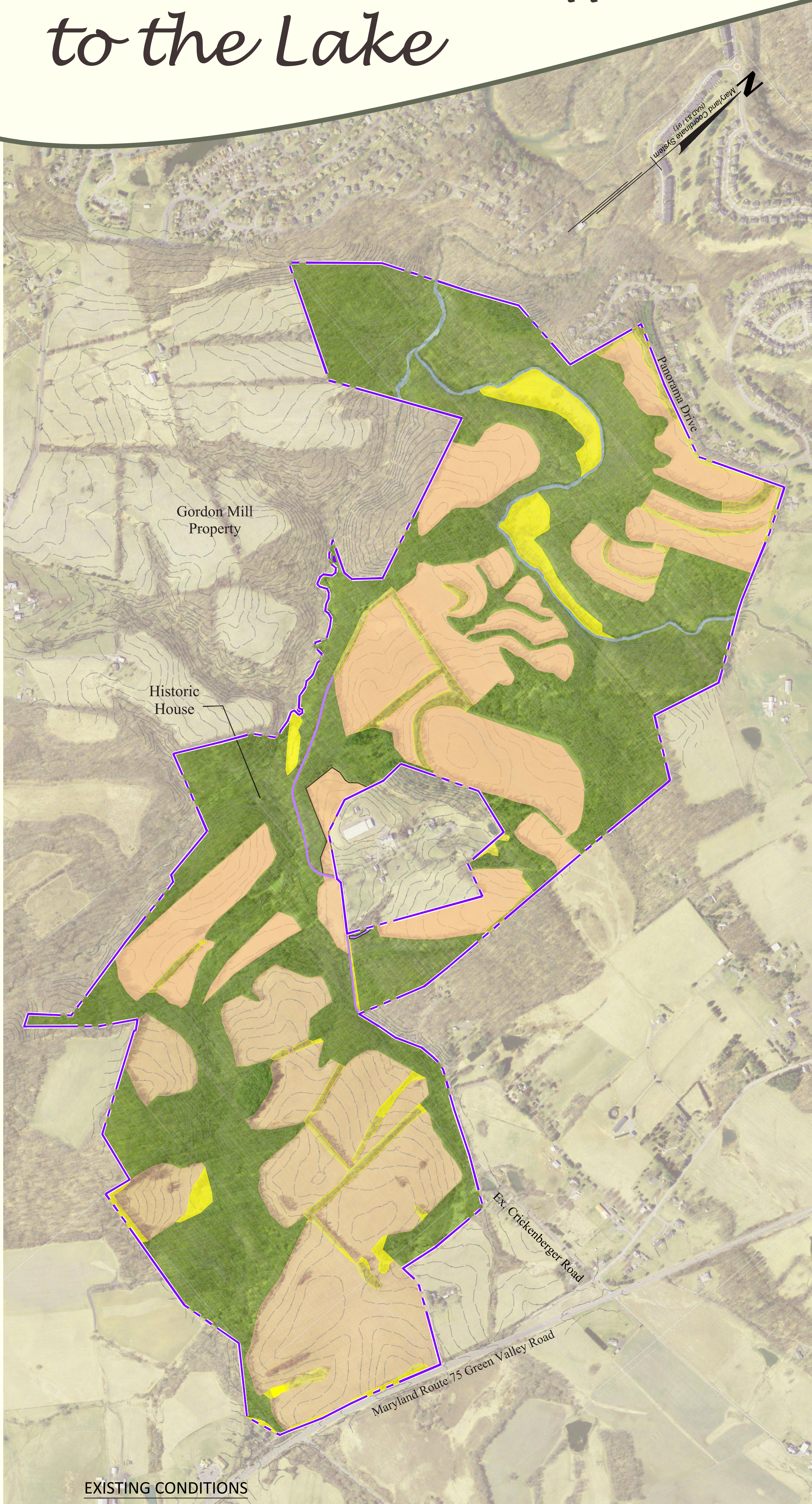
