May 20, 2021

C.Webb & Associates, LLC.
P.O. Box 452
Norfolk, CT 06058

RE: H&H REPORT
150 CHATHAM HILL ROAD, SOUTH GLASTONBURY ,CT

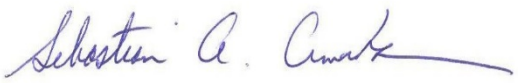
Dear Mr. Webb:

As requested, we have performed a hydrologic and hydraulic analysis of the discharge flow rates of the proposed pond on the subject property.
The property sits at the head waters of Roaring Brook and the outflow of the pond discharges into a channel which crosses Matson Hill Road. Stream Stats modeling indicates the entire watershed of Roaring Brook crossing Matson Hill Road is approximately 0.09 square miles or approximately 58 acres. The watershed area leading to the new pond is approximately 20 acres.

Based on the modeling we have prorated the pond discharges based on the ratio of the two watersheds. The flow from the pond is approximately 34 % of the total watershed crossing Matson Hill Road. The flow from the pond (assuming full pond) can vary from approximately 4 cfs for the 2 year to 23 cfs for the 100-year storm. A discharge channel 2 foot wide at the bottom can easily handle all storm events based on the natural slope of the land.
The 24-inch pipe at Matson Hill Road is more then adequate to handle these flows.
I have appended the stream stats reports with the flow details.

Please contact me if you have any questions or require any additional information at 860-620-3673.

