APPENDIX 3

SHORELINE ASSESSMENT REPORT
August 6, 2012

Forest City Residential, Inc.
1775 Broadway, Suite 701
New York, NY 10019

Attn: Mr. Abe Naparstek   AbeNaparstek@forestcity.net

Re: Echo Bay Redevelopment Plan – Reduced Scope  Rev 02
New Rochelle, New York
MEG File No. 107436.01

INTRODUCTION

At the request of Forest City Residential Inc., McLaren Engineering Group has performed a marine condition investigation of the proposed site for the Echo Bay Waterfront Redevelopment in New Rochelle. The purpose of this investigation was to gather site specific data in order to provide Forest City Residential with an understanding of the current conditions as well as provide possible solutions for the development of the waterfront. This investigation, performed on June 25th 2012 spanned the entire waterfront area from the northeastern property line of the DPW City Yard where it meets the Meineke/Ampko lot, clockwise through the southwestern property line of the Nelstad Materials lot as indicated on Figure 2 in Appendix C.

INSPECTION METHODOLOGY

Field inspections were performed by a team of two inspectors equipped with all field equipment to perform the inspection, including a tape measure, camera and aerial maps of each lot. The team systematically covered the project site, noting the encountered conditions and taking representative photographs to document the general conditions. The results of the investigation have been compiled and are presented in the following sections, divided by property identification names. All photo and figure references have been placed in the Appendices at the end of this report.

DESCRIPTION OF EXISTING SHORELINE CONDITIONS

The presence and type of shoreline stabilization varies across the proposed project site.
The shoreline along this lot consists of a steeply sloped bank (1V:1H max) of silt-clay with large stones 2 to 4 ft intermittently placed (Photos 1&2). A timber retaining wall is located 20 ft inland from the high water mark serving as a barrier for the upland salt pits. The timber wall is replaced with a concrete pipe barrier in the vicinity of the mulch pit, 15 ft upland of the high water mark (Photo 3). The concrete pipe barrier was visible but not accessible due to plant growth and overflow from the salt pit. Between the concrete pipe barrier and the water line, there is a mulch overlay approximately 1 to 2 ft deep (Photo 4).

Continuing southward from the salt pit, the larger stone size is reduced to 1 to 2 ft diameter (Photos 5&6). This condition continues for approximately 260 ft with intermittent concrete over-pour and debris terminating at an asphalt platform, trapezoidal in shape; 21 ft along the shoreline, 15 ft along the water’s edge and approximately 18 ft in depth. The timber formwork is present and there is a timber wall present at the in-shore edge. Beneath the platform there are miscellaneous concrete slabs and stone, with broken slabs and over-pour on either side (Photo 7). Incorporated into this platform is a floating debris and spill containment skirt with guide-rails located 35 ft north of the platform (Photos 8 & 9). 160 ft south of the asphalt platform there are 2 outfalls, a small active pipe and a large deteriorated remnant. (Photo 10 & 11) The remainder of this lot consists of mixed stone and concrete armor on a 1V:1.5H slope with a large pile of 2'-3' diameter stones located 160 ft north of the City Armory concrete platform (Photos 12 & 13).

Lot 8- City Armory (Photos 14 to 16)

From the northeastern fence line of this lot continuing westward, the shoreline has a gentle slope of approximately 1V:6H along the waterline transitioning to a 1V:2V 10 ft inland. There are small to mid sized stones randomly located throughout. 40 ft from the fence line is a concrete platform 18 ft wide extending 30 ft from the bulkhead (Photo 14). The platform sits on a mixed stone base, which is partially eroded. The remainder of the lot consists of a placed stone seawall with intermittent collapse (Photos 15 & 16). Typical stone sizes range from 1.5 ft to 3 ft.

