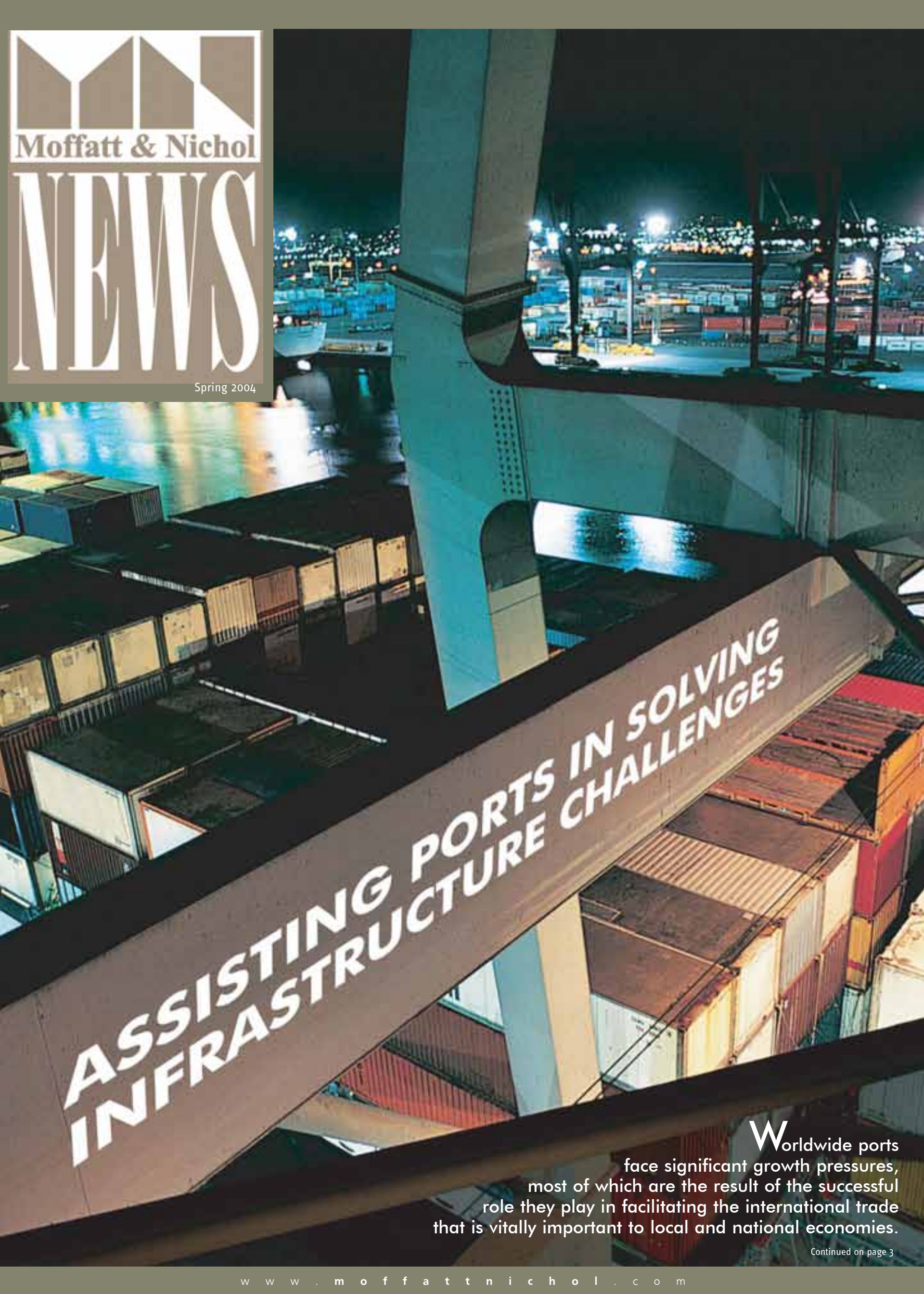




Moffatt & Nichol

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ASSISTING PORTS IN SOLVING INFRASTRUCTURE CHALLENGES

Worldwide ports face significant growth pressures, most of which are the result of the successful role they play in facilitating the international trade that is vitally important to local and national economies.

Continued on page 3



Well-known for its port and terminal planning throughout North America, Moffatt & Nichol has been awarded contracts on a variety of projects in western Canada that range from urban waterfront developments in picturesque Victoria and busy metropolitan Vancouver, to shipping studies for the Government of Canada.