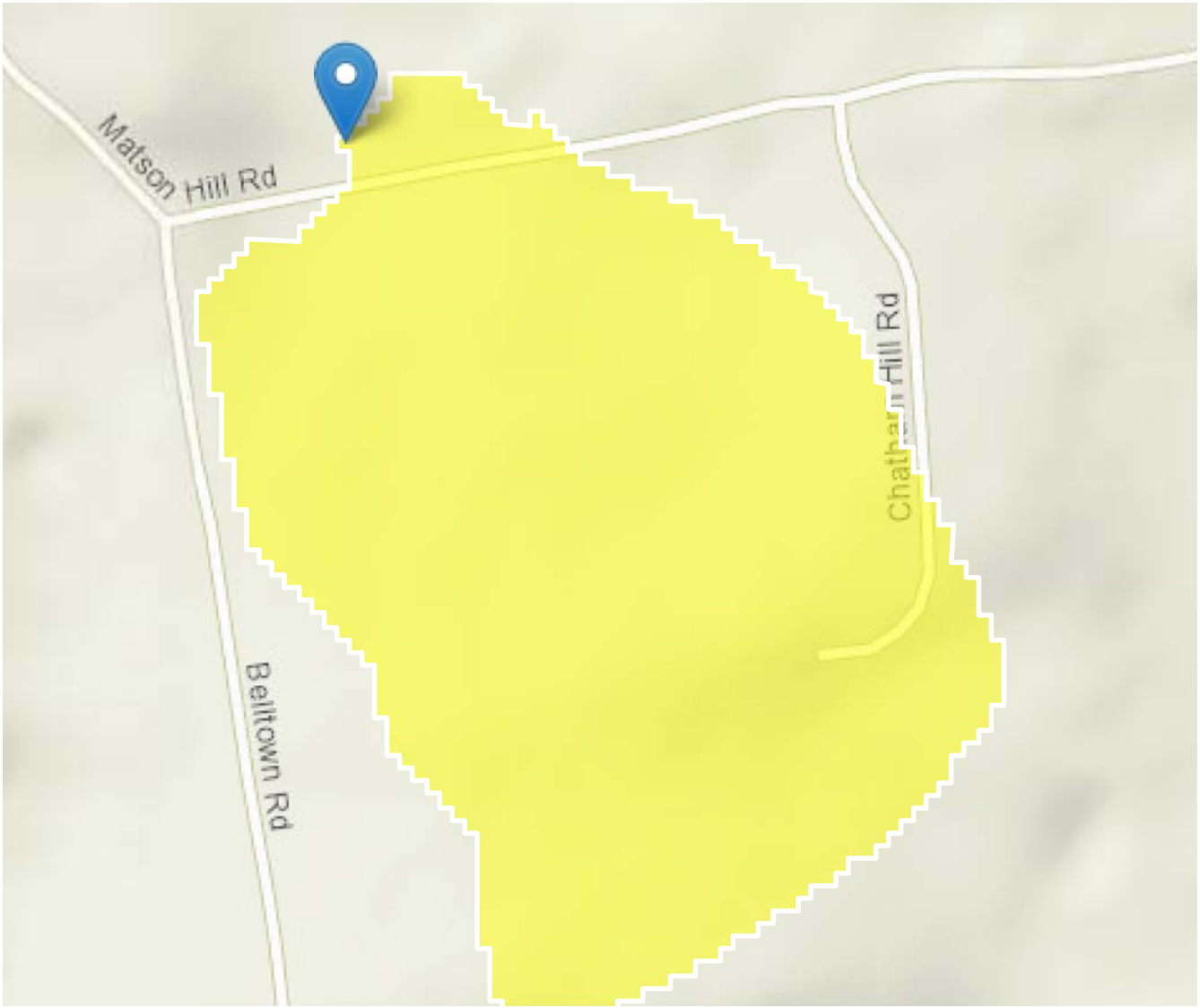
Sincerely,



Sebastian A Amenta P.E. #12339
1166 Woodruff Street
Southington, CT 06489

StreamStats Report

Region ID: CT Roaring Brook Crossing Matson Hill Road
Workspace ID: CT20210520124321344000
Clicked Point (Latitude, Longitude): 41.65105, -72.57571
Time: 2021-05-20 08:43:37 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0915	square miles
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	2.96	inches
SSURGOCCDD	Percentage of area with hydrologic soil types C, D, or C/D from SSURGO	0.4299	percent
I24H5Y	Maximum 24-hour precipitation that occurs on average once in 5 years	4.13	inches
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	5.02	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	6.19	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	7.08	inches
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	7.97	inches

Parameter Code	Parameter Description	Value	Unit
I24H200Y	Maximum 24-hour precipitation that occurs on average once in 200 years	9.31	inches
I24H500Y	Maximum 24-hour precipitation that occurs on average once in 500 years	11.08	inches

Peak-Flow Statistics Parameters [Statewide DA only SIR 2020 5054]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0915	square miles	0.69	325

Peak-Flow Statistics Parameters [Statewide Multiparameter SIR 2020 5054]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0915	square miles	0.69	325
I24H2Y	24 Hour 2 Year Precipitation	2.96	inches	2.77	3.32
SSURGOCCDD	Percent soil type C or D from SSURGO	0.4299	percent	0.118	0.945

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
I24H5Y	24 Hour 5 Year Precipitation	4.13	inches	4	4.7
I24H10Y	24 Hour 10 Year Precipitation	5.02	inches	4.86	5.79
I24H25Y	24 Hour 25 Year Precipitation	6.19	inches	5.99	7.22
I24H50Y	24 Hour 50 Year Precipitation	7.08	inches	6.81	8.3
I24H100Y	24 Hour 100 Year Precipitation	7.97	inches	7.62	9.38
I24H200Y	24 Hour 200 YearPrecipitation	9.31	inches	8.7	11.22
I24H500Y	24 Hour 500 Year Precipitation	11.08	inches	10.1	13.64

Peak-Flow Statistics Disclaimers [Statewide DA only SIR 2020 5054]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Statewide DA only SIR 2020 5054]

Statistic	Value	Unit
Drainage Area Only 50-percent AEP flood	9.98	ft^3/s
Drainage Area Only 20-percent AEP flood	18	ft^3/s
Drainage Area Only 10-percent AEP flood	24.7	ft^3/s

