



THE CRANEY ISLAND CONNECTION

CRANEY ISLAND EASTWARD EXPANSION NEWS AND INFORMATION

VOLUME 2 ISSUE 2

AUGUST 2008

TABLE OF CONTENTS

SUSTAINABLE DESIGN GUIDES
THE CRANEY ISLAND EASTWARD
EXPANSION PROJECT1

SHIRLEY PLANTATION SUSTAINABLE
PRACTICES BRING HISTORIC
FARMLANDS BACK TO LIFE2

PROJECT UPDATE.....4

UPCOMING EVENTS & NEXT ISSUE.....4

THE CRANEY ISLAND CONNECTION IS PUBLISHED MONTHLY UNDER THE AUSPICES OF THE VIRGINIA PORT AUTHORITY AND THE U.S. ARMY CORPS OF ENGINEERS, TO PROVIDE READERS WITH REPORTS RELATED TO THE DEVELOPMENT OF THE EASTWARD EXPANSION OF CRANEY ISLAND. ARTICLES PRINTED HEREIN ARE FOR INFORMATIONAL PURPOSES ONLY. WE INVITE READERS TO COMMENT ON ARTICLES AND SUGGEST FUTURE TOPICS FOR CONSIDERATION.

FOR FURTHER INFORMATION OR
ADDITIONAL COPIES CONTACT:

DEJUAN PRICE
TECHNICAL COMMUNICATION
MANAGER

TEL: (757) 628 - 8222

FAX: (757) 628 - 8244

EMAIL: CICONNECTION@CRANEYISLAND.INFO

SUBSCRIBE ONLINE

[HTTP://WWW.CRANEYISLAND.INFO](http://www.craneyisland.info)

Sustainable Design Guides the Craney Island Eastward Expansion Project

The issue of sustainable design for construction projects is mounting in importance to the public. Buildings constructed under “green” standards are becoming increasingly mainstream, as public concern over the availability of natural resources, pollution, and climate change heightens. Ships, cranes, trucks, and trains require energy to move cargo across the nation and the world, and port facilities require maintenance and expansion to keep up with cargo demand. With increases in cargo volumes and rising fuel cost, the U.S. port industry is quickly trending towards the “greening” of container terminals. Consequently, the Virginia Port Authority (VPA) has invested substantially in programs focused on making The Port of Virginia a “green” port.

Through its environmental program, the VPA is working diligently to identify and incorporate innovative and environmentally-friendly operations and construction practices throughout all of its terminal facilities. Green Ports programs promote environmental stewardship under a framework of what is known as sustainable design and engineering. The term sustainability is most often used in the context of development and describes a pattern of use that aims to meet human need, while preserving the environment so that human needs can be met into the indefinite future. Therefore, sustainable engineering and design refers to the ways human beings incorporate natural laws and physical resources to design and implement materials, structure, machines, and systems in a mode that preserves the environment.

Sustainable engineering practices have been heavily incorporated within the existing Port of Virginia facilities. The VPA has incorporated a number of “green” initiatives towards making The Port and its customers more environmentally friendly. In fact, environmental stewardship is at the center of new port development and marine terminal operations. The Port’s “green” agenda is based in a newly-minted organizational mission: “Building a brighter, cleaner, greener future.”

| Continued On Page 2

As evidence of the escalating greening efforts, the VPA further strengthened its environmental commitment with achieving ISO 14001:2004 Certification. The Port of Virginia is the first major East Coast port owner/operator to have its Environmental Management System or EMS certified with the International Organization for Standardization. An EMS meeting the requirements of ISO 1400:2004 provides a tool that will allow organizations to identify and manage their impact on the environment. Moreover, the EMS sets standards for The Port to continually improve environmental performance as well as implement a systematic approach to setting, achieving, and measuring environmental objectives and targets.

In recognition of its environmental efforts, the VPA received a \$750,000 grant from the Environmental Protection Agency (EPA) to help pay for the lease and eventual purchase of three fuel-efficient locomotives for its rail operations at Norfolk International Terminals. According to Donald S. Welsh, an EPA Regional Administrator, the new locomotives are 30 to 50 percent more fuel-efficient and will cut emissions of nitrogen oxide by up to 90 percent. These “green” initiatives represent the VPA’s enduring effort towards implementing sustainable design, construction, and operations within The Port’s terminals and facilities. With ISO certification, The Port of Virginia is now recognized as an environmentally responsible or “green” port. But sustainable development in engineering and design consist of a wide-variety of technologies and practices. With the introduction of the Craney Island Eastward Expansion, project engineers will have the opportunity to employ creative planning to all aspects of engineering and design.

