

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

**SUMMARY**

THE PROPOSED PROJECT WILL IMPACT APPROXIMATELY 500 SF OF WETLANDS BUFFER AREA. THIS IMPACT IS WITHIN AN ALREADY DEVELOPED AREA AND IS FOR THE REPLACEMENT OF A CORRODED 18" CORRUGATED METAL PIPE (CMP) THAT WAS INSTALLED IN THE 1980'S. THE 18" CMP WILL BE REPLACED WITH A 15" HDPE PIPE, WHICH WILL HAVE APPROXIMATELY THE SAME HYDRAULIC CAPACITY DUE TO THE REDUCTION IN FRICTION FACTOR. A DRAINAGE STUDY HAS BEEN PREPARED FOR THE PROPOSED ARBOR VIEW APARTMENTS DEVELOPMENT THAT SHOWS THE POST-DEVELOPMENT FLOWS WILL NOT BE INCREASED AT THIS LOCATION.

**WETLANDS IMPACT TABLE**

DIRECT IMPACT TO WETLANDS = 0 SF  
 IMPACT TO WETLANDS BUFFER = 500 SF



ENGINEER:  
**ALTUS**  
 ENGINEERING, INC.  
 133 COURT STREET PORTSMOUTH, NH 03801  
 (603) 433-2335 www.ALTUS-ENG.com



ISSUED FOR: TAC

ISSUE DATE: MAY 20, 2019

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	INITIAL SUBMISSION	EDW	04/02/19
1	TAC	EDW	05/20/19

DRAWN BY: \_\_\_\_\_ CDB  
 APPROVED BY: \_\_\_\_\_ EDW  
 DRAWING FILE: 4787.2\_SITE.DWG

SCALE:  
 22" x 34" - 1" = 20'  
 11" x 17" - 1" = 40'

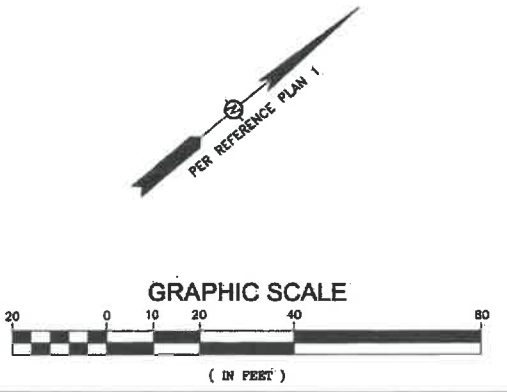
OWNER OF RECORD:  
 ARBOR VIEW & THE PINES LLC.  
 C/O FOREST PROPERTIES MGMT  
 625 MT AUBURN ST, STE 210  
 CAMBRIDGE, MA 02138

APPLICANT:  
 FOREST PROPERTIES MGMT INC.  
 625 MT AUBURN ST, STE 210  
 CAMBRIDGE, MA 02138

PROJECT:  
**ARBOR VIEW APARTMENTS RESIDENTIAL DEVELOPMENT**  
 145 LANG ROAD  
 PORTSMOUTH, NH

TITLE:  
**CONDITIONAL USE WETLANDS PLAN**

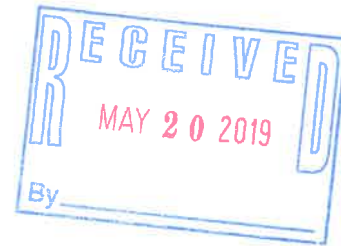
SHEET NUMBER:  
**CUP-2**



P-4787.2



**Michael Cuomo, Soil Scientist**  
6 York Pond Road, York, Maine 03909  
207 363 4532  
mcuomosoil@gmail.com



15 April 2019

Cory Belden, P.E.  
Altus Engineering, Inc.  
133 Court Street  
Portsmouth, NH 03801-4413

Dear Mr. Belden;

This letter is in reference to the Arbor View Apartments property, located at 145 Lang Road in Portsmouth, NH. On 1 and 2 April 2019 I conducted a partial wetland delineation on this property. Here was no snow on the ground when this work was done.