According to Harold Westerman, P.Eng., Manager of M&N's recently established Vancouver office, British Columbia's rebounding economy and the 2010 Winter Olympics have created a variety of opportunities for the firm's diverse engineering practice. **"The challenge leading up to 2010 will be finding enough people to handle all of the work that is planned in the province," he said.**

The firm continues to remain busy with its traditional port planning and design services, including such projects as the proposed container terminal developments at the Vancouver Port Authority's Roberts Bank Superport, and the next phases of a recently completed feasibility study for the Port of Vancouver's Lynnterm Terminal



M&N's Vancouver Office Pursues a Diverse Range of Canadian Projects

that assessed the conversion from break bulk operations to container handling.

As part of the next phase at Lynnterm, M&N has been retained by the VPA to carry out a seismic stability analysis of the existing wharf in North Vancouver. The concrete caisson berths, constructed in the mid-1970s, are being reviewed in anticipation of the shift to container handling operations that will require retrofit to support super post-Panamax ship-to-shore gantry cranes. M&N will develop



preliminary seismic retrofit options and carry out a detailed risk analysis assessment.

Elsewhere in Vancouver, M&N is providing preliminary engineering for the shoreline design, piers and other features of a planned waterfront community that will include condominiums, retail stores, restaurants and a riverfront promenade for East Fraser Lands, a 106-acre site of a former Weyerhaeuser sawmill.

In Victoria, the provincial capital of British Columbia on Vancouver Island, M&N is working with the Greater Victoria Harbour Authority on an inner harbour waterfront planning project. The firm is providing small craft harbour planning and marine engineering services. The waterfront is a popular destination for Victoria residents and visitors, featuring street entertainers, retail stores, restaurants and the historic Empress Hotel.

"Design and engineering opportunities abound for M&N in Canada," said Westerman. "The firm brings its well-regarded reputation for quality of work, attention to detail and service to clients." ■



Dundalk Marine Terminal

MARYLAND PORT ADMINISTRATION Implements 2010 Facility Plan at Port of Baltimore

The 2010 Facility Plan, prepared by Moffatt & Nichol in a joint venture with Martin Associates, sets forth the phased implementation of improvements needed at the port's terminals to meet future cargo demand. The plan is designed to accomplish the following objectives: accommodate the forecasted growth of key commodities, optimize the operation efficiency and flexibility of the terminals, and rehabilitate the existing infrastructure.

As part of the process to develop the 2010 Facility Plan, Shafer explained, M&N first conducted an inventory of the existing terminals to assess conditions and capacity. Alternate solutions were then identified to resolve the disparity between forecasted cargo growth and existing capacity. The selected alternates were then incorporated into detailed terminal implementation plans, complete with schedule and cost.

As part of implementing the facility plan, M&N, in a joint venture, is providing design and engineering services that include preparing construction documents for wharf extension, waterfront structure design, civil/site improvements and dredging required for the expansion. Additional services being performed include permit support, cost estimating and PCAS.

The 2010 Facility Plan calls for more than \$500 million of capital investments in value-added projects at the Port of Baltimore. Projects include construction of new cargo sheds; rehabilitation of

Berths 1-6 and a new entrance gate facility at the 560-acre Dundalk Marine Terminal, a multi-use general cargo facility for container, automobiles, ro-ro and general cargo; procurement of RTGs for Seagirt Marine Terminal, a 275-acre container terminal; port security; and general infrastructure improvements. ■

After three years of planning preparation, the Maryland Port Administration (MPA) has commenced work on a series of improvement projects outlined in its 2010 Facility Plan for the Port of Baltimore, where cargo growth reached record-setting levels last year.

The public terminals at the Port of Baltimore handled 7.1 million tons of general cargo in 2003 for the first time since World War II. This 12 percent overall growth in commodities enabled the port to maintain its national leadership position in handling forestry products, automobiles, and Roll-On/Roll-Off cargo. In addition, the port's container cargo volume increased by 10 percent.

The signing of new or expanded long-term contracts by the MPA with several of its biggest customers helped achieve the tonnage record, according to port officials.

"Growth at the Port of Baltimore has made it necessary to implement the 2010 Facility Plan," said Thomas Shafer Jr., Vice President of M&N's Baltimore office. "It's one thing to prepare a plan. It's another to see it implemented."

ASCE's Ports 2004 Conference Publishes Over 20 M&N Technical Papers

At ASCE's Ports 2004 Conference in Houston, more than 20 technical papers from Moffatt & Nichol professionals have been accepted as part of the conference program. During the four-day conference, authors will present their papers, which ASCE will be publishing.

This year's conference, *"Port Development In The Changing World,"* is the tenth in a series of international port and harbor development specialty conferences held on a triennial basis since 1977. The papers and presentations address the complex, innovative and state-of-the-art technical aspects associated with the planning, design, construction, maintenance and operations of worldwide port and harbor facilities.

