8. Review of Virginia's ports

8.1. The Port of Virginia's Newport News Marine Terminal (NNMT)

Existing conditions

The Newport News Marine Terminal (NNMT) is located at 25th Street and Warwick Boulevard in Newport News Virginia and is one of the properties within the Port of Virginia's portfolio. The property occupies approximately 165 acres (67ha) on the north bank of the James River, offering 60 acres (24ha) of outside storage and 968,000sqft (89,930sqm) of covered storage space. Within the facility there exists 112 acres (45ha) of uncovered upland area that could be developed for marshalling or manufacturing uses. The coastal frontage of the facility stretches for over 2,600 lineal ft (792m) along the James River. Vessels have access to two piers with four vessel berths, containing 3,480ft (1,060m) of berth space, with draft depth as deep as 40ft (12m) MLLW, accommodating vessels 850ft (260m) in length. The facility also contains 33,900ft of Class I rail provided by CSX. In addition, NNMT has a roll-on/roll off (Ro/Ro) ramp on Pier C South to deliver heavy-lift components and has traditionally received and shipped power plant equipment via water. The piers at the site can accommodate vessels of up to 850ft (260m) in length. The facility is located within Foreign Trade Zone #20 and there exists significant tax and fee incentive programs when shipping through the Terminal. The property sits on the southern peninsula of Newport News near the northern entrance to the Hampton Roads Beltway (Bridge-Tunnel).



Figure 16 Aerial image of Newport News Marine Terminal.

Overview

The facility is currently the Port of Virginia's premier breakbulk and Ro/Ro facility, handling thousands of tons of bulk cargo and thousands of vehicles per year, servicing the military, maritime, private and public sectors. The facility was once a large container port as well and a large box cargo container crane on a rail system that runs the length of the quay exists on the large southern pier on the facilities waterfront. Today the facility mostly concentrates on Ro/Ro cargo; including vehicles, machine parts, power components and military hardware. Bulk and break-bulk is also handled at the quayside and offloaded into warehouse buildings both on the piers and on the upland portions of the site.

NNMT has direct on-dock rail service provided by CSX Rail, which has connections throughout the southern rail corridor and the ability to perform transfers to the Norfolk Southern Line in Richmond. The port facility has a permanent Ro/Ro rail car transfer system which allows transfers of rail cars to rail barges. This connection was once used to transfer rail cars to the Cape Charles rail Ro/Ro facility (see description of Cape Charles Harbor Floating Dock property below).

The site houses two large piers, each is constructed with solid-fill core with pile-supported deck and the piers are covered with reinforced concrete decking placed on concrete pile caps on steel piles.

- The Northern Pier covers an area of approximately 8.23 acres (3.33ha) and contains 3 quayside berthing areas, one on the north side of the pier, one on the end of the pier and one on the south side of the pier. The quayside lengths of the berth on the north side of the pier is 800ft (244m), the berth on the south side of this pier measures 575ft (175m) in length and the end of the pier can accommodate berthing for up to 400ft (122m). Water depths in the berths at the pier range from 35ft to 40ft (10.7m to 12.2m) MLLW. Much of this pier is covered by a large high-bay warehouse building that is built out on the pier that measures 296,000sqft (27,500sqm).
- The Southern Pier encompasses approximately 12 acres (4.9ha) and has three berthing areas, a berth to the north of the pier, one to the south of the pier and one on the end of the pier. The quayside lengths on the north and south sides of the pier extend approximately 920 lineal ft (280m) and the quayside on the end of the pier extends for 540ft (165m). Water depths in the berths at the pier range from 35ft to 40ft (10.7m to 12.2m) MLLW.
- Vessel berthing at the two piers can occur within four berth slips (one on either side of the piers) and on the ends of the piers. Within the slips surrounding the piers there exists 3,480ft (1,060m) of berth space.

The site is unique in that its operating capacity includes significant Ro/Ro capability and has several heavy-lift reinforced quay areas. The north pier can accommodate vehicle Ro/Ro imports and exports and a rail line that runs the length of the north pier to the bulkhead allows for direct Ro/Ro of rail cars onto (and off of) rail barges, allowing for direct shipping of rail-to-water-to-rail cars and containers.



The southern pier also has rail lines along its southern berth that allow for direct loading/offloading of vessels onto/into and from rail cars using ships cranes or conveyor systems. The southern pier also contains a rail-mounted container gantry crane which can run the length of the 920ft (280m) quayside adjacent to the southern berth. This pier can accommodate Ro/Ro as well as crane loadon/load-out. A heavy component ramp on Pier C South allows for the direct vessel-to-shore and shore-to-vessel loading/unloading of heavy components and has been used to ship heavy-lift components such as power plant equipment.