As demand has increased for “green” building practices, sustainable design is moving to the forefront of the construction industry. Sustainable design crosses a number of disciplines and professions, from social development to economics, and acknowledges that the practices and lifestyles of much of society cannot be sustained indefinitely. Therefore, sustainable design and sustainable practices take many forms. One constant prevails – sustainability is about ensuring a better quality of life for everyone, now and for generations to come. Sustainable engineering works to balance environmental sustainability with ecological, sociological, and technological constraints.

Accordingly, effective sustainable development often requires significant behavioral shifts within an organization. For instance, the U.S. Army Corps of Engineers (USACE) Norfolk District has embraced a series of sustainable design and engineering practices under the umbrella of LEED or Leadership in Energy and Environmental Design. LEED was developed in 1998 by the U.S. Green Building Council

(USGBC), a non-profit trade organization that supports sustainability in how buildings are designed, built, and operated. It is a voluntary rating system which standardizes practices for the design of sustainable or “green” buildings and allows project managers to quantify or measure the effectiveness of sustainable development practices. LEED standards provide measures for such areas as sustainable site selection, water efficiency, energy and atmosphere, and materials and resource use.

The USACE Norfolk District currently uses LEED new construction standards for many of its projects including, a new dorm currently



Langely Airforce Base Dorm Rendering

under construction for enlisted personnel at Langely Air Force Base. Designed by Norfolk District in-house engineers, the project is the first LEED certified facility for Langely Airforce Base and one of the first LEED certified projects for the Air Combat Command.

While LEED standards provide a useful framework for the sustainable development, it is only one metric for sustainability and is most useful for the construction of buildings. Therefore, incorporating sustainable practices into the Craney Island Eastward Expansion project provides a unique opportunity to identify and define new strategies for the sustainable design and development for a land engineering project as well as for construction of a new marine terminal.

The Craney Island Eastward Expansion project will require extensive dredging, materials movement, and land engineering. In fact, dredging presents one key opportunity for the incorporation of sustainable design. Through its dredging program, the Craney Island Eastward Expansion is poised to be one of the biggest recycling opportunities in the history of Hampton Roads. Accordingly, the project team is identifying opportunities for beneficial uses of dredged material. For instance, construction of the main and cross dikes for the new eastern cell will require substantial amounts of sand. Sand required for the dike construction will be primarily mined from the Atlantic Ocean Channel. These dredging operations will deepen the channel, ensuring efficient, reliable, and safe navigation system, while also providing much-needed granular materials for dike construction. Similarly, silts and clays excavated from within the Craney Island Dredged Material Management Area (CIDMMA) will be utilized for fill to construct the new eastward expansion cells. Utilizing material within existing

CIDMMA creates additional capacity within the placement site and accomplishes one major purpose of the project - extending the useful life of CIDMMA.

The development of sustainable buildings in port design presents particular challenges to design teams as specific systems, equipment, and materials need to be integrated into the design without impacting operational use. Several specific port development and operational topics can be addressed in terms of sustainable development and practices. Site selection, optimized energy performance, on-site renewable energy, and material reuse have been identified as ways terminal administrative buildings can be made "greener". Such practices will be examined amid a variety of "greener" options for incorporation into the project's design and development.

Due to the extensive project schedule associated with the Craney Island Eastward Expansion, project engineers must evaluate all available best practices and standards for sustainable design solutions, as the terminal phase of construction draws closer. This will ensure that the latest standards will be utilized in the design and construction of the expansion and marine terminal. The Craney Island Eastward Expansion will be at the forefront of "green" design and construction supporting sustainability for a "greener" Port of Virginia.



In an effort to incorporate sustainable practices at all levels of The Craney Island Eastward Expansion Project, the Craney Island Connection newsletter is printed on SoporSet®. SoporSet® is an environmentally friendly, alternative-fiber paper manufactured from an agriculturally sustainable largely eucalyptus-based wood pulp. Eucalyptus presents several benefits over traditional woods for the pulp and paper industry. A sustainable crop, eucalyptus trees grow quickly and are capable of producing new trees from stumps after the original tree had been cut down. This enables a single tree to be used up to three times.



