



Pollutant Loading Analysis

for

North Edge Realty Corporation

Route 6

Tax Map: Sec. 4.19, Block 2, Lots 2,3 & 4
Town of Somers, Westchester County, New York

Rev: October 22, 2025

Date: July 16, 2025

Prepared by:



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Site Design ♦ Environmental

Project Information:

Project Title: North Edge Realty Corporation.
Project Address: Route 6
Town of Somers, Westchester County, New York
Tax Map Number: Sec. 4.19, Block 2, Lot 2, 3 & 4
Project Area: 15.62 acres

Applicant/Owner Information:

North Edge Realty Corporation
c/o Gus Boniello
165 Waccabuc Road
Goldens Bridge, NY 10526

Certifying Engineer Information:

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Short-Term Responsible Party for SWPPP Implementation:

Short-term responsible parties for SWPPP Implementation will be the property owner.

Long-Term Responsible Party for SWPPP Implementation:

Long-term responsible parties for SWPPP Implementation will be the Homeowners Association

Potential Party Responsible for Inspections as Required Under SPDES Permit:

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Introduction:

In accordance with comments received from the office of the Watershed Inspector General, calculations were prepared for an analysis of pre vs post development phosphorous loading for the subject project. The phosphorous loading analysis was completed using the simple method. Phosphorus concentration values are based on the most recently published available data from the East of Hudson Watershed Corporation Stormwater Retrofit Design Manual. The phosphorus concentrations & removal rates utilized for this analysis match the values used for similar developments in close proximity to the project site, which were also subject to review by the office of the Watershed Inspector General.

Project Overview:

The proposed development plans consist of a 73-unit townhouse development, construction of associated roadway and parking infrastructure, closed pipe drainage conveyance systems and stormwater treatment facilities. It should be noted that due to the project site's location within the NYC East of Hudson Watershed all proposed stormwater treatment facilities have been sized in accordance with the NYSDEC Enhanced Phosphorus removal standards as listed in the New York State Stormwater Management Design Manual (NYSSMDM). As such, it is anticipated that this development will not result in any negative impacts to stormwater runoff quality to any downstream waterbodies.

Stormwater Quality/Pollutant Loading Analysis:

As noted above, the "Simple Method" (summarized below) was used to prepare an analysis of Total Phosphorus load (TP) for the project site:

L	=	$P * P_j * R_v * C * A * 0.227$
L	=	Annual Pollutant Load (lbs)
P	=	Annual Rainfall = 48.6 for Westchester County
P_j	=	0.9
R_v	=	$0.05 + 0.009 * I$ (Impervious %)
C	=	Pollutant Concentration
A	=	Subcatchment Area (acres)
0.226	=	Unit Conversion Factor

Using loading concentrations provided by the East of Hudson Watershed Corporation (EOHWC) and removal rates obtained from the NYSSMDM. Pre-development and post-development Total Phosphorus loads were generated at the design lines, using the same sub catchment areas identified in the stormwater peak flow analysis. Drainage figures illustrating the subcatchment areas can be found in the appendix of the project SWPPP.

As noted above, the project site is located within the NYC East of Hudson Watershed and all stormwater management practices (SMP's) have been sized in accordance with the NYSDEC Enhanced Phosphorous Removal Standards. The intent of which are to incorporate larger WQv/RRv storage volumes into the required SMP's for the proposed

development and subsequently provide higher phosphorous removal rates than standard SMP's. For the purposes of this analysis an average of 70% total phosphorus removal efficiency was assigned to each SMP. The 2024 NYSSMDM describes SMP's designed in accordance with Enhanced Phosphorous Removal Standards as providing greater than 40% total phosphorus removal. Furthermore, the 2015 NYSSMDM (the manual referenced by the New York City Department of Environmental Protection for projects located within the New York City Watershed), describes SMP's designed in accordance with the Enhanced Phosphorus Removal Standards as providing 80% net removal of particulate phosphorus and 60% net removal of dissolved phosphorus.

Furthermore, as directed by the Office of the New York City Watershed Inspector General and the Town of Somers Consulting Engineer, additional data was obtained from other regional publications located within the northeast United States, such as the New England Stormwater Retrofit Manual. Recently published removal efficiencies listed in the New England Stormwater Retrofit Manual were formulated from empirical data provided by the University of New Hampshire Stormwater Testing Center which indicates removal efficiencies for infiltration basins of greater than 70%. Thus, further supporting the removal rates utilized for this analysis. Please also note, the New England Stormwater Retrofit Manual bases removal efficiencies on practices designed in accordance with The Massachusetts Stormwater Handbook which requires smaller storage volumes than those required for proposed SMP's located within the New York City Watershed.