Portsmouth Zoning defines wetlands as follows:

"An area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs, vernal pools, and similar areas. The following are specifically included in the definition of wetland:

**Created wetland**

An area that has been transformed from upland to wetland where the upland was not created by human activity such as by filling or water diversion.

**Inland wetland**

A wetland that is not subject to periodic inundation of tidal waters.

**Tidal wetland**

A wetland whose vegetation, hydrology, or soils are influenced by periodic inundation of tidal waters."

The wetlands identified in this work include the local, State, and Federally regulated wetlands. The wetland-upland boundaries were marked with sequentially numbered blue flags.



Flags A1 to A26 are east of the existing development. This is a large wetland and only that segment nearest the existing development was flagged.

Flags B1 to B4 identify a small wetland in the approximate center of the developed area.

Flags C1 to C8 identify a portion of a small wetland near the driveway off Lang Road. The entire wetland could not be delineated on April 2 as snow had been plowed into the wetland and that snow pile had yet to melt.

Please call if you have questions regarding this work.

Sincerely,



Michael Cuomo  
NH Wetland Scientist #4  
NH Soil Scientist #6



Copy to: Chris Salter, James Verra and Associates



**Michael Cuomo, Soil Scientist**  
6 York Pond Road, York, Maine 03909  
207 363 4532  
mcuomosoil@gmail.com



3 June 2019

Cory D. Belden, PE  
Altus Engineering, Inc.  
133 Court St.  
Portsmouth, NH 03801

Dear Mr. Belden;

This letter is in reference to the proposed replacement of the storm drain along the eastern property line at Arbor View Apartments in Portsmouth, NH. As part of the Conditional Use Permit application Altus Engineering is preparing, the City requires a functional evaluation of wetland buffer impacts using *The Highway Methodology Workbook Supplement – Wetland Functions and Values: A Descriptive Approach*, NAEPP-360-1-30a, US Army Corps of Engineers, New England Division, September 1999, as amended. In this report, the document is referred to as the "Highway Method".

PROJECT

The existing corrugated metal storm drain pipe is rotted and will be replaced with an HDPE pipe at the same location, alignment, and grade as the existing one. The new pipe will end a couple feet short of where the existing pipe ends. The channel bottom will remain undisturbed, except what is required to install the new pipe in the same location. The installation trench has to be a minimum of 3 ft wide, but for impact

assessment purposes it is assumed a 5 foot wide impact area for the 100 linear feet of the buffer (500 sf of impact). This impact is entirely within the wetland buffer.

#### SCOPE

The existing and proposed storm drain discharges into a rip rap lined swale which becomes a man-made ditch that discharges east into Prime Wetland #2. The Highway Method is intended to evaluate the entire wetland and buffer. This focus is too broad, as the wetland is greater than 200 acres in size, extends onto multiple properties, and is part of the Berry's Brook watershed extending into Rye. The evaluation of wetland functions for this report focused on the wetland within 200 feet of the storm drain outfall, except where the predictor questions in the Highway Method specifically referenced the entire wetland.

#### WETLAND CLASSIFICATION, VEGETATION, and SOILS

Using the *Classification of Wetlands and Deepwater Habitats of the United States*, developed by Cowardin and others, this wetland is labeled a 'PFO1'. This indicates the core of the wetland is a forested freshwater swamp dominated by deciduous trees.

Dominant trees in this forested wetland are red maple (*Acer rubrum*), white pine (*Pinus strobus*), and apple (*Malus sp.*). Dominant shrubs are smooth winterberry holly (*Ilex verticillata*), common buckthorn (*Rhamnus frangula*), and high-bush blueberry (*Vaccinium corymbosum*). Dominant forbs are spotted touch-me-not (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), and poison ivy (*Toxicodendron radicans*).

The soils in the wetland are poorly drained medium textured



glacial till over a restrictive layer of firm silt loam in the substrate. This is the Squamscott soil series. The soil is typically saturated to the surface for less than 9 months of the average year.

#### HIGHWAY METHOD

The wetland and buffer were evaluated using the Highway Method on 3 June 2019 by Michael Cuomo, NH Wetland Scientist #4. The field results are presented on the worksheets attached at the rear of this report.