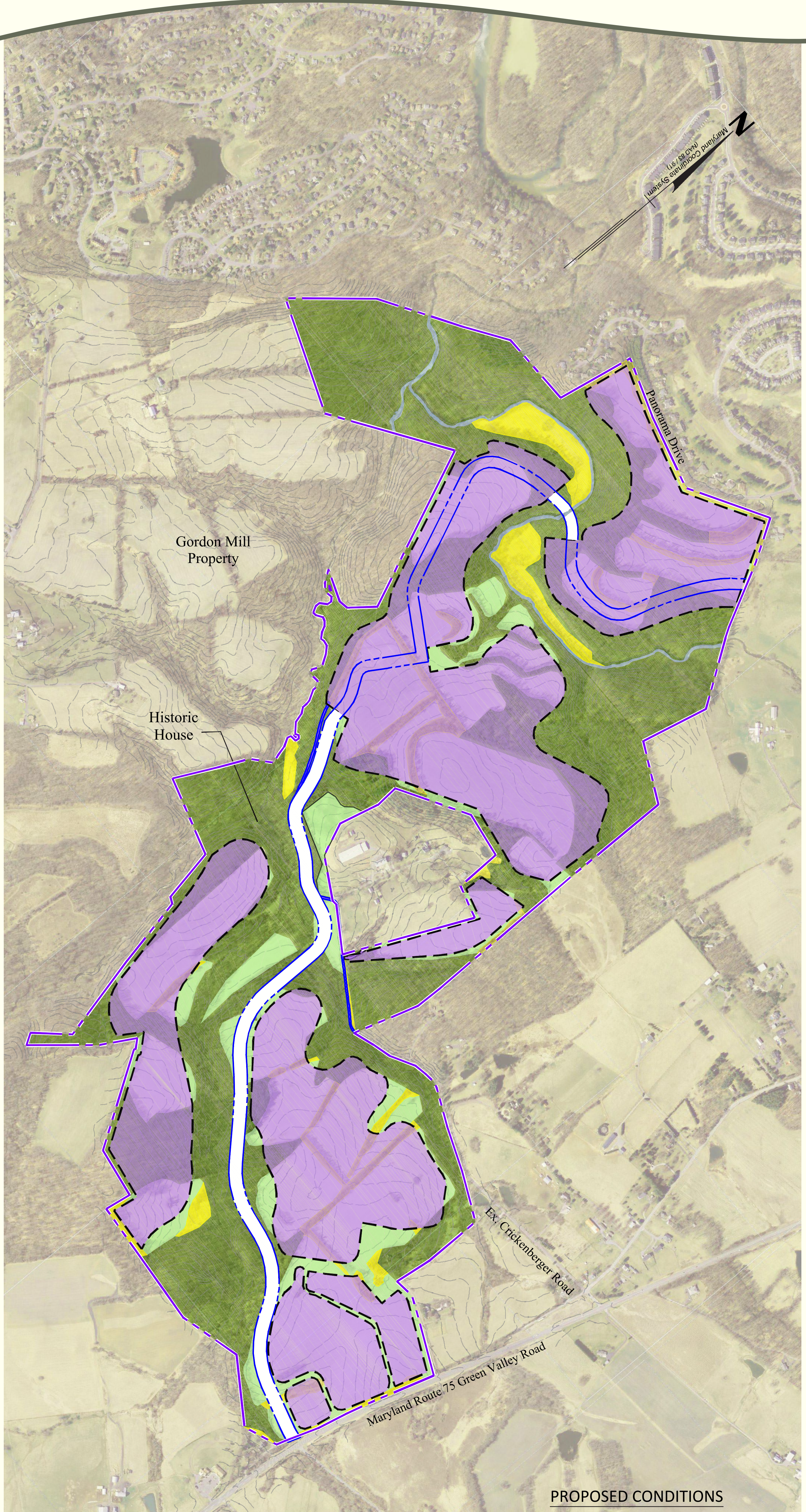