Statistic	Value	Unit
Drainage Area Only 4-percent AEP flood	34.6	ft^3/s
Drainage Area Only 2-percent AEP flood	43	ft^3/s
Drainage Area Only 1-percent AEP flood	52.1	ft^3/s
Drainage Area Only 0.5-percent AEP flood	62.2	ft^3/s
Drainage Area Only 0.2-percent AEP flood	77	ft^3/s

Peak-Flow Statistics Disclaimers [Statewide Multiparameter SIR 2020 5054]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Statewide Multiparameter SIR 2020 5054]

Statistic	Value	Unit
50-percent AEP flood	6.33	ft^3/s
20-percent AEP flood	11.4	ft^3/s
10-percent AEP flood	16.2	ft^3/s
4-percent AEP flood	23.6	ft^3/s
2-percent AEP flood	29.8	ft^3/s
1-percent AEP flood	36.6	ft^3/s
0.5-percent AEP flood	46.7	ft^3/s
0.2-percent AEP flood	60.9	ft^3/s

Peak-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Drainage Area Only 50-percent AEP flood	9.98	ft^3/s
Drainage Area Only 20-percent AEP flood	18	ft^3/s
Drainage Area Only 10-percent AEP flood	24.7	ft^3/s
Drainage Area Only 4-percent AEP flood	34.6	ft^3/s
Drainage Area Only 2-percent AEP flood	43	ft^3/s
Drainage Area Only 1-percent AEP flood	52.1	ft^3/s
Drainage Area Only 0.5-percent AEP flood	62.2	ft^3/s
Drainage Area Only 0.2-percent AEP flood	77	ft^3/s
50-percent AEP flood	6.33	ft^3/s
20-percent AEP flood	11.4	ft^3/s
10-percent AEP flood	16.2	ft^3/s
4-percent AEP flood	23.6	ft^3/s
2-percent AEP flood	29.8	ft^3/s
1-percent AEP flood	36.6	ft^3/s
0.5-percent AEP flood	46.7	ft^3/s
0.2-percent AEP flood	60.9	ft^3/s

Peak-Flow Statistics Citations

Ahearn, E.A., and Hodgkins, G.A.,2020, Estimating flood magnitude and frequency on streams and rivers in Connecticut, based on data through water year 2015: U.S. Geological Survey Scientific Investigations Report 2020–5054, 42 p. (https://doi.org/10.3133/sir20205054)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