Over 18 buildings exist on the site in various sizes and configurations totaling over 968,000sqft (89,930sqm) under roof. The buildings range from small brick office buildings to very large steel warehouses:

- Small buildings onsite: includes two small brick multistory office, administration and shop buildings on the northern portion of the site; a block and steel security and, a vehicle control building located at the truck scale and the entrance to the site; and three small steel multi-purpose buildings near the rail connections at the southern pier.
- Medium-sized buildings include a steel and concrete block warehouse and shop building on the northern edge of the site; a steel high-bay building near the river edge of the property and a pair of steel and wood buildings associated with the rail interface with the piers at the southern end of the site.
- Large buildings include:
 - A large (295ft by 145ft) (90m by 45m) steel warehouse and storage building located in the middle of the shipped vehicle parking yard;
 - A large (475ft by 335ft) (145m by 100m) sprung-structure and steel warehouse building located at the northern edge of the shipped vehicle parking area;
 - A large lineal (835ft by 120ft) (255m by 36m) steel high-bay warehouse building located in the middle of the site;
 - A very large (800ft by 260ft) (245m by 80m) steel high-bay warehouse and storage building centrally located on the site adjacent to the truck staging area;
 - A long, narrow steel building (1,000ft by 100ft) (305m by 30.5m) located on the southern portion of the site in front of the southern pier and adjacent to the road and rail lines that enter the southern side of the site;

- On the northern pier, a large (570ft by 460ft) (173m by 140m) steel warehouse and storage building exists on the pier adjacent to the berths around that pier.
- On the southern pier, a (695ft by 200ft) (211m by 60m) steel warehouse building located centrally on the pier.

The property is in a heavy marine industrial area; residential housing exists approximately 0.3 miles (0.45 km) to the east of the facility. Road transportation is close by, with the on-ramp/off-ramps for I-664 and State Routes 143 and 167 located within 400ft (122m) from the northeast corner of the site. A main branch of CSX Rail crosses the eastern edge of the site and sidings of the rail line extend tout to the end of both piers at the facility. The property abuts the large Dunbar Coal Transfer facility and the CSX Rail line the serves the site is an off-shoot of the main CSX Rail line that includes tracks that branch off to the east for the transfer of coal to and from vessels berthed at the Dunbar facility.

Water approaches to the site are from the James River via the Newport News Channel. The waterway includes a 50ft (15m) deep, 800ft (244m) wide channel leading out into Norfolk Harbor and Hampton Rhodes. Approaches to the Newport News Channel include passage through the Norfolk Harbor Reach, which is a 50ft (15m) deep, 1,000ft (305m) wide passage. The facility is well suited for the berthing of very large transport vessels, which call on the port regularly. The facility is a US Customs-designated port of entry and the full range of customs functions is available to customers, including bonded storage areas.

Limitations

There are no overhead restrictions between the facility and the open ocean, though there are three bridge-tunnels between the facility and the open ocean: the Monitor-Merrimac Memorial (I-664) Bridge-Tunnel, the Hampton Roads (I-64) Bridge-Tunnel and the Chesapeake Bay Bridge-Tunnel. The Monitor-Merrimac Memorial (I-664) Bridge-Tunnel is located slightly down-river of the facility and represents the first navigation point for vessels sailing from the facility. The Hampton Roads (I-64) Bridge-Tunnel is located approximately 5.8 nautical miles (10 km) to the east of the facility along the Newport News Channel. There are no overhead restrictions for passage through the bridge-tunnel openings and the channel clearance width is 800ft (244m) where it passes over the tunnel (between the bridge abutment structures). The Chesapeake Bay Bridge-Tunnel is located approximately 17 nautical miles (32 km) to the east of the site and spans the Chesapeake Bay. This bridge-tunnel has a 4,500ft (1370m) large opening between the bridge abutments where the roadway submerges below the Bay and the channel depth in this area is 50ft (15m).

The closest commercial airport to Newport News Marine Terminal is Newport News/Williamsburg International Airport (PHF), located approximately 16-miles (25km) from the facility. Norfolk International Airport (ORD) is also nearby, located approximately 22-miles (35km) to the southeast. A large radio tower exists nearby next to a

neighboring boatyard property, and it is anticipated that FAA ceiling restrictions will be coincident with the height of the radio tower (400ft/123m) in the vicinity of the site.

Table 17 Summary of NNMT key statistics.

Parameter	US units	Metric units	Notes		
Property size	165 acres	67 ha	The property is located on the James River in a marine industrial area on Newport News Point.		
Waterfront bulkhead/quayside	5,850ft	1,783m	A reinforced concrete deck on solid core plus steel pile bulkhead platform exists along the quayside and within the two pier structures.		
Pier 1 (Northern Pier)	600ft x 540ft	182mx 164m	Heavy-duty pier. Used for Ro/Ro and train to barge.		
Pier 2 (Southern Pier)	980ft x 550ft	300mx 168m	Heavy-duty pier. Ro/Ro and Gantry crane loadout.		
Berth depth at quayside	35-40ft MLLW	10.6-12m MLLW	 4 large berths: 2 on either side southern pier: 920ft by 300ft (280mby 91m). 1 on the southern side of the north pier: 575ft by 250ft (175mby 76m). 1 on the north side of the north pier: 790ft by 300ft) (240mby 91m). 		
Main channel depth to site	50ft	15m	Newport News Channel, MLLW.		
Buildings	968,000sqft	89,930sqm	18 buildings various size plus several temporary structures.		
Load bearing capacity*	2,000-4,000psf	9,760- 19,530kgpsm	Load bearing capacity on the piers and approaches to the piers expected to be at the higher end of range. Ground bearing capacity in the parking lots and vehicle storage portions of the site are expected to be at the lower end of the range.		
Cranes	1 Cargo Box Gantry Crane	1 Crane	Crane runs on rails along southern quay of southern pier.		

