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DRAINAGE REPORT
LOT 3.01, BLOCK 562
BRYANT AVENUE
CRAFORD, UNION COUNTY, NJ

Prepared by
Edward S. Dec, PE
January 20, 2021

The property in question is located on the westerly side of Bryant Avenue, south of Dermody Street in the Township of Cranford, Union County, NJ. The property is undeveloped. The property presently consists of two parcels, lot 2 and lot 3, block 562 on the tax map of the township of Cranford. This report is only dealing with proposed lot 1.01.

The soil in this area is "BovB Boonton – Urban Land which is a type "C" soils group. We are using the rational method in "Hydraflow - Hydrographs for the existing conditions while using the modified rational method hydrographs for the maximum storage required. Rainfall curves in the program are taken from the NOAA 2019. We have used the minimum required ten minute time of concentration for the for the existing and proposed condition. We used the exiting "C" of 0.63, open space fair conditions and the proposed development will have a "C" of 0.99. Lot 1.01 has a proposed area of 10,193. SF

The existing runoff for this site has been calculated using the rational Method and yield the following flow rates:

Two-year storm	0.57 CFS
Ten-year storm	0.76 CFS
One-hundred-year storm	0.98 CFS

The proposed grading of the property will result in 2140 sf of the parcel discharging directly off the property. Runoff from the remaining 8053 sf will be collected and discharge into the detention system. The detention system for this property will consist of six rows of 15" Perforated ADS pipe, each 40 feet in length, connected together with a manifold system with a total available pipe capacity of 321 Cubic Feet. The pipe is backfilled in ¾" clean stone resulting in an additional 119 CF of storm water capacity. In calculating flows for the proposed conditions, the Modified Rational Method has been used which yields the largest required volume for a given storm. Two, 2.5 inch orifice outlets are set at elevation 98.20' the bottom of the detention system and a second orifice, 4.5" diameter, is set at elevation 98.80.

. The resulting flows for the three storms are listed below:

	Storage	Storage Elevation	Outlet Discharge	Direct Discharge	Total Discharge
Two-year storm	221 CF	98.84'	0.25 CFS	0.12 cfs	0.26 cfs
Ten-year storm	296 CF	99.11"	0.40 CFS	0.16 cfs	0.43 cfs
One-hundred-year storm	439 CF	99.47'	0.73 CFS	0.26 cfs	0.73 cfs

For the reduction in flow, the discharge for all storms and their performance relative to the RSIS standards are shown below:

	Existing Flow-rate	allowable Flow rate	Allowable persentage	Proposed Flow Rate
Two-year storm	0.57 CFS	0.28 CFS	50 %	0.26 cfs
Ten-year storm	0.76 CFS	0.57 CFS	75 %	0.43 cfs
One-hundred- year storm	0.98 CFS	0.78 CFS	80 %	0.73 cfs

I have attached a copy of the existing hydrographs for the three storms and the critical T/C for each storm which generates the maximum storage and well as a summary page for each of the storms reflecting the various computations made to arrive at the critical time of concentration.

COEEFICIENT OF RUNOFF CALCULATIONS

PROJECT: 127 BYRANT AVENUE, CRANFORD NJ LOT 1.01
SOIL GROUP BOONTON URBAN "BovB" Type "c"

EXISTING RUNOFF
HYDRAULIC SOILS GROUP: C BovB

TYPE OF IMPROVMENT	AREA (SF)	AREA ACRES)	%	C"	wt/c
OPEN SPACE-FAIR	10193	0.2339991	1	0.63	0.63
PAVEMENT/BLDG.	0	0	0	0.99	0
TOTAL	10193	0.2339991	1		0.63

PROPOSED RUNOFF - TOTAL
HYDRAULIC SOILS GROUP: C BovB

TYPE OF IMPROVMENT	AREA (SF)	AREA ACRES)	%	C"	wt/c
OPEN SPACE - FAIR	7444	0.1708907	0.7303051	0.63	0.4600922
PAVEMENT/BLDG.	2749	0.0631084	0.2696949	0.99	0.2669979
TOTAL	10193	0.2339991	1		0.7270902

