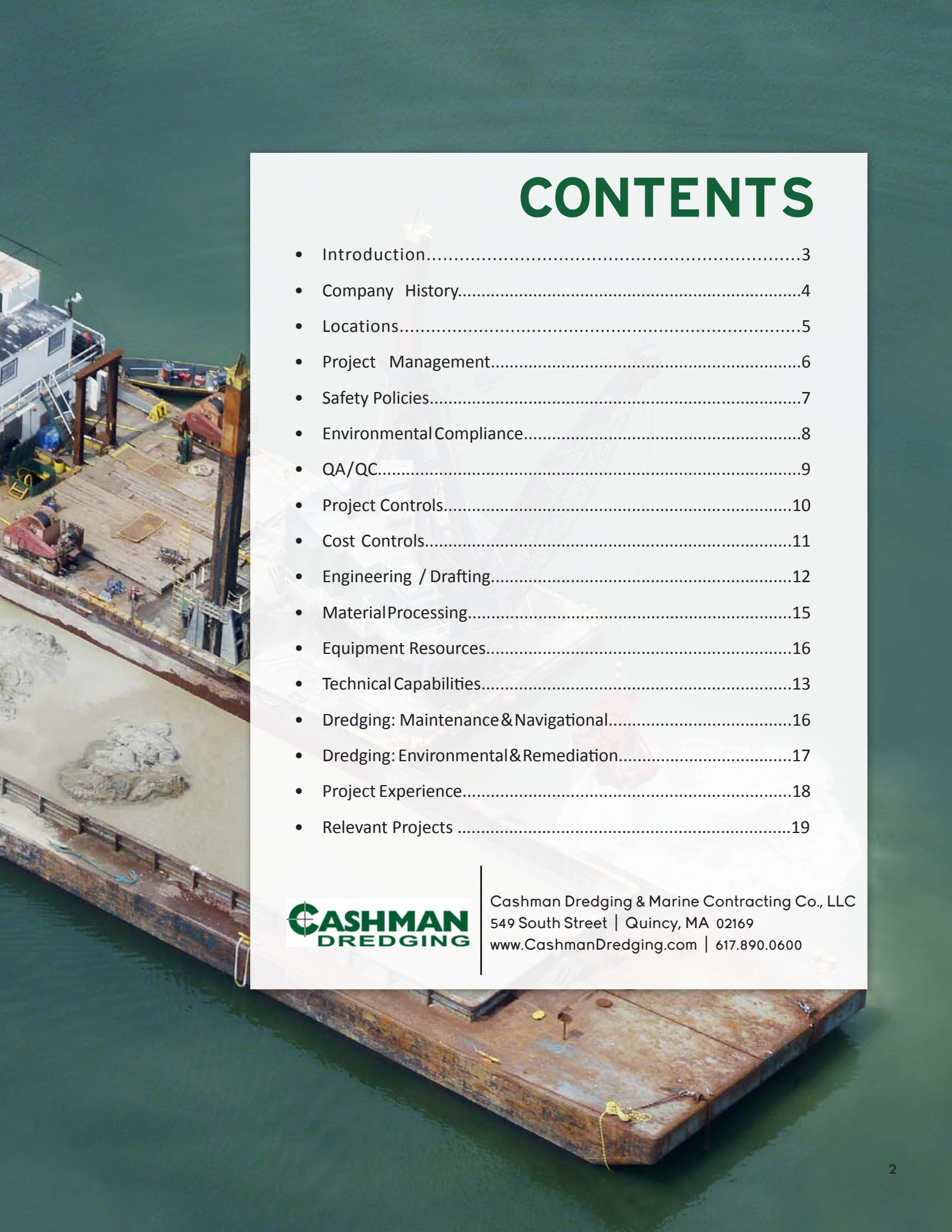

# QUALIFICATIONS PACKAGE

## DREDGING

CASHMAN



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CASHMAN DREDGING


Cashman Dredging & Marine Contracting Co., LLC
549 South Street | Quincy, MA 02169
www.CashmanDredging.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 dredging and 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.

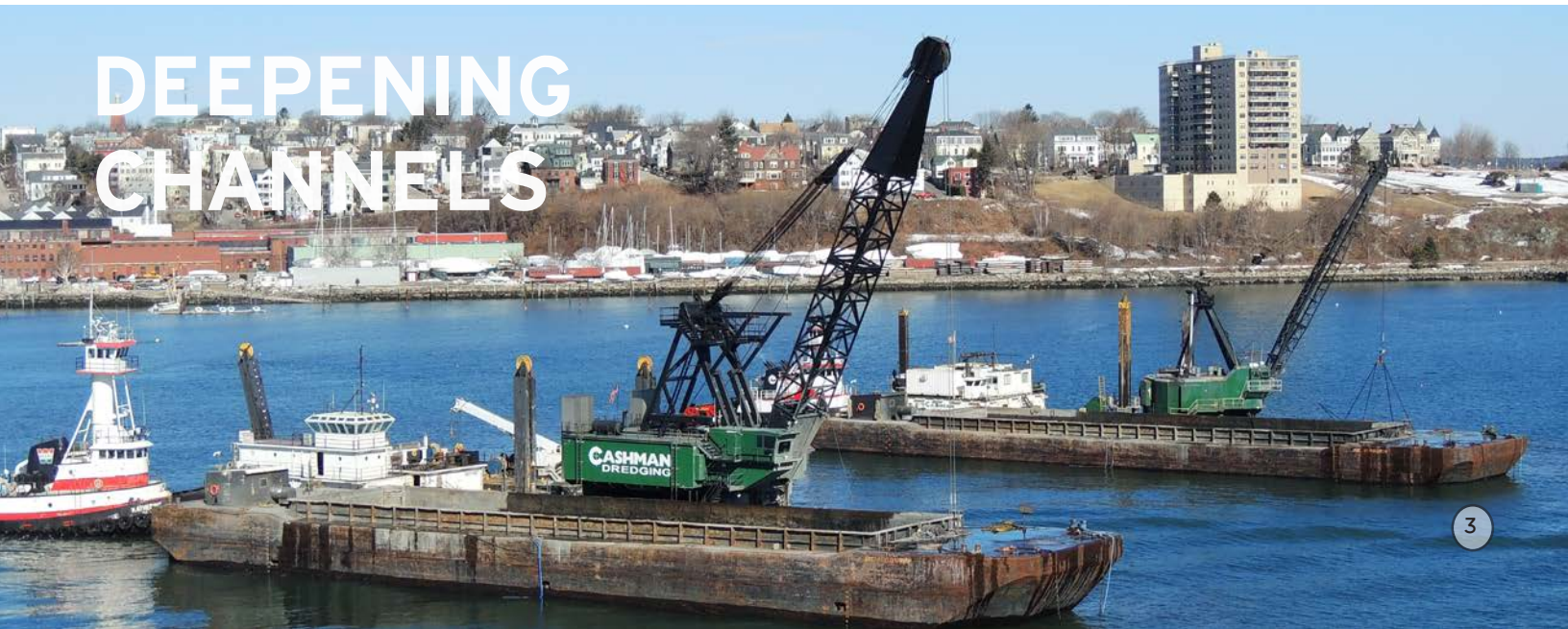
Cashman recognizes its responsibility to improve the communities in which we work, whether the work is performed close to home or in the international market. That is why upholding our values of integrity, accountability, safety, and environmental conservation is paramount at each of our work sites.