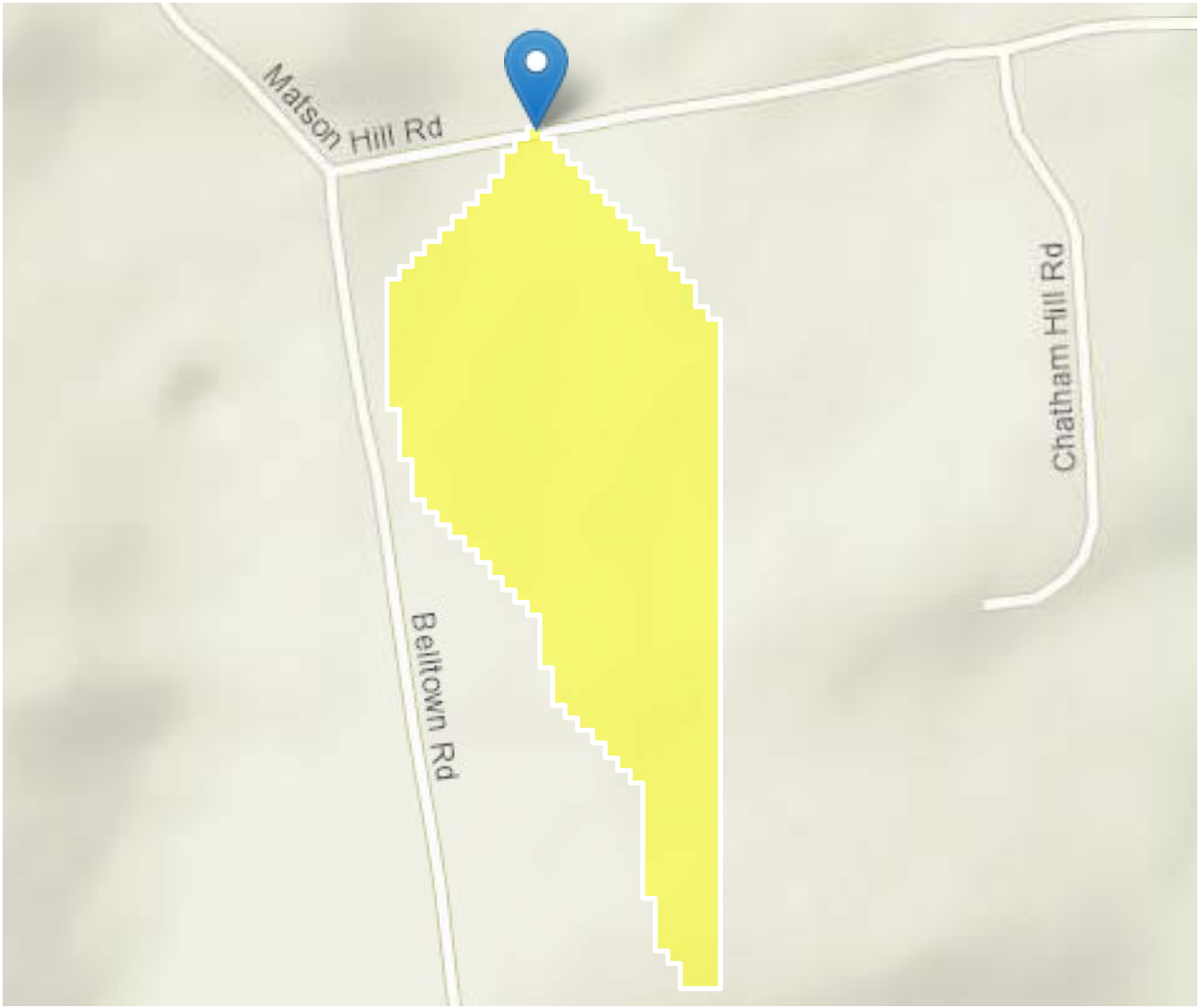
USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

StreamStats Report

Region ID: CT 150 Chatham Hill-Flow to New Pond
Workspace ID: CT20210520123641382000
Clicked Point (Latitude, Longitude): 41.65088, -72.57544
Time: 2021-05-20 08:36:58 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0313	square miles
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	2.95	inches
SSURGOCCDD	Percentage of area with hydrologic soil types C, D, or C/D from SSURGO	0.259	percent
I24H5Y	Maximum 24-hour precipitation that occurs on average once in 5 years	4.13	inches
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	5.02	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	6.19	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	7.08	inches
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	7.97	inches

Parameter Code	Parameter Description	Value	Unit
I24H200Y	Maximum 24-hour precipitation that occurs on average once in 200 years	9.31	inches
I24H500Y	Maximum 24-hour precipitation that occurs on average once in 500 years	11.08	inches

Peak-Flow Statistics Parameters [Statewide DA only SIR 2020 5054]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0313	square miles	0.69	325

Peak-Flow Statistics Parameters [Statewide Multiparameter SIR 2020 5054]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0313	square miles	0.69	325
I24H2Y	24 Hour 2 Year Precipitation	2.95	inches	2.77	3.32
SSURGOCCDD	Percent soil type C or D from SSURGO	0.259	percent	0.118	0.945