DIRECT RUNOFF
HYDRAULIC SOILS GROUP: C BovB

TYPE OF IMPROVMENT	AREA (SF)	AREA ACRES)	%	C"	wt/c
OPEN SPACE-FAIR	2140	0.0491276	1	0.63	0.63
PAVEMENT/BLDG.	0	0	0	0.99	0
TOTAL	2140	0.0491276	1		0.63

PRPOSED RUNOFF TO DETENTION
HYDRAULIC SOILS GROUP: C

TYPE OF IMPROVMENT	AREA (SF)	AREA ACRES)	%	C"	wt/c
OPEN -FAIR	5304	0.1217631	0.6586365	0.63	0.414941
PAVEMENT/BLDG.	2749	0.0631084	0.3413635	0.99	0.3379498
TOTAL	8053	0.1848714	1		0.7528908

TOTAL 10193

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.57	1	10	341	---	-----	-----	EXISTING FLOW-LOT 1.01

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

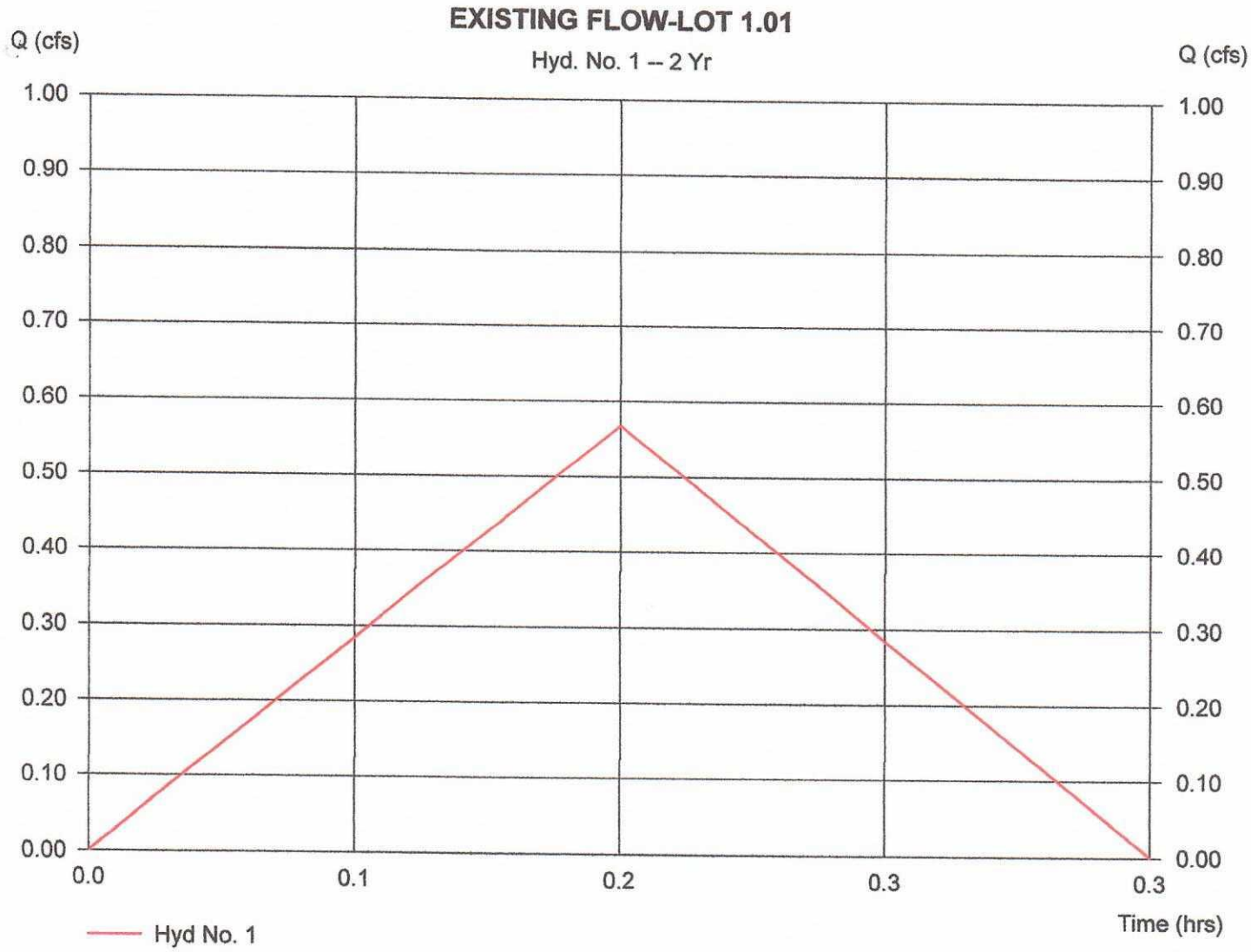
Sunday, Feb 28 2021, 4:37 PM

Hyd. No. 1

EXISTING FLOW-LOT 1.01

Hydrograph type	= Rational	Peak discharge	= 0.57 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Drainage area	= 0.234 ac	Runoff coeff.	= 0.63
Intensity	= 3.852 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 341 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 11:31 AM

Pond No. 1 - POND LOT 1.01

Pond Data

Pond storage is based on known values

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	98.20	00	0	0
0.06	98.26	00	13	13
0.13	98.33	00	19	32
0.19	98.39	00	20	52
0.25	98.45	00	21	73
0.32	98.52	00	22	95
0.38	98.58	00	27	122
0.44	98.64	00	23	145
0.51	98.71	00	26	171
0.57	98.77	00	25	196
0.63	98.83	00	24	220
0.70	98.90	00	24	244
0.76	98.96	00	25	269
0.83	99.03	00	26	295
0.89	99.09	00	23	318
0.95	99.15	00	25	343
1.02	99.22	00	24	367
1.08	99.28	00	21	388
1.14	99.34	00	20	408
1.21	99.41	00	19	427
1.28	99.48	00	13	440

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise (in)	= 2.50	4.50	0.00	0.00