Utilizing sound engineering and advancing the latest technologies, we execute turnkey navigational and environmental dredging and restoration 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.



# COMPANY HISTORY

The Cashman Family history in Heavy Civil and Marine 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.

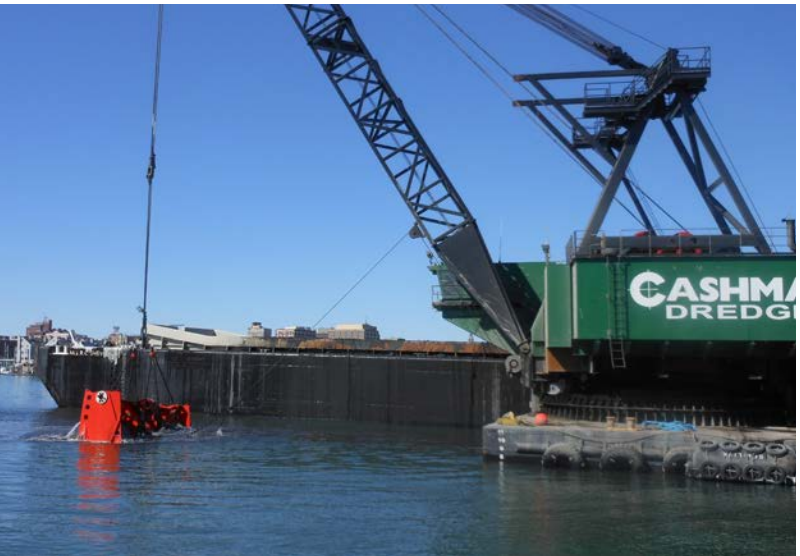
Coming of age through the 1960s and 1970s, Mr. Cashman quickly built a successful track record of performing heavy civil and marine contracting projects throughout the Northeast. Notable work included rebuilding destroyed seawalls and jetties after the Blizzard of '78 and constructing a new marine facility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

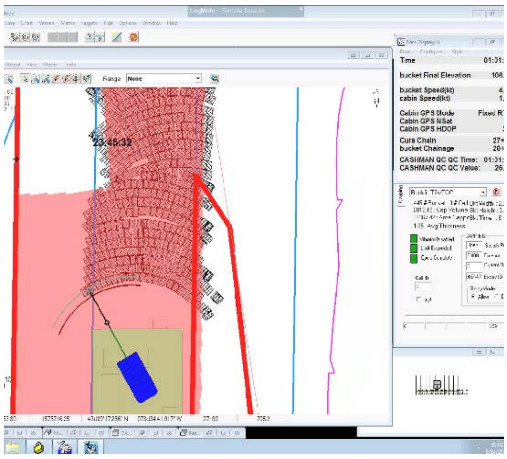
Customized, innovative solutions are what make Cashman an industry leader in dredging, environmental remediation, and marine construction. We challenge each of our employees to find ways to contribute to developing technology, methods and equipment that improve production, save time, and reduce costs—benefitting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

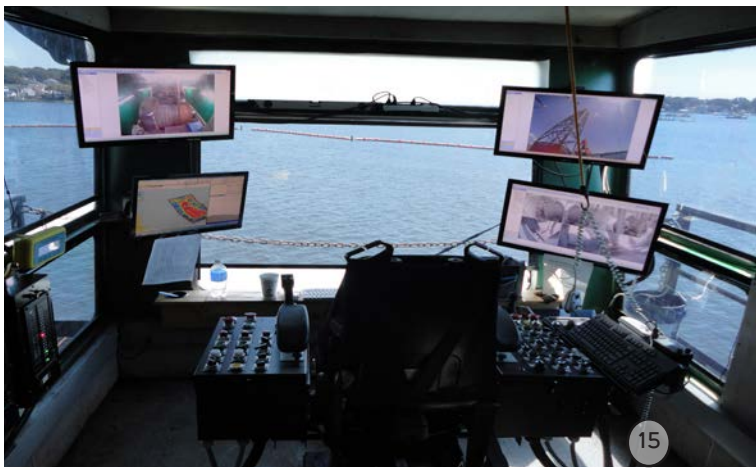
We employ a custom-developed software system to maximize results for debris removal, dredging and capping. Capabilities include:

- 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.

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. 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

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 navigational and environmental dredging to pond and industrial dredging, Cashman's experience is second to none. Considered a leader in navigational and maintenance 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.

Cashman provides a wide range of services including capital and maintenance dredging, beach renourishment, marine drilling and blasting, and sub-aqueous capping. We also provide turnkey environmental restoration across a broad range of services including pond and lagoon restoration, sludge and sediment dewatering and processing, landfill operations, and wetland habitat development.

# 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 Ctonracting 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.

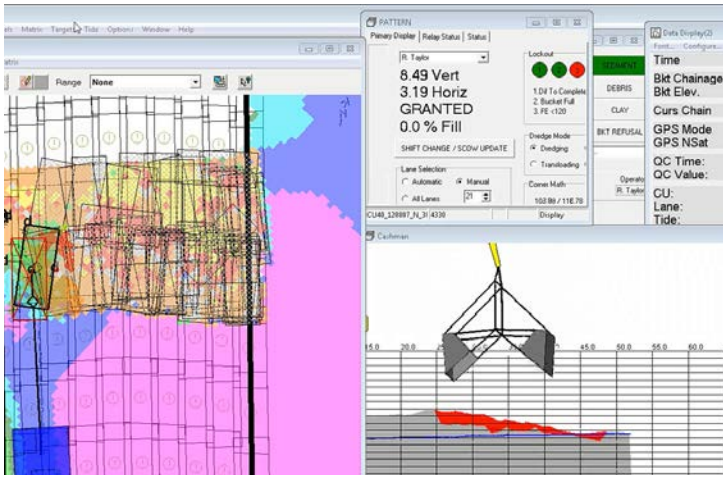
# DREDGING

## 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.

# PROJECT EXPERIENCE

Billions of cubic yards of material are removed from sites around the globe annually in an effort to keep the big ships and their cargo moving. Thus, maintenance of navigation channels helps the world economy by promoting efficient trade. Over the last decade Cashman has emerged as an industry leader in navigational and maintenance dredging projects. We provide deeper and cleaner waterways through innovative dredging, capping, and processing techniques developed for major East and Gulf Coast / Caribbean customers.

Cashman offers Owners minimal risk to execute their projects safely, on schedule, accurately, and at a predictable cost. Our experience includes working on heavily trafficked waterways, including on riverine and open-water environments. Channels are kept deep and wide enough through dredging for safe movement of ships from deep ocean waters to numerous East/Gulf Coast deep-water harbors.