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
I24H5Y	24 Hour 5 Year Precipitation	4.13	inches	4	4.7
I24H10Y	24 Hour 10 Year Precipitation	5.02	inches	4.86	5.79
I24H25Y	24 Hour 25 Year Precipitation	6.19	inches	5.99	7.22
I24H50Y	24 Hour 50 Year Precipitation	7.08	inches	6.81	8.3
I24H100Y	24 Hour 100 Year Precipitation	7.97	inches	7.62	9.38
I24H200Y	24 Hour 200 YearPrecipitation	9.31	inches	8.7	11.22
I24H500Y	24 Hour 500 Year Precipitation	11.08	inches	10.1	13.64

Peak-Flow Statistics Disclaimers [Statewide DA only SIR 2020 5054]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Statewide DA only SIR 2020 5054]

Statistic	Value	Unit
Drainage Area Only 50-percent AEP flood	4.33	ft^3/s
Drainage Area Only 20-percent AEP flood	7.9	ft^3/s
Drainage Area Only 10-percent AEP flood	10.9	ft^3/s

Statistic	Value	Unit
Drainage Area Only 4-percent AEP flood	15.3	ft^3/s
Drainage Area Only 2-percent AEP flood	19	ft^3/s
Drainage Area Only 1-percent AEP flood	23	ft^3/s
Drainage Area Only 0.5-percent AEP flood	27.4	ft^3/s
Drainage Area Only 0.2-percent AEP flood	33.9	ft^3/s

Peak-Flow Statistics Disclaimers [Statewide Multiparameter SIR 2020 5054]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Peak-Flow Statistics Flow Report [Statewide Multiparameter SIR 2020 5054]

Statistic	Value	Unit
50-percent AEP flood	2.06	ft^3/s
20-percent AEP flood	3.96	ft^3/s
10-percent AEP flood	5.74	ft^3/s
4-percent AEP flood	8.49	ft^3/s
2-percent AEP flood	10.8	ft^3/s
1-percent AEP flood	13.4	ft^3/s
0.5-percent AEP flood	17.2	ft^3/s
0.2-percent AEP flood	22.7	ft^3/s

Peak-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Drainage Area Only 50-percent AEP flood	4.33	ft^3/s
Drainage Area Only 20-percent AEP flood	7.9	ft^3/s
Drainage Area Only 10-percent AEP flood	10.9	ft^3/s
Drainage Area Only 4-percent AEP flood	15.3	ft^3/s
Drainage Area Only 2-percent AEP flood	19	ft^3/s
Drainage Area Only 1-percent AEP flood	23	ft^3/s
Drainage Area Only 0.5-percent AEP flood	27.4	ft^3/s
Drainage Area Only 0.2-percent AEP flood	33.9	ft^3/s
50-percent AEP flood	2.06	ft^3/s
20-percent AEP flood	3.96	ft^3/s
10-percent AEP flood	5.74	ft^3/s
4-percent AEP flood	8.49	ft^3/s
2-percent AEP flood	10.8	ft^3/s
1-percent AEP flood	13.4	ft^3/s
0.5-percent AEP flood	17.2	ft^3/s
0.2-percent AEP flood	22.7	ft^3/s

Peak-Flow Statistics Citations

Ahearn, E.A., and Hodgkins, G.A.,2020, Estimating flood magnitude and frequency on streams and rivers in Connecticut, based on data through water year 2015: U.S. Geological Survey Scientific Investigations Report 2020–5054, 42 p. (https://doi.org/10.3133/sir20205054)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

USGS Software Disclaimer: This software has been approved for release by the U.S. Geological Survey (USGS). Although the software has been subjected to rigorous review, the USGS reserves the right to update the software as needed pursuant to further analysis and review. No warranty, expressed or implied, is made by the USGS or the U.S. Government as to the functionality of the software and related material nor shall the fact of release constitute any such warranty. Furthermore, the software is released on condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from its authorized or unauthorized use.

USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.5.3
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2