Pollutant loading calculations are included in Appendix "A". Pre- and post-development pollutant loading subbasin maps are included as full-sized attachments in the Stormwater Pollution Prevention Plan for North Edge Realty Corporation North.

The following Table summarizes the pollutant loading concentrations utilized in the stormwater quality analysis:

Comparison of Loading Rates			
	Area (acres)	Loading (lb/yr)	Loading (kg/yr)
Pre-Development	25.680	16.8240	7.6473
Post Development	25.753	15.3563	6.9801

Change in Loading	-1.4677	-0.6671
Percentage Change (%)	-8.72%	

Sources:

- *New York State Stormwater Management Design Manual, dated January 2015*
- *East of Hudson Watershed Corporation – Stormwater Retrofit Project Design Manual, dated February 15, 2018*
- *New England Stormwater Retrofit Manual, dated October 2022*
- *New York State Stormwater Management Design Manual, dated July 31, 2024*

Conclusion:

This analysis is based upon the data obtained from the East of Hudson Watershed Corporation- Stormwater Retrofit Design Manual, the New England Stormwater Retrofit Manual, and the NYSSMDM, which indicate removal efficiencies as high as 100%.

As summarized in the above table, the implementation of the proposed post construction SMP's will result in a net annual phosphorus load reduction of 1.5 lbs/year. The Stormwater Pollution Prevention Plan for this site has been prudently designed to manage stormwater runoff from both qualitative and quantitative standpoints. Proper implementation of this plan will ensure meeting water quality and quantity standards as required by the NYSDEC.

Appendix A:

Pollutant Loading Analysis Calculations

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North Edge Realty - 73 Unit Plan - Phosphorus Loading Analysis with Simple Method

Summary Pre-Development Total Loading		
	Area (acres)	Loading (lbs/yr)
Design Line 1	7.726	2.1431
Design Line 2	7.254	7.2472
Design Line 3	10.700	7.4336
Total	25.680	16.8240

Summary Post-Development Total Loading		
To Design Line 1		
	Area (acres)	Loading (lbs/yr)
Post 1.1S	1.502	0.3334
Post 1.2S	2.072	0.6012
Design Line 1	3.574	0.9346

Summary Post-Development Total Loading		
To Design Line 2		
	Area (acres)	Loading (lbs/yr)
Post 2.1S	9.274	3.8551
Post 2.2S	1.100	0.1067
Design Line 2	10.374	3.9618

Summary Post-Development Total Loading (continued)		
To Design Line 3		
	Area (acres)	Loading (lbs/yr)
Post 3.1S	6.445	3.2855
Post 3.2S	5.360	7.1743
Design Line 3	11.805	10.4598

	Area (acres)	Loading (lbs/yr)
Total	25.753	15.3563

Comparison of Loading Rates			
	Area (acres)	Loading (lb/yr)	Loading (kg/yr)
Pre-Development	25.680	16.8240	7.6473
Post Development	25.753	15.3563	6.9801

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Sources: New York State Stormwater Management Design Manual, dated January 2015,
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New York State Stormwater Management Design Manual, dated July 31, 2024

North Edge Realty - 73 Unit Plan - Phosphorus Loading Analysis with Simple Method**Pre-Development to Design Line 1**

<i>Type</i>	<i>Area (acres)</i>	<i>I</i>	<i>Rv</i>	<i>P(in)</i>	<i>Pj</i>	<i>C(mg/l)</i>	<i>L(lbs)</i>
Impervious	0.247	1.00	0.950	48.60	0.90	0.50	1.1598
Woods	5.507	0.00	0.050	48.60	0.90	0.15	0.4083
Developed Open Space	1.972	0.00	0.050	48.60	0.90	0.59	0.5751
Total	7.726					Total	2.1431

Pre-Development to Design Line 2

<i>Type</i>	<i>Area (acres)</i>	<i>I</i>	<i>Rv</i>	<i>P(in)</i>	<i>Pj</i>	<i>C(mg/l)</i>	<i>L(lbs)</i>
Impervious	1.390	1.00	0.950	48.60	0.90	0.50	6.5267
Woods	4.550	0.00	0.050	48.60	0.90	0.15	0.3373
Developed Open Space	1.314	0.00	0.050	48.60	0.90	0.59	0.3832
Total	7.254					Total	7.2472