Shirley Plantation

Sustainability Practices Bring
Historic Farmlands Back to Life in Charles City, Virginia



Shirley Plantation is Virginia's and North America's oldest family-owned business. Family farming operations at the 800 acre plantation date back to 1638, when the site produced tobacco, wheat, and other cash crops. However, by the 1960s 300 acres of farmlands were converted for mining gravel and sand. Sand and gravel mining operations were conducted on the site through the early 1990s. Between 1-2 million tons of sand and gravel were barged out of the local mines each year for decades, leaving large mined-out pits along the productive landscape. These practices left parts of the plantation largely unusable for agriculture.

Today, the plantation is utilizing innovative techniques to reclaim mined areas for agriculture utilizing dredged material. In 2001, the plantation's site owner, in cooperation with Virginia Tech and ODU scientists, began exploring ways to fill the excavated mines with materials dredged from the Woodrow Wilson Bridge project to restore fertile farm land to the Shirley Plantation. Such techniques are at the forefront of sustainability practices for the beneficial reuse of dredged material. The materials were barged to Shirley Plantation on the James River. 500,000 cubic yards of dredged soils and sediment were then placed in the reclaimed mine, stabilized, and treated and eventually used once again for agricultural acreage.

Crop production is now well above the average for the area due to the naturally occurring nutrients in the dredged material. The once excavated mines are now completely vegetated, with the exception of several open water ponds that will be used for dredged material placement in the future. Moreover, the site provides a productive habitat for bird and mammal species. As part of project efforts to support the beneficial re-use of dredged material, Craney Island Eastward Expansion project engineers are exploring the possibility of placing dredged materials that will be dredged from the Southern Branch of the Elizabeth River as part of Sediment Remediation, a large part of the project's mitigation plan.



Crop Production at Shirley Plantation

Upcoming Events

Blue Ribbon Panel September 8-9, 2008

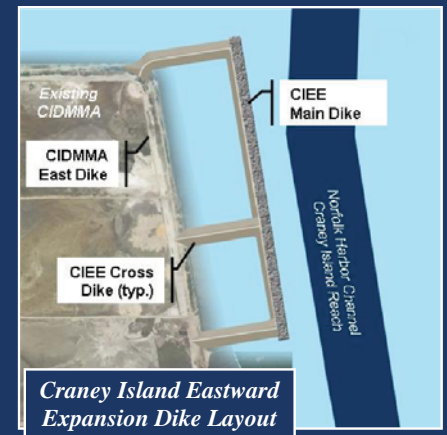
A panel of experts and representatives from the Virginia Port Authority (VPA) and the U.S. Army Corps of Engineers will reconvene to discuss the direction of the work on the Craney Island Eastward Expansion with an emphasis on geotechnical engineering, work completed since last Blue Ribbon Panel meeting, 10% design, construction, filling, and ground improvement. Look for a future article on the 4th Blue Ribbon Panel in the September issue of The Craney Island Connection.

Next Issue

- Ports 101 & Cargo Container Movement
- Blue Ribbon Panel Update
- CIDMMA Customer Spotlight
- Project Update
- Next Issue

Project Update

Project engineers recently submitted the Craney Island Eastward Expansion 10% plan and design package to the U.S. Army Corps of Engineers Norfolk District. Included in the 10% design package are project design criteria and guidelines, specifications, material quantities, project cost estimates, and schedule. The design criteria includes preliminary plans for the main dike and other retaining structures, spillboxes, ground improvements, monitoring, instrumentation, and material management. Additionally, The Craney Island Eastward Expansion project team is seeking the environmental permits required to begin project construction in July 2009. The team plans to submit an application for permits on August 25th to the Virginia Marine Resources Commission (VMRC). Regulatory permitting supports environmental protection by ensuring impacts on aquatic resources are avoided, minimized, or mitigated to the appropriate level. Acquiring environmental permits is a broad and complex process requiring significant research, modeling, analysis, design and documentation.



THE CRANEY ISLAND CONNECTION
800 WORLD TRADE CENTER
NORFOLK, VIRGINIA 23510

IN THIS ISSUE:

- SUSTAINABLE DESIGN GUIDES THE CRANEY ISLAND EASTWARD EXPANSION PROJECT
- SHIRLEY PLANTATION SUSTAINABLE PRACTICES BRING HISTORIC FARMLANDS BACK TO LIFE
- PROJECT UPDATE
- NEXT ISSUE

VOLUME 2 ISSUE 2

AUGUST 2008