Span (in)	= 2.50	4.50	0.00	0.00
No. Barrels	= 2	1	0	0
Invert El. (ft)	= 98.20	98.80	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	3.33	3.33	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Stage / Storage / Discharge Table

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	98.20	0.00	0.00	---	---	---	---	---	---	---	0.00
0.06	13	98.26	0.01	0.00	---	---	---	---	---	---	---	0.01
0.13	32	98.33	0.05	0.00	---	---	---	---	---	---	---	0.05
0.19	52	98.39	0.10	0.00	---	---	---	---	---	---	---	0.10
0.25	73	98.45	0.13	0.00	---	---	---	---	---	---	---	0.13
0.32	95	98.52	0.15	0.00	---	---	---	---	---	---	---	0.15
0.38	122	98.58	0.17	0.00	---	---	---	---	---	---	---	0.17
0.44	145	98.64	0.19	0.00	---	---	---	---	---	---	---	0.19
0.51	171	98.71	0.21	0.00	---	---	---	---	---	---	---	0.21
0.57	196	98.77	0.22	0.00	---	---	---	---	---	---	---	0.22
0.63	220	98.83	0.24	0.00	---	---	---	---	---	---	---	0.24
0.70	244	98.90	0.25	0.03	---	---	---	---	---	---	---	0.28
0.76	269	98.96	0.27	0.06	---	---	---	---	---	---	---	0.33
0.83	295	99.03	0.28	0.12	---	---	---	---	---	---	---	0.40
0.89	318	99.09	0.29	0.17	---	---	---	---	---	---	---	0.46
0.95	343	99.15	0.30	0.22	---	---	---	---	---	---	---	0.52
1.02	367	99.22	0.31	0.26	---	---	---	---	---	---	---	0.57
1.08	388	99.28	0.32	0.29	---	---	---	---	---	---	---	0.61
1.14	408	99.34	0.33	0.32	---	---	---	---	---	---	---	0.65
1.21	427	99.41	0.35	0.35	---	---	---	---	---	---	---	0.69
1.28	440	99.48	0.36	0.37	---	---	---	---	---	---	---	0.73

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.76	1	10	455	---	-----	-----	EXISTING FLOW-LOT 1.01