The Highway Method was developed to rapidly evaluate and compare a series of wetlands, primarily for the purpose of selecting the highway corridor with the least wetland impact from among alternative routes. For the purpose of this work, it provides an evaluation framework for drawing attention to the most important functions the wetland serves. For more detail, the numerical rationales can be read from the field worksheet and referenced to the predictor questions in the published document (<http://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/HighwaySupplement6Apr2015.pdf>). The Highway Method does not produce a numerical score. It provides guidance and a framework for the professional judgment of the evaluator, who selects which functions occur and determines the Principal Function(s).

#### SUMMARY OF RESULTS

The Principal Functions served by the wetland are Floodflow Alteration and Sediment/Toxicant Retention.

Floodflow Alteration is defined in the Highway Method as "...the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following

precipitation events and the gradual release of flood waters. It adds to the stability of the wetland ecological system or it's buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas." The wetland performs this function well because of it's location relative to developed areas and infrastructure, and the wetland's soil type, topography, and dense vegetation. All of these physical characteristics act to slow the release of water from the wetland to downstream surface waters during periods of excessive rainfall or rapid snow melt.

Sediment/Toxicant Retention is defined in the Highway Method as a function which "...reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens ..." This wetland trap sediments and pollutants well because of the soil type, dense vegetation, topography, and it's landscape position.

The wetland also performs the following functions: Nutrient Removal, Production Export, Wildlife Habitat, and Uniqueness/Heritage (as part of Berry's Brook watershed).

The wetland does not perform the following functions to any measurable degree: Fish and Shellfish Habitat, Groundwater Recharge/Discharge, Shoreline Stabilization, Recreation, and Educational Scientific Value. Endangered Species Habitat was not investigated for this report

There are limitations to the health and productivity of the wetland system resulting from the historic development in parts of the wetland and surrounding watershed. Untreated storm runoff enters the wetland from existing development. There has been

filling of the wetland by previous development. As is now typical, invasive plants are numerous and widespread in both the wetland and the watershed.

No direct wetland impact is proposed. The proposed 500 square feet of buffer impact is necessary and unavoidable to correct a failed storm drain.