*No direct investigations conducted-estimates based on visual observation only. All capacities are approximate.



Potential offshore wind uses

The facilities large acreage (over 100 acres, 40ha) and two piers make the site well adapted for OSW manufacturing of a wide range of components. The existing land area is also sufficient for marshalling. The prevalence of Ro/Ro shipping options coupled with the ability to install cranes at the site makes it a good candidate for the heavy components including monopile, jacket and gravity-based foundations, transition pieces, towers, blades and nacelles. The site is also well suited for use as a lay down site or for use as an OMS facility for wind farm maintenance and also as a repair service port.

Foundation and tubular components

The site could be adopted to handle monopile, transition piece and tower section components, including manufacturing and fabrication. The property's relatively large size and configuration of the existing quayside make it a good location for foundation manufacturing. The site is also well suited for the fabrication/staging of a floating wind platform. Installation of crane pads and cranes would be needed for some of the larger components in order to attain the high level of ground bearing capacity needed.

Nacelles, blades, rotors, generators:

These components could be manufactured or finished at this facility. As with the foundations, the shape and layout of the property imparts some challenges to local on-site transport of these components. Large crawler cranes are a potential, however upland soil load-bearing capacity would need to be improved over portions of the site in order for the efficiency of this operation to meet serial production standards. Load-out by crane would require installation of a crane pad or pads. Bulkhead geometry may require modification for optimal utility for some of the super-large components (jacket foundation). Ro/Ro transport to barge or transport ship is a potential for these components from the pier and bulkhead areas.

Operations, maintenance and service, cables, secondary steel

The site is well suited for OMS operations from a layout perspective, however the site is distant from much of the WEAs. The site shows good potential as a Service Port, as service vessels could berth at the facility and the warehousing and upland lay down areas on the site are good. Manufacture of secondary steel components (ladders, platforms, railings, racks) could be easily adapted at this site. The site is well suited for cable storage, as a cable service port and as a cable manufacturing facility with minimal modification needed.

Upgrades and improvements opportunity for full utility

There are a number of OSW uses this site could be utilized for that would require little to no modification (OMS, blades, nacelles, secondary steel, laydown). In order for the property to meet the needs of OSW production for the super-large components (jackets, substations, monopile), particularly the serial production of these components for a pipeline of projects, certain site modifications are likely to be needed. These would include: connection of portions of the upland areas with high density surface treatment to allow for ease of component transfer movement; addition of production buildings (for manufacturing/fabrication scenarios); inspection and repair of the piers; maintenance dredging of the area adjacent of the site; installation of crane pads where extreme heavy lift operations might occur; installation of high-mast lighting, security, upgrade of electrical, water, sewer connection-particularly at the bulkheads.

Opportunities for investment

Upgrades for site utility could range from low-cost (<\$5 million) for OMS or secondary steel applications, to moderate-cost (\$15-\$50 million) for upgrades to allow for tubular or foundation and tower pieces to support the top-side configurations of nacelle, blade and tower manufacturing/fabrication.

Opportunity Strategy for Investment

While there are a number of OSW activities that could occur at this site with little or no modification (such as OMS and secondary steel, transition piece, blade and nacelle), full utility of the site for OSW uses would require some upgrades and improvements. These site modifications range from bulkhead repair/improvement to ground improvement improve the mobility of cranes and other OSW-specific equipment such as the Self-Propelled Modular Transports (SPMTs) to the potential strengthening of the bulkhead and dredging. Of these activities, the opportunity for public investment and support include:

- Minor dredging is needed to improve vessel access to strengthened piers.
- Improvements to the quayside, including strengthening of the piers and installation of crane pads.
- Funding, design and regulatory approvals/permitting support for the improvements need to the bulkhead and quayside if crane load-out is to be considered for the site. Additionally, similar support could be provided for the reconfiguration of finger piers at the site to adapt for specialty OSW use.
- Economic and regulatory approvals/permitting support for the improvements needed at the site to increase the heavy-lift capacity at the bulkhead (i.e. installation of a heavy-duty crane and improvements to site bearing capacity surrounding the bulkhead and travel lanes).

Table 18 Summary of OSW utility at NNMT.									
Monopile Foundation/ Transition Piece/Tower	Gravity/Jacket Foundations	Nacelle/Rotor	Blades	Cables	Secondary Steel	OMS and Service Facility			

Lower range of modifications required.

Moderate range of modifications required.

Extensive modifications required, or site not well suited for component.