Cashman supports the efforts of the Corps of Engineers at navigation channels and of Port Authorities at harbors, and has experience in different kinds of dredging, as well as with the materials removed that differ in consistency and placement options:

- Main approaches (approach channel in ocean); dredged material is composed primarily of sand.
- Bar channels (sandbars at inlets); dredged material is composed primarily of coarse-grained sand.
- Entrance channels (to harbors); dredged material is composed primarily of sand to fine-grained silt and clay.
- Berthing areas (harbors/ports); dredged material is composed primarily of silt and some sand.
- Inland waterways (intracoastal waterways and river channels); dredged material is composed primarily of silt and sand.

Clients that select Cashman work with a team that will solve complex navigational and depth problems and meet all regulatory requirements. 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.


Our dredging services use mechanical, hydraulic, and bucket dredging. Our history of on-time completions and excellent safety record are benchmarks of Cashman customer satisfaction.

Dredging Services include:

- **Mechanical Dredging:** Cashman uses several types of equipment to mechanically dredge.
- **Hydraulic Dredging:** Hydraulic dredging is one of the most efficient ways of removing and transporting materials. Cashman's dredges use state-of-the-art systems to remove several types of materials.
- **Material Separation:** Separation of materials can lead to cost savings and ease of handling.
- **Sediment Transport:** Cashman offers options for transporting dredge spoils, depending on the material and the stockpile location.
- **Dewatering:** Cashman has developed methods for rapid dewatering to keep pace with the dredge. The method of dewatering is determined by material type, spoils area footprint, and dredge production.

# SELECT PROJECTS

- Tampa Harbor Maintenance Dredging, Hillsborough County, FL
- Duxbury Harbor Maintenance Dredging, Duxbury, MA
- Paerdegat Basin Dredging, Brooklyn, NY
- Arthur Kill Channel Navigation Improvements, NY-NJ
- St. Lucie Inlet Maintenance Dredging/Beach Renourishment, FL
- Lake Kittamaqundi Dredging/Water Flow Improvement, Columbia, MD
- Morses Pond Dredging / Sediment Removal, Wellesley, MA
- Portland Harbor Maintenance Dredging, Portland, ME
- Maintenance Dredging, New Haven and Norwalk Harbors, CT
- Manhattan Cruise Terminal Dredging, NYC
- Maintenance Dredging, Rockaway Inlet, Queens, NY
- Port Imperial Intermodal Ferry Terminal Dredging, Weehawken, NJ
- East Chester Creek Maintenance Dredging, East Chester, NY
- Bath Iron Work Dry Dock Sinking Basin Dredging, Bath, ME

# TAMPA HARBOR MAINTENANCE DREDGING

## HILLSBOROUGH CTY, FL

*This maintenance dredging project began west of the Sunshine Skyway Bridge and carried eastward / north-eastward for the entire length of the main shipping channel across Tampa Bay including 43-ft and 34-ft project channels, Cuts A-K and Gadsden Point Cut.*

### PROJECT INFORMATION

Location: Tampa Bay Federal Navigation Channel, Hillsborough County, FL

Contractor: Cashman Dredging and Marine Contracting Co., LLC

Contract: W912EP-13-D-0005-0005

Dollar Value: Total $8.1 Million

Start/Completion: Nov 2015-May 2016

### OWNER INFORMATION / CONTACT

Awarding Authority / Owner:
USACE Jacksonville District

Contact / Details: Andy Cummings
USACE Project Engineer
Phone/Email: 813.348.0690 /
andy.d.cummings@usace.army.mil

CASHMAN DREDGING


CASHMAN DREDGING

# TAMPA BAY CHANNEL MAINTENANCE DREDGING

## HILLSBOROUGH COUNTY

## TAMPA BAY, FL

*Cashman received an overall rating of "Exceptional" from the Army Corps based on excellent performance and the highest ratings assigned to two elements considered to be of very high importance: Quality and Management. Cashman was commended for our exceptional efforts and dedication to meet the USACE's requirements of completing the project on time, on budget, and providing a high-quality project result with no accidents or environmental incidents.*

Dredging began in fall 2015 along the length of the Tampa Bay Federal Navigation Channel encompassing the entire Tampa Bay from Mullet Key Channel Lighted Buoy 26 west of the Sunshine Skyway Bridge, extending the entire length of the Tampa Bay Channel. The goal was to remove shoaled material from the Federal Channel and consisted of maintenance dredging of Cuts A through F of Tampa Bay Channel; Cuts J, J2 and K within the Port Tampa turning basin; and Gadsden Point Cut of Hillsborough Bay.

### PROJECT HIGHLIGHTS

- Cashman's split-hull trailing suction hopper dredge *Atchafalaya* was responsible for removing shoaled material from the federal channel 7 days a week, 24 hours a day, supported by various other support vessels.
- Removed material was transported to a booster barge in Hillsborough Bay. The booster barge was secured with spuds outside of the navigable channel along the south side of Disposal Island 3. Dredged material was dewatered and then placed in DMMA Site 3-D.
- Approximately 1,500 linear feet of floating and submerged pipeline was placed in line with the booster barge to the shoreline. The pipeline was marked with lighted buoys, for local traffic.
- A total of 361,749 cubic yards of material was removed.
- Work included turbidity monitoring, sea turtle trawl sweeping and relocation (hoppers), endangered species observers, and operation and maintenance of DMMA Site 3-D at the direction of the Contracting Officer.

# DUXBURY HARBOR MAINTENANCE DREDGING

## DUXBURY, MA

*Maintenance dredging of portions of the Federal Navigation Channel in Duxbury Harbor was completed via a contract awarded to the Cashman/ Burnham JV by the U.S. Army Corps of Engineers, New England District.*

