DRAINAGE NARRATIVE

4-Lot Subdivision
Tripp Hollow Road, Brooklyn, CT
Prepared for
Square 1 Building Associates, LLC

The existing site consists of approximately 23.3 acres of undeveloped woodlands located to the west of Tripp Hollow Road in Brooklyn Connecticut. There are inland wetlands running in a north/south direction through the center of the site.

The proposed subdivision consists of 4 residential building lots served by approximately 1,000 L.F. of new shared driveway access form Tripp Hollow Road. Presently, storm water in the proposed development area drains west and north, exiting the site via the wetlands and eventually discharging to Tatnic Brook.

The driveway for the western most building lot is required to cross the wetland. The crossing location has been determined to minimize impact to the wetland (see CLA Wetland Letter to Inland Wetlands Commission 09/03/20). The crossing length is approximately 100 feet.

The following determines the size of the drainage culvert required to pass the 10-year storm event with inlet control.

Methodology:
In accordance with the Town of Brooklyn's Public Improvement Specifications, the site's watershed was analyzed using the Rational method for the 10-year storm. The Rational method predicts the peak runoff according to the formula: Q=CiA, where C is a runoff coefficient, i is the rainfall intensity, and A is the sub-catchment area.

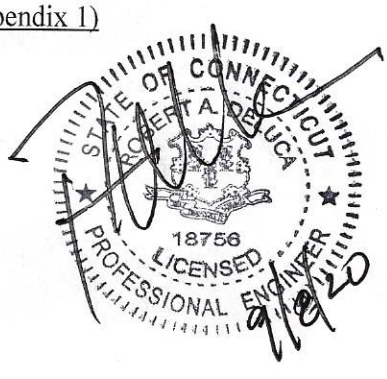
Rainfall intensities used in the calculations were taken from the Brooklyn (06-0918) weather station readings accessed via the NOAA Atlas 14 Point Precipitation Frequency website.

The proposed watershed contributing to the driveway crossing was determined to be 5.77 acres using local DEEP watershed basin boundaries and Connecticut Elevation (Lidar) Data (See Fig. 1).

The site consists primarily undeveloped woodlands. A run-off coefficient (C) of 0.2 (Unimproved Surface) was utilized. The Time of Concentration was determined as approximately 10 minutes using the TR-55 method.