Lot 10- Nelstad Materials (Photos 17 to 20)

The northeastern perimeter of this lot is constructed of a mixed timber seawall that transitions to a deteriorated concrete and mortar retaining wall for the construction material stored upland (Photos 17 & 18). The timber seawall extends 9.5 ft above the mudline. This structure continues for approximately 120 ft before transitioning again to a timber bulkhead, exhibiting moderate to severe deterioration and signs of collapse (Photos 19 & 20). The fill behind the bulkhead has been exposed in a few areas showing stone sizes up to 1.5 ft. Above the bulkhead, there is a 2 ft high concrete block retaining wall. The timber bulkhead continues approximately 220 ft. The mudline elevation varies so that the timber bulkhead is exposed from 6'-10’ along the length of the wall. In the vicinity of the
southwestern property line, outboard of the bulkhead, there is a sandy - silt slope of 1V:3H. A small diameter outfall was observed 18 ft northeast of the property line shared with the Mancuso Marina.

**GENERAL OBSERVATIONS**

The “soft shoreline” sections of the entire site all exhibit signs of tidal erosion of varying degrees. Loss of overburden is indicated by the exposure of large size stone randomly located throughout the site. In all “hard shoreline” areas; whether timber, concrete block, steel sheet pile or placed stone, severe deterioration was observed. There was significant loss of backfill and highly visible signs of collapse, both partial and complete.

**CONCLUSIONS AND RECOMMENDATIONS**

Although the majority of the investigated shoreline is mostly sheltered from significant wind and wave impact; the observed tidal erosion will necessitate stabilization of the shoreline to prevent further loss. For your reference, we have assembled in Appendix B, three possible options utilizing small to medium sized armor stone riprap with your proposed pedestrian riverside walkway and an inter-tidal planter/pool. The dimensions and materials of these alternatives can be varied to suit the preferred upland landscaping, finish elevations and architectural vision. We have also included an example of a kayak/canoe dock with an access gangway for your reference.

Should you have any questions or comments, please feel free to contact us.

Very truly yours,

The Office of
McLaren Engineering Group
M.G. McLaren, P.C.

Shannon C. Clarke
Project Engineer

SCC/RWC/bes

Attachments:  
Appendix A – Photos  
Appendix B – Figures  
Appendix C – Location Plans

cc:  RWC – Internal File 107436.01
Photo 1. Bank of DPW Yard showing misc. stone outboard of salt pits.

Photo 2. Shoreline looking North West adjacent to salt pits DPW Yard.
Photo 3. Concrete pipe retaining wall and mulch piles behind DPW city yard DPW Yard (2007).

Photo 5. DPW Yard shoreline south of mulch pit looking towards floating debris skirt.

Photo 6. DPW Yard Shoreline looking north from floating debris skirt.
Photo 7. Exposed stone and concrete supports under asphalt platform

Photo 8. Shoreline adjacent to asphalt platform and floating debris structure.
Photo 9. View of floating debris structure from asphalt platform.

Photo 10. Close up of pipe outfall behind DPW yard.
Photo 11. Large outfall remnant behind DPW yard.

Photo 12. Shoreline looking south from floating debris structure
Photo 13. General view of shoreline behind DPW yard facing northeast.

Photo 14. Concrete deck behind City Armory lot.
Photo 15. Shoreline behind City Armory facing south west from concrete platform.

Photo 16. Shoreline behind City Armory facing north east towards concrete platform.
Photo 17. Deteriorated timber bulkhead behind Nelstad Materials Corp.

Photo 18. Concrete and mortar retaining wall.
Photo 19. Facing northeast, view of Nelstad Materials Corp.

Photo 20. Southwest property line of Nelstad Materials Corp.
Appendix B – Figures
RIPRAP SECTION WITH INTER-TIDAL PLANTING BED

\[ \frac{1}{4} = 1' - 0" \]
Appendix C – Location Plans
Figure 3. General Site Overview
Nelstad Materials
City Armory
DWP City Yard
Meineke/Ampko

Figure 4. Photo Plan