### PROJECT INFORMATION

Location:
Duxbury Harbor, MA

Contractor:
Cashman / Burnham JV

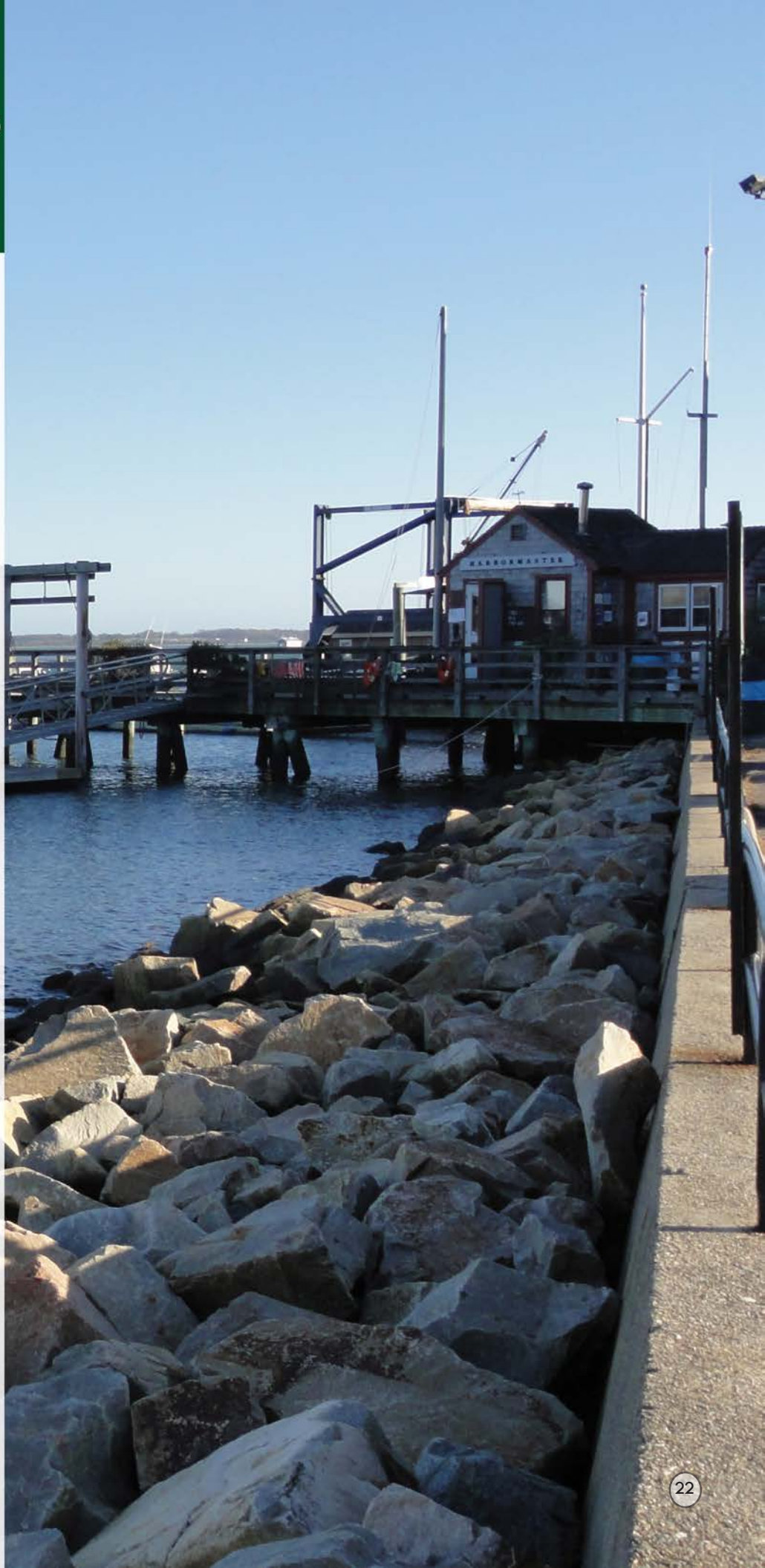
Dollar Value: Total $4.9 Million
Cashman Portion: $2.8 Million

Start/Completion:
Oct 2015- Mar 2016

### OWNER INFORMATION / CONTACT

Awarding Authority / Owner:
USACE New England District

Contact / Details: Bill Kavanaugh
USACE Project Manager
Phone/Email: 978.318.8328 /
william.m.kavanaugh@usace.army.mil



CASHMAN DREDGING

CASHMAN DREDGING

# DUXBURY HARBOR MAINTENANCE DREDGING

DUXBURY, MA

The Duxbury Harbor Federal navigation project consisted of an 8-foot deep, 100-foot wide and 1-mile long entrance channel, and an 8-foot deep, 21-acre anchorage in the inner harbor. The harbor had not been dredged since 1997, and the accumulated sediment made parts of the harbor very shallow and boats hit ground.

## PROJECT HIGHLIGHTS

- Both the anchorage and entrance channel portions of the project had a one-foot overdraft to 9 feet.
- Work consisted of maintenance dredging of ~200,000 cubic yards of predominantly silt-clay by mechanical dredge; 180,000 cubic yards from the anchorage, and 45,000 cubic yards from the entrance channel.
- A closed bucket was used while dredging in silty material to minimize turbidity adjacent to the dredge.
- Dredged sediment was transported and placed at the Cape Cod Bay Disposal Site located ~20 nautical miles from Duxbury Harbor.
- Some dredging was limited to an environmental window between Sept. 1 and December 31, 2015; the project was completed by March 2016.

# PAERDEGAT BASIN DREDGING

*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:
Michael F. Paterno, P.E.

Engineer Contact / Details:
Michael F. Paterno, P.E. |
P: 917.675.0338

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# 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

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# 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.



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# ARTHUR KILL CHANNEL DREDGING / DEEPENING

*Cashman was selected by the Army Corps to conduct channel deepening.*

## PROJECT INFORMATION

Location:
Elizabeth, NJ

Contractor:
Northeast Equipment Company
(Cashman 50% Joint Venture)