Copies of the papers are available by clicking on the ASCE Ports 2004 icon on the home page of M&N's website: www.moffattnichol.com. ■

...Assisting Ports in Solving Infrastructure Challenges

Continued from page 1

In Southern California for example, the Ports of Long Beach and Los Angeles have become a critical hub for the import and export of goods between the United States and the Pacific Rim.

Container volume for the combined ports was nearly 12 million TEUs for 2003 and that number is expected to more than triple by the year 2025. As the ports plan for this future they must be concerned with impacts beyond their traditional boundaries and manage growth as a friendly neighbor to the surrounding community.

Traffic congestion, conflicts with neighboring communities, and air quality concerns are among the main friction points. The present volume of cargo is already stressing nearby highways during peak hours. Congestion on Southern California freeways is a daily experience. Passenger cars and commercial truck traffic clog many of the local freeways, exceeding their capacity. As a result, quality of life is adversely impacted and business activities face disruptions. Ports around the country face similar issues.

If ports are to meet these challenges, then local governments, federal agencies, the ports, labor, truckers and warehouse operators must collectively change business practices and initiate new methods of moving the nation's goods in a more community-friendly manner. The Ports of Long Beach and Los Angeles and the Alameda Corridor Transportation Authority have been coordinating efforts with many organizations and stakeholder groups to this end. Meeting these challenges will require the public and private sector to work together to maximize efficiencies, implement state-of-the-art technology and improve infrastructure.

Moffatt & Nichol is working closely with the ports in Southern California as well as ports across the nation to help address these traffic congestion, air quality and community quality of life issues. The firm's port planning, transportation and freight econometrics groups are working in concert to tackle many of these issues for ports and transportation agencies.

The effort to shift truck container movements to off-peak hours has been identified by community leaders as providing the greatest amount of high-way congestion relief while also being the most cost effective and expedient option. It has been estimated that the benefit of extending gate operational hours could shift up to 40 percent of the port-generated truck traffic from daytime to off-peak hours when highways are not congested. This can be accomplished with almost no infrastructure change. The main challenge is changing the way many stakeholders currently do business.

Marine terminals cannot afford to stay open during off-peak hours, at great expense, if a sufficient number of trucks do not utilize these hours for picking up cargo. Equally important, warehouses and distribution centers must be open to receive the cargo during these off-peak hours. Without a system-wide approach that includes the support of warehouses and distribution centers, extended hours of port operations will fail to achieve the intended goals.

Working with ports nationwide, M&N is performing feasibility studies and supporting public and private sector business planning, assisting terminals, local shippers, warehouses and truckers to identify ways to spread the flow of traffic over a greater number of hours. At this time, most terminals are open during the evenings to load and unload ships but the "gates" that accept truck pickups and deliveries are usually open only from 8 am to 5 pm. Where extended gate hours are being offered on a limited basis, the small number of trucks using the service do not cover the added operating cost to the marine terminal.

The ports and local community leaders would like more terminals to open their gates during off-peak hours to reduce flows during daytime congested periods. But to make these extended gate hours effective, shippers, warehouses and truckers need to cooperate by taking deliveries after hours as well. Methods of reimbursing increased costs associated with extended gate hours are being discussed both by the private sector and in public forums.

Emphasis on the use of rail is another way ports are working to reduce congestion. Approximately 30 percent of the cargo that leaves Southern California is loaded onto trains within or near the ports' terminals and never touches the freeway. The Alameda Corridor Transportation Authority is exploring shuttle trains that could carry cargo from the ports to an inland transfer facility and then to warehouses in the Inland Empire. If feasible, this shuttle train facility could take a significant number of trucks off the highways.

The solutions also include reducing diesel emissions from trucks, trains and other types of port equipment. The ports are completing a multi-million dollar program to retrofit about 600 off-road diesel trucks with catalytic converters and switch them to a cleaner diesel fuel. Ports also are requiring tenants to reduce emissions from all terminal equipment within the next five years. The ports themselves are switching to low- and zero-emission vehicles for the harbor department. In addition, the ports have been encouraging the replacement of older on-road diesel trucks with newer, cleaner models.

The ports also are working to reduce emissions from ships. Vessels are engaged in international trade and cannot be regulated by the ports alone. Nonetheless, the ports have launched a voluntary ship speed reduction program to curb emissions. The program urges vessels to travel at or below 12 knots within 20 miles of the coast. During the last three years, the program has reduced ship emissions by about one ton a day. The ports also are investigating the feasibility of providing shore-side electrical power to ships at berth so that vessels could turn off their engines while docked.