Pre-Development to Design Line 3

<i>Type</i>	<i>Area (acres)</i>	<i>I</i>	<i>Rv</i>	<i>P(in)</i>	<i>Pj</i>	<i>C(mg/l)</i>	<i>L(lbs)</i>
Impervious	1.379	1.00	0.950	48.60	0.90	0.50	6.4751
Woods	8.091	0.00	0.050	48.60	0.90	0.15	0.5999
Developed Open Space	1.230	0.00	0.050	48.60	0.90	0.59	0.3587
Total	10.700					Total	7.4336

Total Area (Ac.)	25.680
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Total Load (lbs/yr)	16.8240
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North Edge Realty - 73 Unit Plan - Phosphorus Loading Analysis with Simple Method**Post Development Basin 1.1S to DL 1**

Type	Area (acres)	I	Rv	P(in)	Pi	C(mg/lt)	L(lbs)
Woods	0.724	0.00	0.050	48.60	0.90	0.15	0.0537
Impervious	0.012	1.00	0.950	48.60	0.90	0.50	0.0563
Developed Open Space	0.766	0.00	0.050	48.60	0.90	0.59	0.2234
Total	1.502					Total	0.3334

Post Development Basin 1.2S to DL 1

Type	Area (acres)	I	Rv	P(in)	Pi	C(mg/lt)	L(lbs)
Woods	1.492	0.00	0.050	48.60	0.90	0.15	0.1106
Impervious	0.073	1.00	0.950	48.60	0.90	0.50	0.3428
Developed Open Space	0.507	0.00	0.050	48.60	0.90	0.59	0.1478
Total	2.072					Total	0.6012

Total Area (Ac.)	3.574
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Total Load (lbs/yr)	0.9346
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North Edge Realty - 73 Unit Plan - Phosphorus Loading Analysis with Simple Method**Post Development Basin 2.1S to DL 2**

<i>Type</i>	<i>Area (acres)</i>	<i>I</i>	<i>Rv</i>	<i>P(in)</i>	<i>Pj</i>	<i>C(mg/lt)</i>	<i>L(lbs)</i>
Woods	0.787	0.00	0.050	48.60	0.90	0.15	0.0583
Residential	1.919	0.55	0.549	48.60	0.90	0.41	4.2668
Impervious	1.515	1.00	0.950	48.60	0.90	0.50	7.1113
Developed Open Space	2.611	0.00	0.050	48.60	0.90	0.59	0.7613
Total	6.831					Total	12.1977

Post Development Basin 2.1S to DL 2
(Area Directly Tributary to Infiltration Basin)

<i>Type</i>	<i>Area (acres)</i>	<i>I</i>	<i>Rv</i>	<i>P(in)</i>	<i>Pj</i>	<i>C(mg/lt)</i>	<i>L(lbs)</i>
Woods	0.275	0.00	0.050	48.60	0.90	0.15	0.0204
Developed Open Space	2.168	0.00	0.050	48.60	0.90	0.59	0.6322
Total	2.443					Total	0.6526

Total	9.274
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Total	12.8503
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Infiltration Basin #2		
Infiltration Basin	Removal Rate 70%	8.9952
Total		3.8551

Post Development Basin 2.2S to DL 2

<i>Type</i>	<i>Area (acres)</i>	<i>I</i>	<i>Rv</i>	<i>P(in)</i>	<i>Pj</i>	<i>C(mg/lt)</i>	<i>L(lbs)</i>
Woods	0.904	0.00	0.050	48.60	0.90	0.15	0.0670
Developed Open Space	0.196	0.00	0.050	48.60	0.90	0.41	0.0397
Total	1.100					Total	0.1067

Total	10.374
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Total	0.1067
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Total Area (Ac.)	10.374
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Total Load (lbs/yr)	3.9618
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Type	Area (acres)	I	Rv	P(in)	Pj	C(mg/l)	L(lbs)
Residential	5.471	0.48	0.481	48.60	0.90	0.41	10.6678
Total	5.471					Total	10.6678

Type	Area (acres)	I	Rv	P(in)	Pj	C(mg/l)	L(lbs)
Developed Open Space	0.974	0.00	0.050	48.60	0.90	0.59	0.2840
Total	0.974					Total	0.2840

Total **10.9518**

Post Development Basin 3.2S to DL3

Total	10.4598
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Total Load (lbs/yr)	10.4598
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