Contract Dates:
Nov. 2011 - May 2015

Dollar Value:
$84.0 Million

## OWNER INFORMATION

Awarding Authority / Owner:
U.S. Army Corps of Engineers /
New York District

Owner Contact / Details:
Ivan Damaso / 917.790.8708

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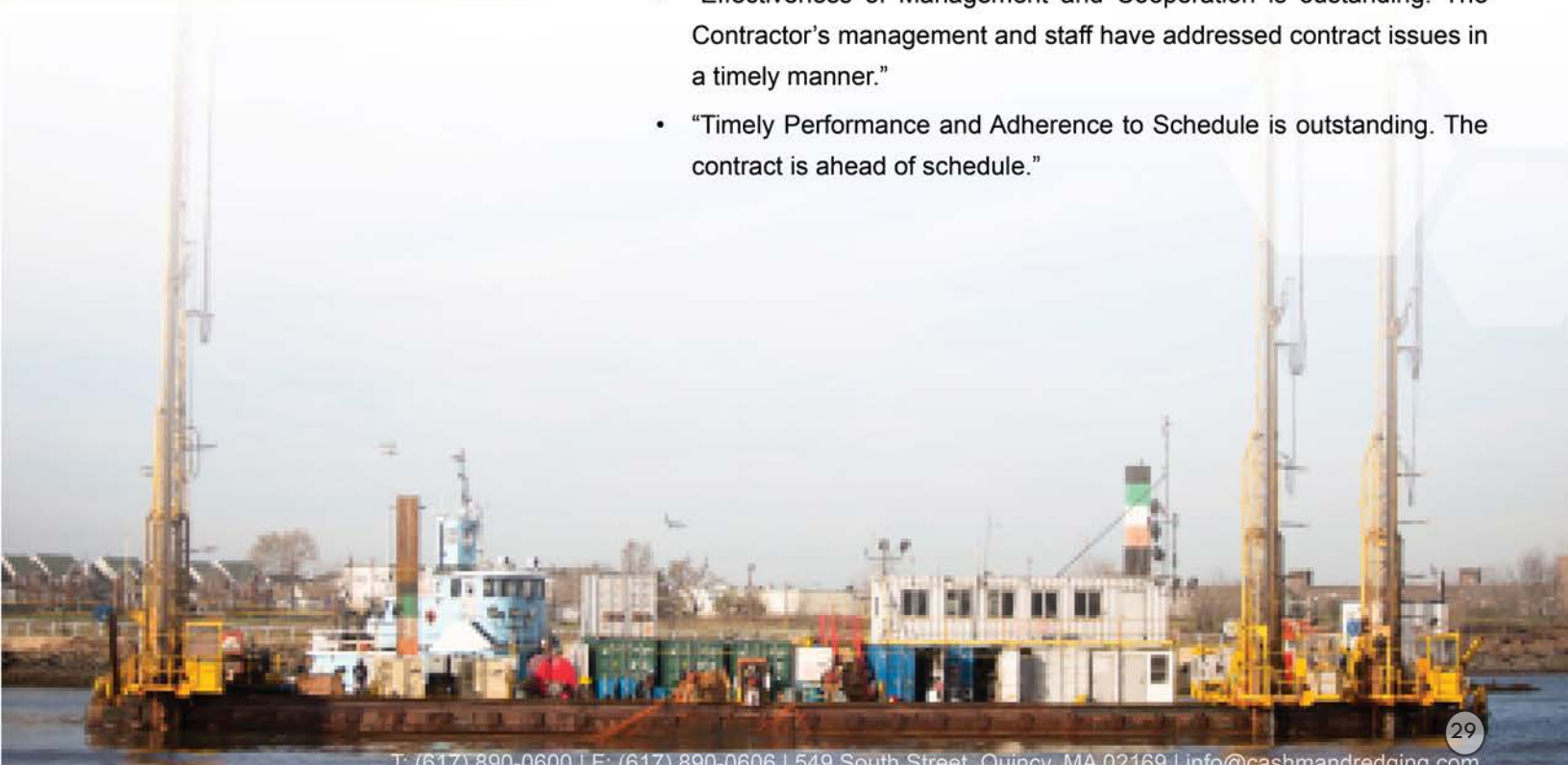
# ARTHUR KILL CHANNEL DEEPENING

ELIZABETH, NJ

## PROJECT HIGHLIGHTS

- The Arthur Kill Channel was being deepened from 47 feet to a depth of 52 feet to accommodate New-Panamax container ships.
- The Cashman Team mechanically dredged 900,000 cubic yards of material.
- Underwater drilling and blasting was self-performed by Cashman for bedrock removal, using the drill boat *Kraken*.
- The Cashman Team provided samping and testing of subsurface materials.
- Unsuitable non-rock material was placed at an upland disposal facility.
- The Cashman Team received several "outstanding" reviews from the USACE New York District:
  - "Quality Control and Workmanship is outstanding. The contractor's surveys are so accurate that areas of the Contract have been accepted on the first round of surveys."
  - "Effectiveness of Management and Cooperation is oustanding. The Contractor's management and staff have addressed contract issues in a timely manner."
  - "Timely Performance and Adherence to Schedule is outstanding. The contract is ahead of schedule."





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# ST. LUCIE INLET MAINTENANCE DREDGING

*This project consisted of dredging material in St. Lucie Inlet and hydraulically unloading beach-quality sand to a local beach in Florida.*

## PROJECT INFORMATION

Location:
St. Lucie Inlet, Florida

Contractor: Cashman Dredging & Marine Contracting Co. / CF Bean (Joint Venture)

Contract Dates:
Nov. 2013 – Feb. 2014

Dollar Value:
$4.8 Million

## OWNER INFORMATION

Awarding Authority/Owner:
Martin County, Florida

Owner Contact:
Kathy Fitzpatrick

Contact Details: 772.260.4702 / kfitzpat@martin.fl.us

## ENGINEER INFORMATION

Engineer: Atkins Engineering

Engineer Contact: Mark Stroik

Contact Details: 941.320.0241 / Mark.Stroik@AtkinsGlobal.com

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# ST. LUCIE INLET MAINTENANCE DREDGING

## ST. LUCIE INLET, FLORIDA

The St. Lucie Inlet Dredging project work was in response to impacts from Hurricane *Sandy's* passage in 2012, and was 100% federally funded under the Flood Control and Coastal Emergency (FCCE) program. This work provided significant aid to navigation and also benefited the Hobe Sound National Wildlife Refuge with sand nourishment, providing significant storm damage protection and restoring beach wildlife habitat.

### PROJECT HIGHLIGHTS

- Work consisted of dredging ~150,000 cubic yards of sand from the inlet channel and adjoining impoundment basin.
- Beach-quality material was transported by hopper barge about 5 miles south down the Intracoastal Waterway, and hydraulically unloaded and placed on the beach at the Hobe Sound National Wildlife Refuge.
- The Cashman team worked with the Coast Guard to coordinate the barge movements on the intracoastal waterway due to the challenging recreational boat traffic.
- The Cashman team provided manatee observers, nesting bird and sea turtle monitors, and other special care while placing beach fill in a National Wildlife Refuge.

# LAKE KITTAMAQUNDI DREDGING

*Cashman was selected to conduct dredging with a focus on restoring the lake to original depths, reinforcing the banks, and enhancing the water flow.*

## PROJECT INFORMATION

Location:
Columbia, MD

Contractor:
Cashman Dredging

Contract Dates:
Jul. 2010 – Dec. 2011

Dollar Value:
$5.5 Million

## OWNER INFORMATION

Awarding Authority / Owner:
The Columbia Association

Owner Contact / Details:
Diana Kelley / 410.381.2947

## ENGINEER INFORMATION

Project Engineers / Managers:
HDR Engineering, Inc.

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# LAKE KITTAMAQUNDI

COLUMBIA, MD

Lake Kittamaqundi is a man-made 27-acre reservoir created in 1966 during the development of the Columbia housing complex. In fall 2010, dredging began, focused on restoring the lake to original depths, reinforcing the banks, and creating two new peninsulas to enhance water flow.

## PROJECT HIGHLIGHTS

- Cashman dredged ~48,000 cubic yards of sand, silt, and stone from the lake to a specified depth using a hydraulic dredge as a part of an overall environmental restoration
- We dredged and pumped ~8,000 cubic yards of material into geotextile tubes to create about 1.28 acres of wetland habitat within the lake and about .4 acres of upland peninsula to reshape the lake.
- About 40,000 cubic yards of dredged material was pumped about 4,000 feet to an upland processing area where it was dewatered using a combination of hydrocyclone separators and geotextile tubes.
- The filtered return water was pumped to the lake for discharge meeting the specified water quality limits established by the MDE and USACE.
- The dewatered sediment was characterized and beneficially reused in a mine reclamation project.
- Installed ~295 linear feet of imbricated rip-rap along the Little Patuxent River to stabilize the area and reduce overflow between the river and lake.
- Water quality was monitored for turbidity in real time around the clock during in-water operations.