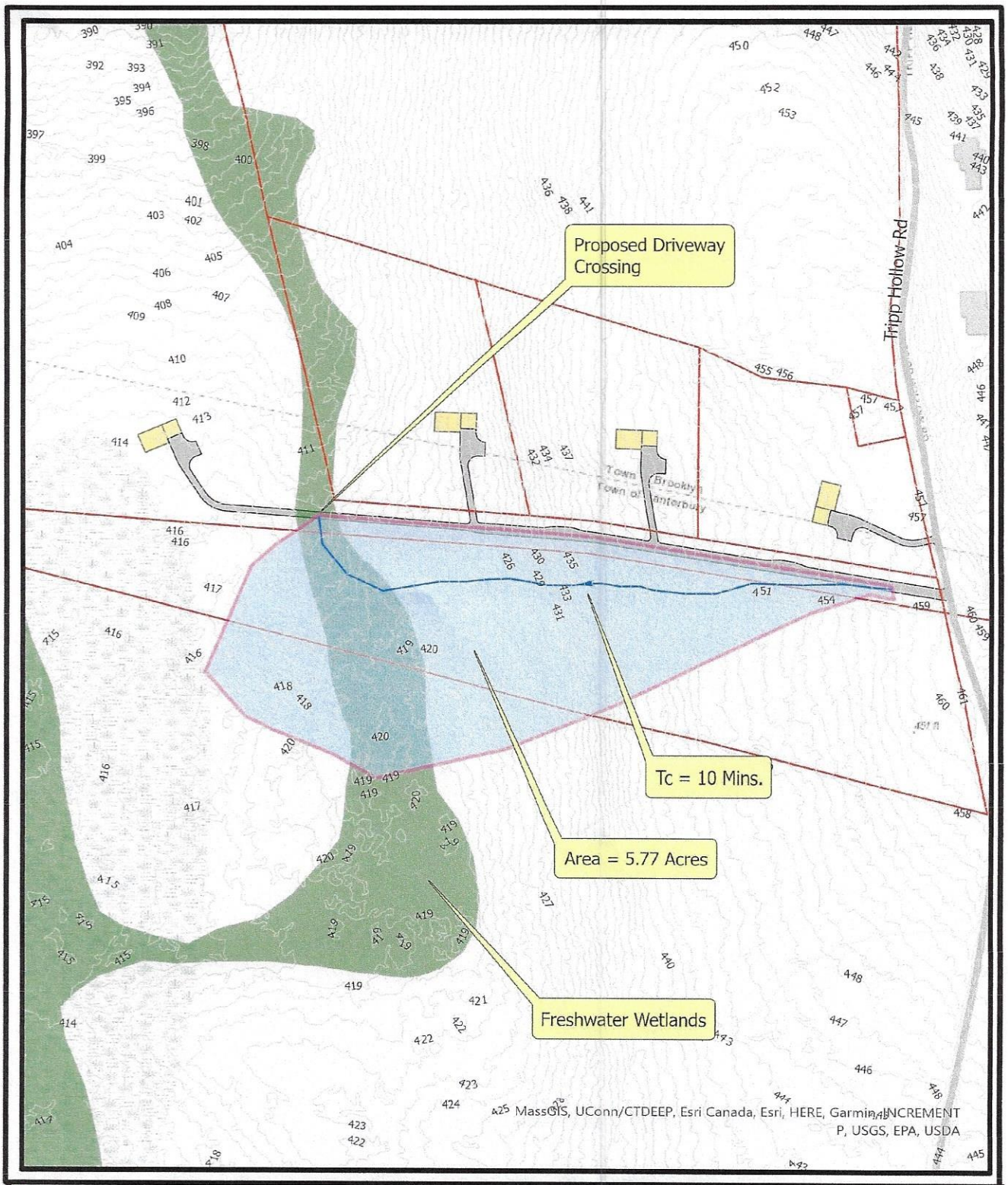
The peak discharge (Q) for the 10-year storm event was calculated as follows:

Peak Volume (Q) = CiA = 0.2 x 5.099 in/hr x 5.77 acres = 5.9 c.f.s. (See Appendix 1)



The proposed pipe size required to convey the Peak Volume was determined using Hydraflow Express culvert modeler (used in HDS-5 Hydraulic Design of Highway Culverts).

The resultant analysis determined that two 15" diameter pipes are required to convey the 10-year Peak Volume at a grade consistent with the existing wetland (See Appendix 2).