Reducing Nutrient Runoff to the Lake



EXISTING CONDITIONS



PROPOSED CONDITIONS

LEGEND

- SITE LIMITS
- EXISTING FOREST (330 acres)
- AGRICULTURAL/CROP
- MIXED OPEN AREA
- EXISTING CONTOURS
- EXISTING STREAM
- CRICKENBERGER ROAD

Nutrient Loading Analysis derived from developable areas identified through sketch plan dated July 2023 and subject to change through final engineering.

Land Use	Existing**			Proposed**		
	Acres	TN EDS Unit Load (lb/ac/yr)	Load	Acres	TN EDS Unit Load (lb/ac/yr)	Treated with ESD* Load
Forest/Natural	336	1.84	618	292	1.84	N/A
Agricultural-Crops	257	38.22	9811	0	38.22	N/A
Mixed Use	41	2.45	100	23	11.22	N/A
Developed	1	13.90	16	319	13.90	7
Total	634	N/A	10545	634	N/A	3018

Land Use	Existing**			Proposed**		
	Acres	TP EDS Unit Load (lb/ac/yr)	Load	Acres	TP EDS Unit Load (lb/ac/yr)	Treated with ESD* Load
Forest/Natural	336	0.09	30	292	0.09	N/A
Agricultural-Crops	257	1.87	480	0	1.87	N/A
Mixed Use	41	2.45	100	23	2.45	N/A
Developed	1	0.85	1	319	0.85	0.43
Total	634	N/A	611	634	N/A	219

Source: The Chesapeake Bay Program- Chesapeake Bay Program Phase 6 Model for the Chesapeake Bay Watershed.

TN Reduced (lbs/year)	
Existing Load	10545
Proposed Load	3018
Total	7528
71% Reduction	

TP Reduced (lbs/year)	
Existing Load	611
Proposed Load	219
Total	392
64% Reduction	

Reducing Nutrient Loading for Receiving Waters of Lake Linganore

Lake Linganore has an Environmental Protection Agency (EPA) approved Total Maximum Daily Load (TMDL) for phosphorous and sediment.

Per the approved TMDL for Lake Linganore, "The Lake Linganore watershed land use is primarily agricultural. The Libertytown Wastewater Treatment Plant (WWTP) is the only point source in the watershed. The WWTP has a capacity of 30,000 gallons per day (GPD) and treats an average flow of 30,000 GPD. However, the contribution of the WWTP to the overall phosphorous and sediment loadings to Lake Linganore are negligible compared to nonpoint sources."

A TMDL is a regulatory term in the U.S. Clean Water Act that sets the maximum amount of a pollutant that a waterbody can receive while still meeting water quality standards. When the Environmental Protection Agency (EPA) established the Chesapeake Bay Total Maximum Daily Load (TMDL) on December 29, 2010 they identified Nitrogen, Phosphorous, and Sediment as the three pollutants that, if reduced, will improve the health of the bay. The work completed by the Chesapeake Bay Program that has gone into monitoring, modeling, and developing watershed implementation plans in support of the TMDL has given us a better understanding on how different land uses load pollutants into adjacent waterbodies and how best management practices such as Environmental Site Design (ESD) can reduce nutrient loads into receiving waterbodies.

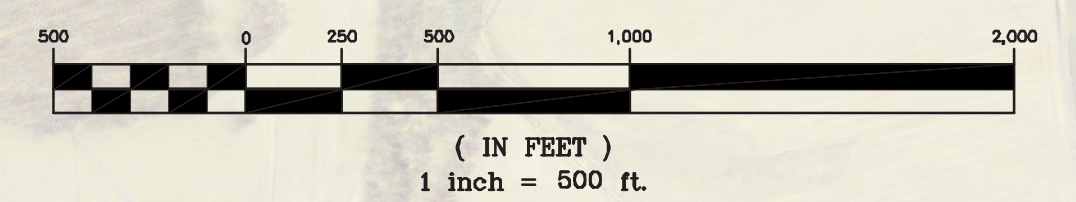
Based on the proposed preservation of forest in combination with the rezoning to a PUD treated to modern stormwater management standards, a nutrient loading study was conducted for the Cromwell Property. Based on the results of the study, the total phosphorous is expected to be reduced by up to 392 lbs/acre/year, a 64% reduction from current levels.

Additionally, total nitrogen is calculated to be reduced by up to 7,528 lbs/acre/year, a 71% reduction for current levels. To address sediment, during construction the site will be in compliance with Maryland State Erosion and Sediment Control Regulations and upon construction will be stabilized.

LEGEND

- SITE LIMITS
- EXISTING FOREST (330 acres)
- AFFORESTATION
- MIXED OPEN AREA
- DEVELOPMENT TREATED WITH ESD
- PROPOSED ROADWAY
- EXISTING CONTOURS
- EXISTING STREAM
- CRICKENBERGER ROAD

GRAPHIC SCALE



Eugene B. Casey Foundation

RODGERS CONSULTING