# MORSES POND DREDGING

## PROJECT INFORMATION

Location:
Wellesley, MA

Contractor:
Cashman Dredging

Contract Dates:
Aug. 2012 – Dec. 2012

Dollar Value:
$820,000

## OWNER INFORMATION

Awarding Authority/Owner:
Town of Wellesley

Owner Contact Person:
Dave Hickey

Owner Contact Number:
(781) 235-7600

## ENGINEER INFORMATION

Project Engineers/Managers:
APEX

CASHMAN DREDGING

# MORSES POND DREDGING / BEACH RENOURISHMENT

WELLESLEY, MA

Man-made Morses Pond covers about 105 acres, providing a community swimming hole and contributing to the town of Wellesley's water supply. Sediment had been building up in the pond since the 1970s, when the pond was last dredged. The dredging helped clear the water and restored the pond's health.

## PROJECT HIGHLIGHTS

- Cashman used a large suction pump to remove the sediment; about half of the dredged materials (6,665 cubic yards) were pumped and drained at the town beach to replenish its sand.
- The other half (6,030 cubic yards) was pumped to a 240' x 280' dewatering area in a nearby parking lot where it was put into GeoTubes to drain excess water and consolidate the material, after which the material was hauled off the site and clean water was pumped back into the pond.
- The dredging was the final piece of the restoration laid out in a 2005 plan.

# PORTLAND HARBOR MAINTENANCE DREDGING

*Cashman was awarded the contract for the first maintenance dredging in Portland Harbor to occur in over 15 years.*

## PROJECT INFORMATION

Location:
Portland Harbor, ME

Contractor:
Cashman Dredging

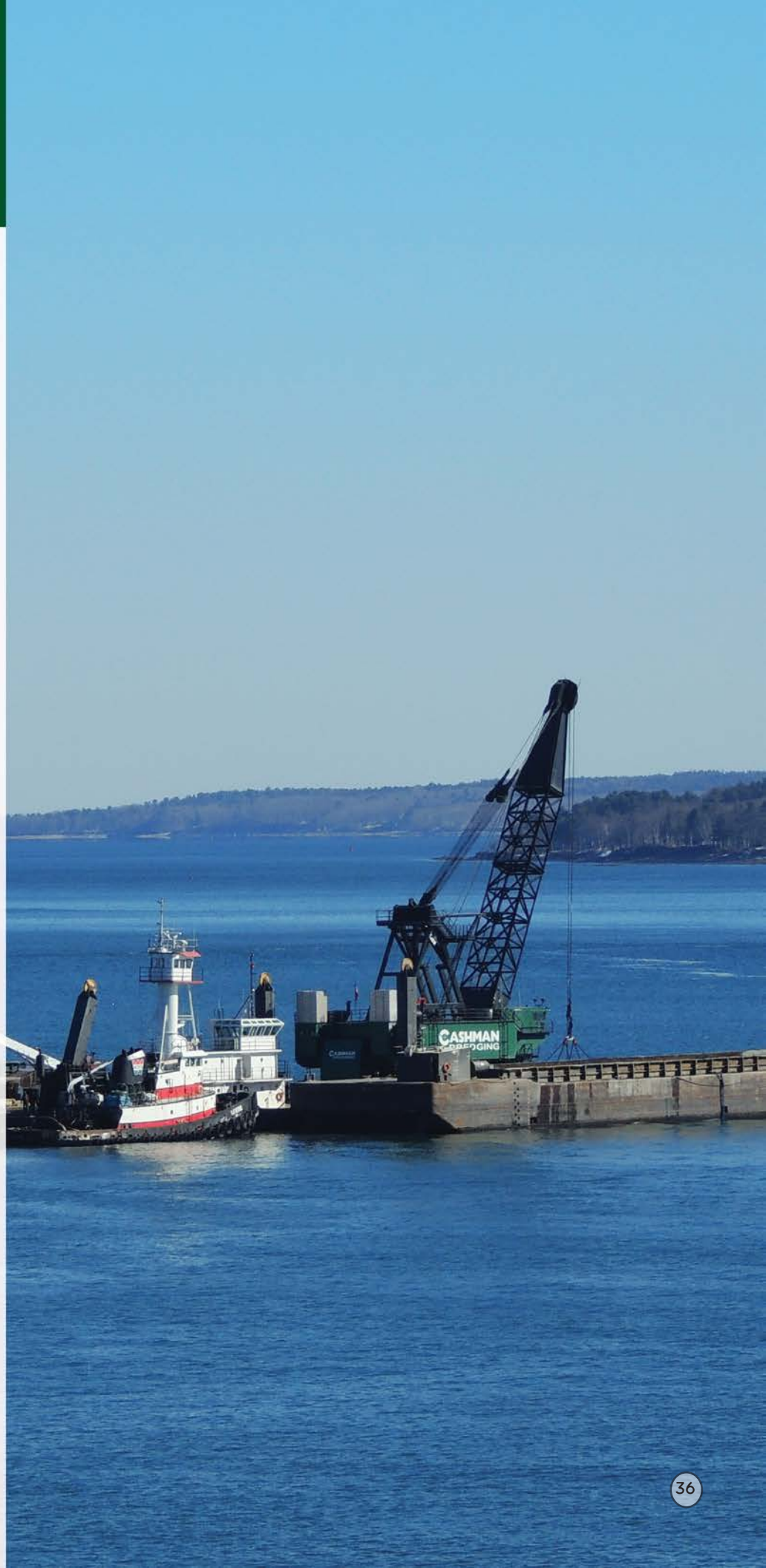
Contract Dates:
Jan. 2014 – Mar. 2014

Dollar Value:
$9.2 Million

## OWNER INFORMATION

Awarding Authority/Owner:
US Army Corps of Engineers, New England District

Owner Contact / Details:
James A. Morocco / 978.318.8112

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# PORTLAND HARBOR MAINTENANCE DREDGING

PORTLAND HARBOR, ME

## PROJECT HIGHLIGHTS

- Crews worked 24 hours a day, seven days a week to complete the project, which required removal of some 700,000 cubic yards of sediment from the harbor's shipping channel.
- In addition to maintenance dredging, Cashman drilled and blasted ~1,500 cubic yards of rock.
- Dredging was performed to achieve -37 feet mean lower low water (MLLW). The rock drilling and blasting portion of the project entailed the removal of approximately five rock pinnacles protruding just above the -35 foot MLLW plane.
- Cashman used the *Dale Pyatt*, the *F.J. Belesimo*, and the *Kraken* to complete the work.