The nation's ports continue to grow as the flow of containerized cargo increases. The ports are working hard to minimize the growing pains and expand responsibly and safely as they handle the ongoing surge of international trade and demand for foreign goods. To do this, the ports recognize that improving efficiency, reducing pollution and untangling port-related traffic problems are among the highest priorities. ■



M&N Teams with American Bridge for New Caribbean Cargo Port

On the Caribbean resort island of St. John in the US Virgin Islands, Moffatt & Nichol is part of a design-build team constructing the new Enighed Pond Marine Freight Facility to accommodate the increase in cargo delivered to the island.

The Virgin Islands Port Authority is developing the \$16-million cargo port facility to relieve congestion at the St. John Cargo Dock in Cruz Bay. The new roll-on/roll-off facility will handle all cargo activity at Enighed Pond, allowing the VIPA to use the existing cargo dock in Cruz Bay exclusively for passenger ferries.

M&N is serving as lead designer on the project for American Bridge, prime design-build contractor for the marine facility, according to Gary Smith,

M&N project manager in the firm's Tampa, Florida office. The design-build delivery method allows for faster, more cost-effective completion of the project.

M&N is providing structural design for the wharf and dredging design. In addition, the firm performed wave analysis and designed revetments at the new cargo facility. A significant amount of sediment material needed to be dredged from Enighed Pond to accommodate the cargo vessels and vehicle barges that will use the new port.

The new cargo facility will consist of 650 feet of berthing space for cargo vessels, six acres for cargo handling and storage, and a channel and turn-around basin for ships up to 175 feet in length and with a draft of up to 12 feet. The new facility is scheduled for completion this summer.



Enighed Pond Marine Freight Facility

"The VIPA is developing the new cargo facility at Enighed Pond to better accommodate the needs of the public," Smith explained. "This new facility will significantly increase the opportunity for direct destination calls by cargo vessels to St. John, thus reducing the volume of transshipped cargo from St. Thomas." ■



International Port Projects Provide New Experiences, DIVERSITY IN EXOTIC LOCATIONS

Challenging assignments, exotic locations and exciting experiences...these are just a few of the reasons that make working overseas fun and interesting, according to Michael Horton, Vice President, Moffatt & Nichol, Baltimore.




"Working abroad provides an enriching opportunity and a new level of fulfillment for our engineers," he says. Horton has been working around the world, leading a number of Moffatt & Nichol's international port projects since 1995.

Since its founding nearly 60 years ago, the firm has completed a variety of projects in such far corners of the world as Latin America, Southeast Asia, the Middle East, North Africa and Eastern Europe. These projects range from major seaports and petroleum terminal facilities, to small craft harbors and marinas, to river ports and beach resorts. Some of the work is funded by the World Bank organization and US Trade & Development Agency; other work is privately and publicly funded.

Many overseas jobs involve the "big picture" such as feasibility studies and reports and preliminary design and engineering, along with overseeing the work of local engineering and design firms.

"Our large and diversified project experience brings significant value to overseas clients," says Horton, "but we cannot necessarily be as competitive as local firms on the day-to-day drawings. Yet, clients still want the firm to provide a level of oversight and management to ensure projects are done right, kept within the budget and on deadline."

M&N offices across the US perform this work including, New York, Baltimore, Raleigh, Tampa, Houston, San Francisco and Long Beach.

-  **In Panama, M&N's work includes a series of studies, reports and projects related to the Panama Canal Capacity expansion program and proposals to build new and larger sets of locks to meet future demand.**
-  **At the Port of Callao in Peru, M&N recently signed a contract to conduct a feasibility study for the expansion and modernization at the Port of Guanta. The firm also is involved with the preliminary design of an open ocean terminal for export of LNG.**
-  **At the Aguadulce Peninsula in Colombia, the firm prepared a feasibility study for a new port on a greenfield site, across from the existing port facilities in Buenaventura Bay.**

-  **In Algeria, M&N recently completed the first phase of a container terminal study at the Port of Algiers and is expecting to begin the second phase shortly. Meanwhile the firm currently is preparing a countrywide port strategy plan for all the ports in Algeria.**
-  **In Nigeria, the firm has completed a number of projects including plans for modernization and expansion of existing ports and new oil terminal facilities.**
-  **In Equatorial Guinea, M&N is designing multiple berths for the export of liquefied gases and condensate.**
-  **In Angola, M&N is assisting a consortium of energy companies in the design of the marine facilities for a LNG and LPG liquefaction and export terminal.**
-  **In Albania, M&N recently prepared a feasibility study for an intermodal container terminal.**
-  **For an Indonesian electric company, M&N is helping to site a LNG receiving terminal.** ■

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