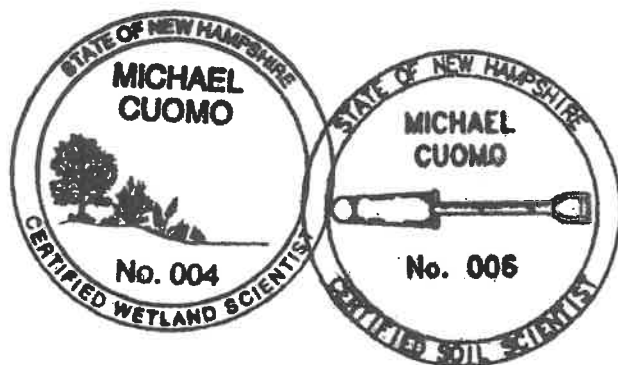
Sincerely,



Michael Cuomo

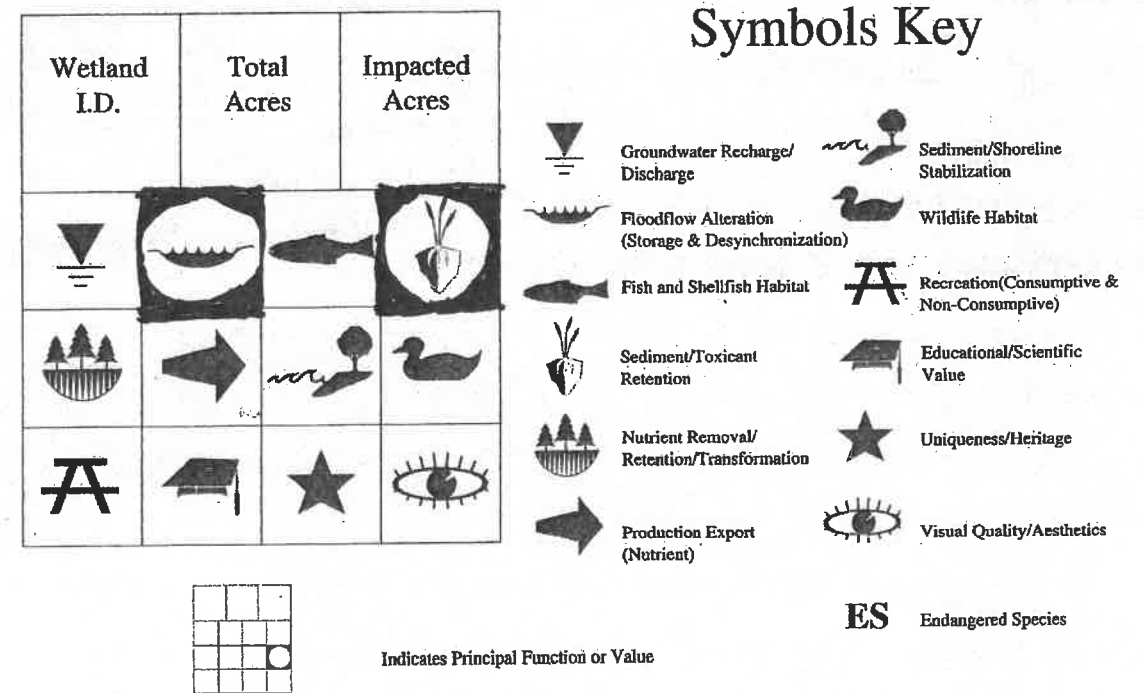
NH Certified Wetland Scientist #4

NH Certified Soil Scientist #6



# Graphical Representation of Wetland Functions and Values

ARBORVIEW APARTMENTS  
PORTSMOUTH, NH



*This graphical summary of wetland characteristics was developed as a tool to help construct an annotated map of functions and values for project analysis. Based on the findings reported on a data collection form, an icon box is prepared for each wetland investigated during Phase II of the Highway Methodology. The Endangered Species value may be added when present.*



## Wetland Function-Value Evaluation Form

Total area of wetland 200 Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No  
 Adjacent land use HEAVY RES/CONCRETE Distance to nearest roadway or other development 400 FT  
 Dominant wetland systems present PFI Contiguous undeveloped buffer zone present No  
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? UPPER  
 How many tributaries contribute to the wetland? Unknown Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. \_\_\_\_\_ Longitude \_\_\_\_\_  
 Latitude \_\_\_\_\_ Date \_\_\_\_\_  
 Prepared by: \_\_\_\_\_  
 Wetland Impact: \_\_\_\_\_ Area \_\_\_\_\_  
 Evaluation based on:  
 Office \_\_\_\_\_ Field \_\_\_\_\_  
 Corps manual wetland delineation completed? Y \_\_\_\_\_ N \_\_\_\_\_

Function/Value	Occurrence Y N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	N	6.7.		LOWES
Floodflow Alteration	Y	2.4, 5, 6, 9, 18	X	<del>SEVERE</del> SIGNIFICANT
Fish and Shellfish Habitat	N	1.		Not applicable
Sediment/Toxicant Retention	Y	12.3, 4, 5, 7, 8, 14-16	X	IMPORTANT DUE TO LANDSCAPE POSITION
Nutrient Removal	Y	3, 4, 6, 7, 8, 10.		SIGNIFICANT
Production Export	Y	12.4, 7		MODERATE
Sediment/Shoreline Stabilization	N			Not applicable
Wildlife Habitat	Y	6, 8, 11, 13, 19		SIGNIFICANT FOR PERCHMOUTH
Recreation	N			LIMITED ACCESS - PRIVATE PROPERTY
Educational Scientific Value	N	5.14		" "
Uniqueness/Heritage	Y	5.27.		BODDY'S CREEK WATERSHEDS
Visual Quality/Aesthetics	N			VERY LOW
ES Endangered Species Habitat		Unknown		Unknown
Other				

Notes:

\* Refer to back up list of numbered considerations.