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# NEW HAVEN & NORWALK HARBOR MAINTENANCE DREDGING

*Maintenance dredging of ~810,000 cubic yards of sediment from the channel and turning basin in New Haven Harbor, and ~150,000 cubic yards of sediment from the channel in Norwalk Harbor.*

## PROJECT INFORMATION

Location:
New Haven / Norwalk, CT

Contractor:
Cashman Dredging

Contract Dates:
Oct. 2013 – Apr. 2014

Dollar Value:
$8.2 Million

## OWNER INFORMATION

Awarding Authority/Owner:
US Army Corps of Engineers, New England District

Owner Contact / Details:
Tim Rezendes / 978.318.8229


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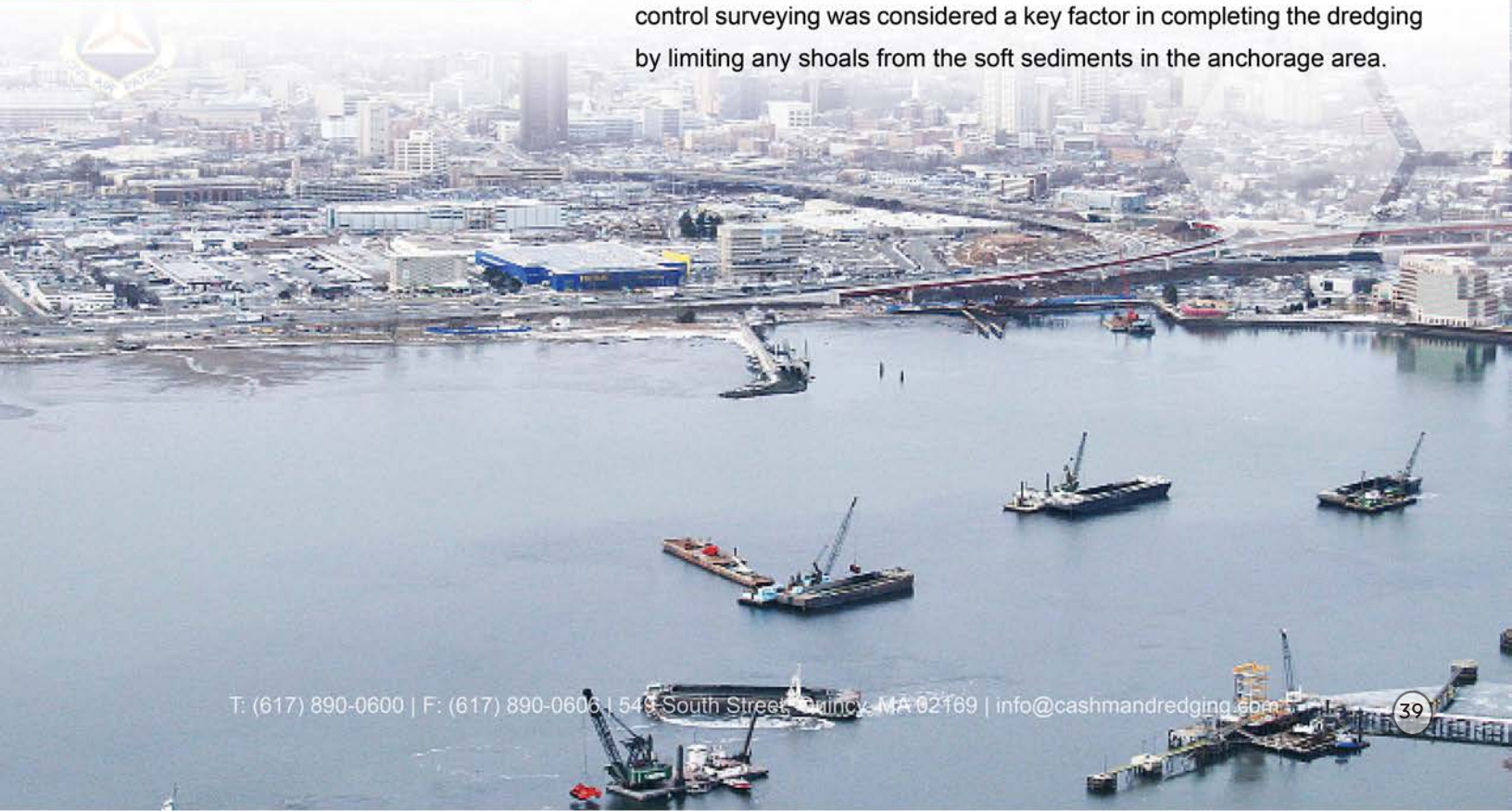
# NEW HAVEN & NORWALK HARBOR MAINTENANCE DREDGING

NEW HAVEN / NORWALK, CT

## PROJECT HIGHLIGHTS

- Work consisted of maintenance dredging of ~810,000 cubic yards of sediment from the 35-foot channel and 35-foot turning basin in New Haven Harbor, and ~150,000 cubic yards of sediment from the 12-foot channel in Norwalk Harbor.
- Dredged material was removed using a mechanical dredge and scows.
- Disposal was at the Central Long Island Sound Disposal Site (CLISDS), about 6 miles south from New Haven Harbor and about 35 miles east from Norwalk Harbor.
- Dredging and disposal windows were from October 1 to January 31 for Norwalk, and October 1 to April 30 for New Haven.
- At least 110,000 cubic yards of New Haven sediment was reserved for the capping of the Norwalk sediment at the CLISDS.
- Cashman's use of a multibeam-type surveying method for daily quality control surveying was considered a key factor in completing the dredging by limiting any shoals from the soft sediments in the anchorage area.



# MANHATTAN CRUISE TERMINAL DREDGING
NEW YORK CITY, NY

*Cashman has been providing dredging services at the Manhattan Cruise Terminal in New York.*

## PROJECT INFORMATION

Location:
New York City, NY

Contractor:
Cashman Dredging and Marine Contracting Company, LLC

Contract No. and Dates:
23960006 / 1W-2369-06 and 5977
Spring 2015 and Fall 2015

Dollar Values:
$1.1 Million Spring / $2.0 Million Fall

## OWNER INFORMATION

Awarding Authority/Owner:
New York City Economic Development Corporation (NYCEDC)

## ENGINEERING / CM FIRMS

Engineer of Record:
Gahagan & Bryant Associates (GBA)

Construction Manager:
Skanska USA Building Inc.

CM Contact / Details:
Matt Mosca, Asst. Project Manager
P: 917.438.4500 | M: 973.464.1913
Matt.Mosca@Skanska.com

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# MANHATTAN CRUISE TERMINAL DREDGING

NEW YORK CITY, NY

## PROJECT HIGHLIGHTS

- Cashman Dredging supplied all plants, barges, scows, materials, equipment, supplies, labor, transportation, fuel, power, water, surveys and all other related work necessary for the complete performance of the dredging and HARS placement of the dredging material.
- Because the Terminal is extremely busy, Cashman planned dredging work around the Terminal's Ship Schedule, as well as coordinated with all other subcontractors and nearby construction.
- Additionally, there was ongoing work at nearby piers, including underwater diving operations, so the Cashman team kept safety as its first priority.
- Cashman's custom-developed systems allowed precise placement of dredged materials to the HARS site(s) offshore of New Jersey.
- The second season (Fall 2015) activity included dredging of Berths 1 through 5, as well as the Berth Channel Area.