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PROPOSED WATERSHED

SQUARE 1 BUILDING ASSOCIATES, LLC
4 LOT SUBDIVISION
TRIPP HOLLOW ROAD, BROOKLYN, CT

DATE: 9/7/20

SCALE: 1:2,400

FIGURE
1

Hydrograph Report

Appendix 1

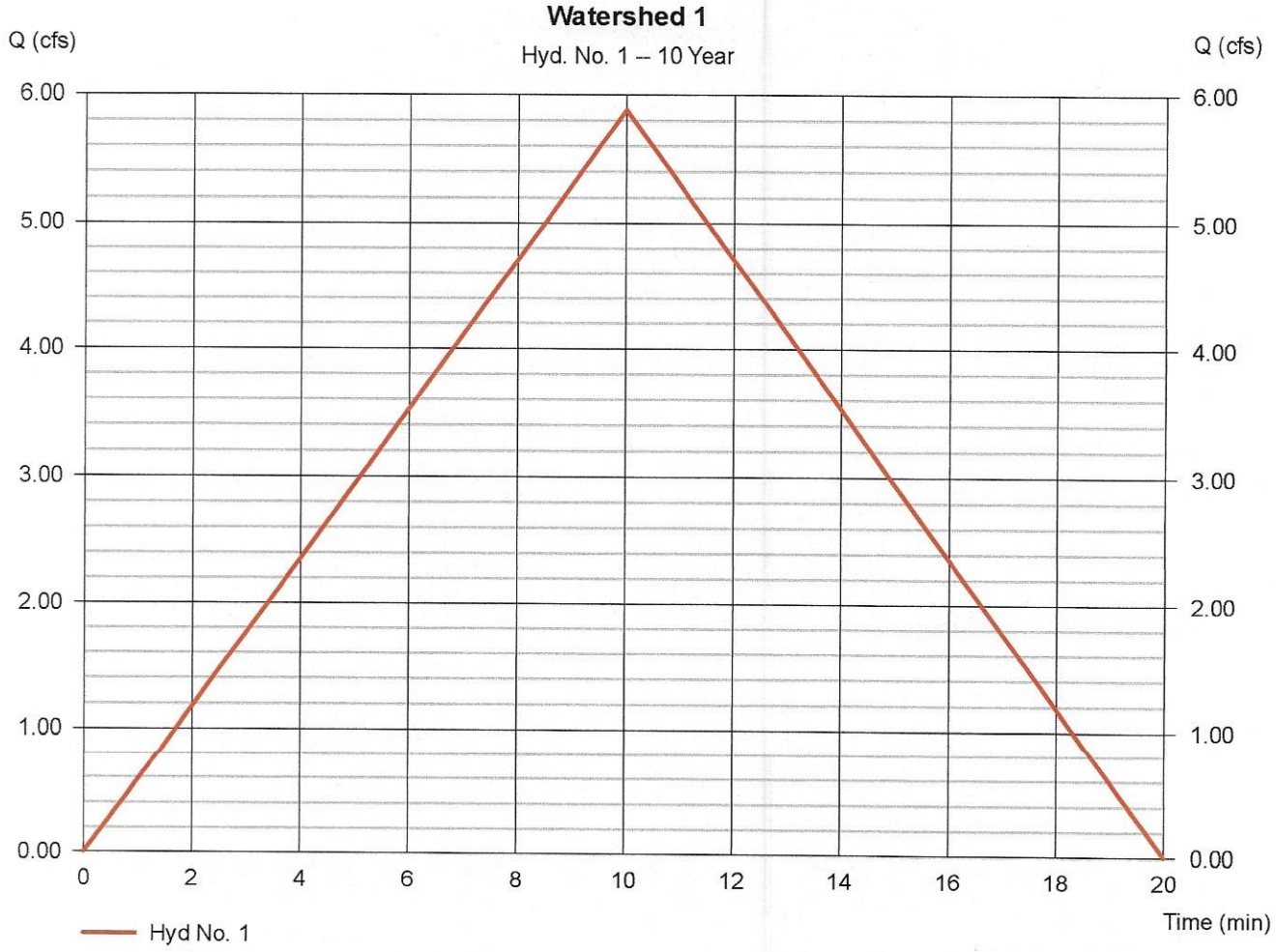
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Sep 7, 2020

Hyd. No. 1

Watershed 1

Hydrograph type	= Rational	Peak discharge	= 5.884 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 3,531 cuft
Drainage area	= 5.770 ac	Runoff coeff.	= 0.2
Intensity	= 5.099 in/hr	Tc by TR55	= 10.00 min
IDF Curve	= 6503 Pollock.IDF	Asc/Rec limb fact	= 1/1



Culvert Report

Appendix 2

Hydraflow Express Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. Monday, Sep 7 2020

Wetland Crossing

Invert Elev Dn (ft)	= 417.10
Pipe Length (ft)	= 24.00
Slope (%)	= 1.25
Invert Elev Up (ft)	= 417.40
Rise (in)	= 15.0
Shape	= Cir
Span (in)	= 15.0
No. Barrels	= 2
n-Value	= 0.012
Inlet Edge	= Projecting
Coeff. K,M,c,Y,k	= 0.0045, 2, 0.0317, 0.69, 0.5

