

The Morin-Cameron

GROUP, INC.

July 29, 2014

Conservation Commission
7A Spofford Road
Boxford, MA 01921

Re: Lot 2 – 45B Crooked Pond Drive
DEP File # 114-1189

Dear Commission Members:


At the Conservation Commission meeting held on July 17, 2014 a question was raised if calculations were performed regarding the isolated 300 Series wetland/vernal pool to see if the area would qualify as Isolated Land Subject to Flooding (ILSF). Based on the size of the contributing watershed we did not perform those calculations as it appeared the watershed was not large enough to generate the runoff volume required to meet the criteria for ILSF. Please find attached calculations/plans that show that the contributing watershed to the isolated 300 Series wetland/vernal pool does not generate the required water volume to be considered ILSF.

In accordance with the Wetlands Protection Act (310 CMR 10.57(2)(b)) Isolated Land Subject to Flooding is an isolated depression without an inlet or outlet which, at least once a year, confines a volume of at least 0.25 ac-ft to an average depth of at least 6 inches. Please find attached an existing site conditions plan which shows the limits of the potential ILSF as well as the contributing watershed.

By examining the attached calculations for the 1 year storm event you will note that the drainage subcatchment contributing to the potential ILSF generates a volume of runoff of 0.13 ac-ft. Since this volume is less than the required volume of 0.25 ac-ft the area does not qualify as ILSF.

If you have any questions please do not hesitate to contact me.

Sincerely,
THE MORIN-CAMERON GROUP, INC.



John M. Morin, PE
Principal

JMM/kmm

Attachments

cc: Kathleen & Edwin Hill

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Lot 2 Crooked Pond Road - Pre

Prepared by The Morin-Cameron Group, Inc.

HydroCAD® 10.00 s/n 00401 © 2011 HydroCAD Software Solutions LLC

Type III 24-hr Rainfall=2.60"