# MAINTENANCE DREDGING OF ROCKAWAY INLET

*Cashman Dredging was awarded a $3.9 million contract by the U.S. Army Corps of Engineers, New York District to perform maintenance dredging of the Jamaica Bay Federal Channel at Rockaway Inlet.*

## PROJECT INFORMATION

Location:
Queens, NY

Contractor:
Cashman Dredging

Contract Dates:
Oct. 2012 – Feb. 2013

Dollar Value:
$4.4 Million

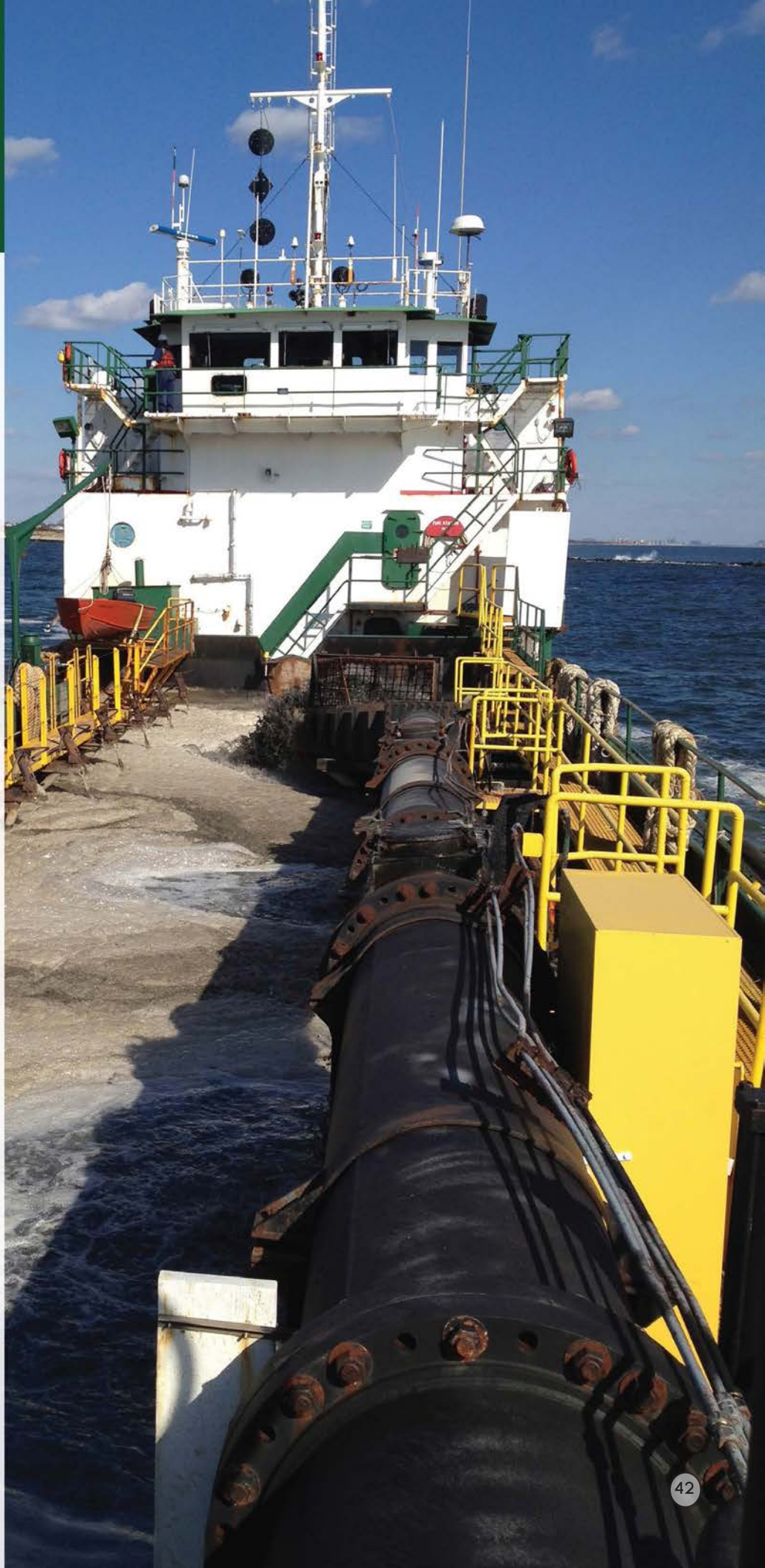
## OWNER INFORMATION

Awarding Authority/Owner:
USACE, New York District

Owner Contact / Details:
Peter Kuglstatter
P: 917.790.8546 | Email:
Peter.Kuglstatter@ usace.army.mil

## ENGINEER INFORMATION

Project Engineers / Managers:
Cashman Dredging



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# MAINTENANCE DREDGING OF ROCKAWAY INLET

QUEENS, NY

## PROJECT HIGHLIGHTS

- Dredging of 434,395 cubic yards with offshore disposal at the Historic Area Remediation Site (HARS) location 12 miles away from dredging area.
- Over 400 rounds tirps were made to the HARS location.
- On average, the channel has a five-year annual commercial tonnage of 560,683. The dredging re-established approved dimensions of the channel.

## THE EXTRA MILE

- Cashman received "above average" reviews from the Army Corps for our efforts to work through and in spite of results of "Superstorm Sandy."
- High rates of sand redeposition caused previously cleared areas to require redredging.
- In spite of schedule delays due to Sandy, Cashman was able to complete this project in a timely manner.

# 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

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# 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, New Jersey.
- 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.



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# 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


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# 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.

# BATH IRON WORKS DRY DOCK SINKING BASIN PROJECT (Phase I)

*Cashman conducted this dredging project to assist Bath Iron Works re-establish operational depths within its drydock sinking basin.*

## PROJECT INFORMATION

Location:

Bath Iron Works (BIW)

Bath, ME

Contractor:
Cashman Dredging

Contract Dates:
Nov. 2009 – Dec. 2009

Dollar Value:
$1.5 Million

## OWNER INFORMATION

Awarding Authority / Owner:
General Dynamics / BIW

Owner Contact / Details:
Pamela Everett
P: 207.442.1086

## ENGINEER INFORMATION

Project Engineers / Managers:
General Dynamics / BIW

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# BATH IRON WORKS DRY DOCK SINKING BASIN PROJECT (Phase I)

BATH, ME

## PROJECT HIGHLIGHTS

- Dredged ~30,000 cubic yards of material from the Bath Iron Works (BIW) 850' by 280' dry dock sinking basin.
- Dredging was performed to depths of 75 feet with a 1-ft overdredge allowance.
- The work was completed using the clamshell dredge *F.J. Belesimo* with a 12-cubic yard heavy digging bucket, and one 4,000-cubic yard split-hull barge.
- Dredged material was transported to the in-river disposal site at Bluff Head, in the Kennebec River, located approximately 6 nautical miles from the dredging area.

## CUSTOM SOLUTIONS

- Cashman used a four-point anchoring system instead of spuds to solve the challenges of a current that flowed in excess of 5 knots in the Kennebec River.



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