Embankment

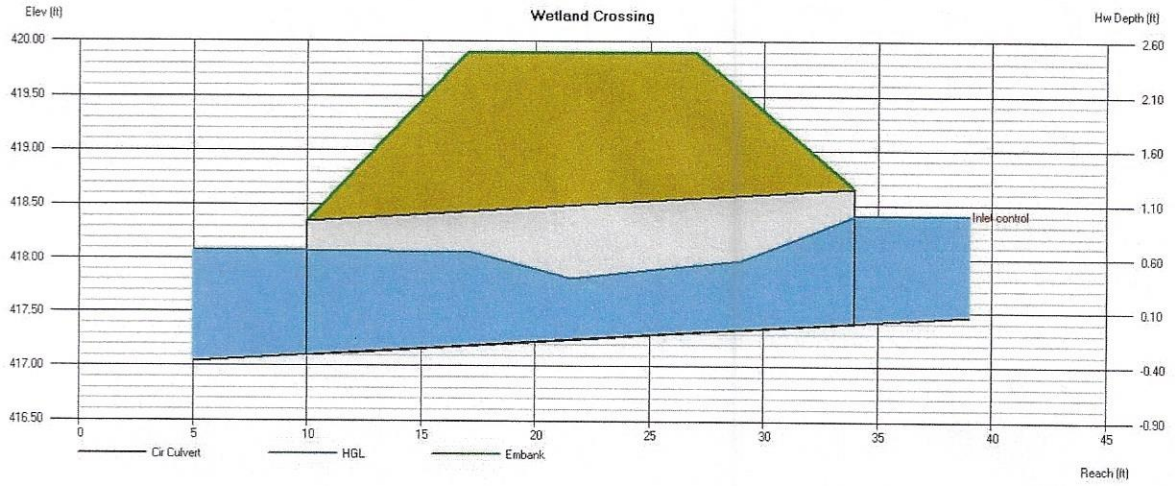
Top Elevation (ft)	= 419.90
Top Width (ft)	= 10.00
Crest Width (ft)	= 50.00

Calculations

Qmin (cfs)	= 1.00
Qmax (cfs)	= 10.00
Tailwater Elev (ft)	= (dc+D)/2

Highlighted

Qtotal (cfs)	= 6.00
Qpipe (cfs)	= 6.00
Qovertop (cfs)	= 0.00
Veloc Dn (ft/s)	= 2.92
Veloc Up (ft/s)	= 4.25
HGL Dn (ft)	= 418.07
HGL Up (ft)	= 418.10
Hw Elev (ft)	= 418.41
Hw/D (ft)	= 0.81
Flow Regime	= Inlet Control



Written calendar 11:00 Wed. call w/ Bob

Brooklyn Land Use Department

69 South Main Street
Brooklyn CT 06234
(860) 779-3411 x 31

Inland Wetlands ✓ Zoning Enforcement _____ Blight Enforcement _____

SITE INSPECTION NUMBER (1) 2 3 4 5

Square 1 4-Lot SuBD, Tripp Hollow Rd
Address

9/29/2020
Date

Bob DeLuca showed me revised plans showing septic systems further away from wetlands on Lots 12-1 and 12-10. All wetland flag numbers are supposedly shown on the revised plans, Bob did not give me a set of the revised plans, however. There is a problem with the numbering of the wetland flags as shown on the original and revised plans. The wetland flag spacing is a problem. Two flags shown as being more than 40 ft apart are only 15 apart in the field. Bob DeLuca said there's been a mixup between 2 or 3 different delinations. All the wetlands need to be reflagged. Bob agreed to do this. No photos taken at crossing due to flags needing replacement.

Commission Representative M. Washburn

Owner or Authorized Signature _____