Printed 7/26/2014

Summary for Subcatchment 1: Isolated Wetland/Vernal Pool

[49] Hint: $T_c < 2dt$ may require smaller dt

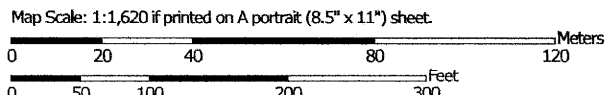
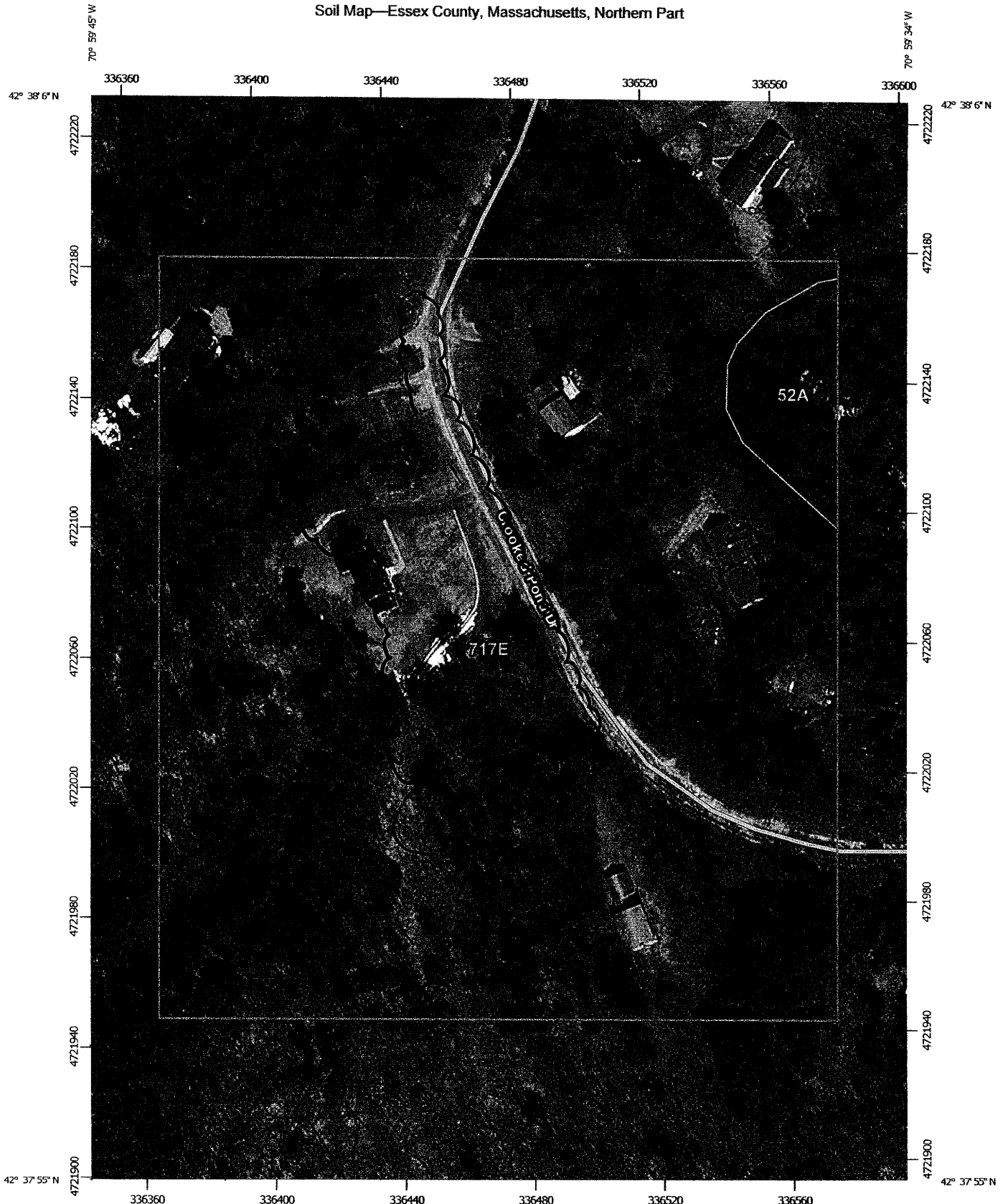
Runoff = 2.01 cfs @ 12.06 hrs, Volume= 0.126 af, Depth> 0.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, $dt= 0.05$ hrs
 Type III 24-hr Rainfall=2.60"

Area (ac)	CN	Description
* 0.250	98	Pavement, Roof & walk
0.560	86	<50% Grass cover, Poor, HSG C
0.080	96	Gravel surface, HSG C
0.640	70	Woods, Good, HSG C
1.530	82	Weighted Average
1.280		83.66% Pervious Area
0.250		16.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		Sheet Flow, Smooth surfaces $n= 0.011$ $P2= 3.10"$
1.1	150	0.0130	2.31		Shallow Concentrated Flow, Paved $K_v= 20.3$ fps
1.0	190	0.0360	3.05		Shallow Concentrated Flow, Unpaved $K_v= 16.1$ fps
3.7	440	Total			

Soil Map—Essex County, Massachusetts, Northern Part



Map projection: Web Mercator Corner coordinates: WGS84 Edge ties: UTM Zone 19N WGS84

Map Unit Legend

Essex County, Massachusetts, Northern Part (MA605)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
51A	Swansea muck, 0 to 1 percent slopes	0.3	2.1%
52A	Freetown muck, 0 to 1 percent slopes	0.1	0.6%
717E (B, C, & D)	Rock outcrop-Charlton-Hollis complex, 15 to 35 percent slopes	15.1	97.3%
Totals for Area of Interest		15.5	100.0%

Based on soil test data conducted on the site the soils appear to be a "C" hydrologic soil group ranging from loamy sands to sandy loams with percolation rates of 8 to 17 minutes/inch.