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

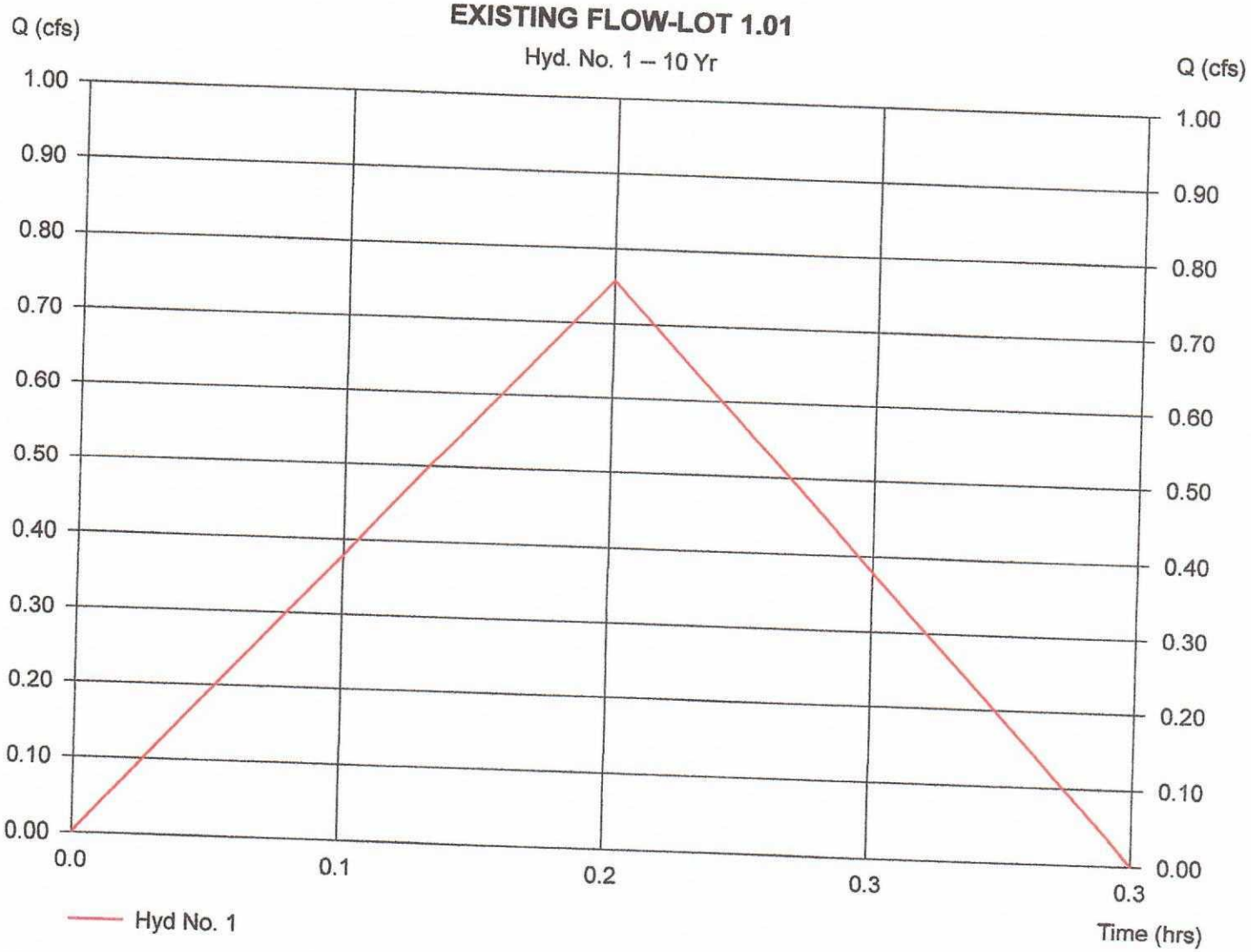
Sunday, Feb 28 2021, 4:37 PM

Hyd. No. 1

EXISTING FLOW-LOT 1.01

Hydrograph type	= Rational	Peak discharge	= 0.76 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Drainage area	= 0.234 ac	Runoff coeff.	= 0.63
Intensity	= 5.139 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 455 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.98	1	10	589	---	-----	-----	EXISTING 100 YR -LOT 1.01

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

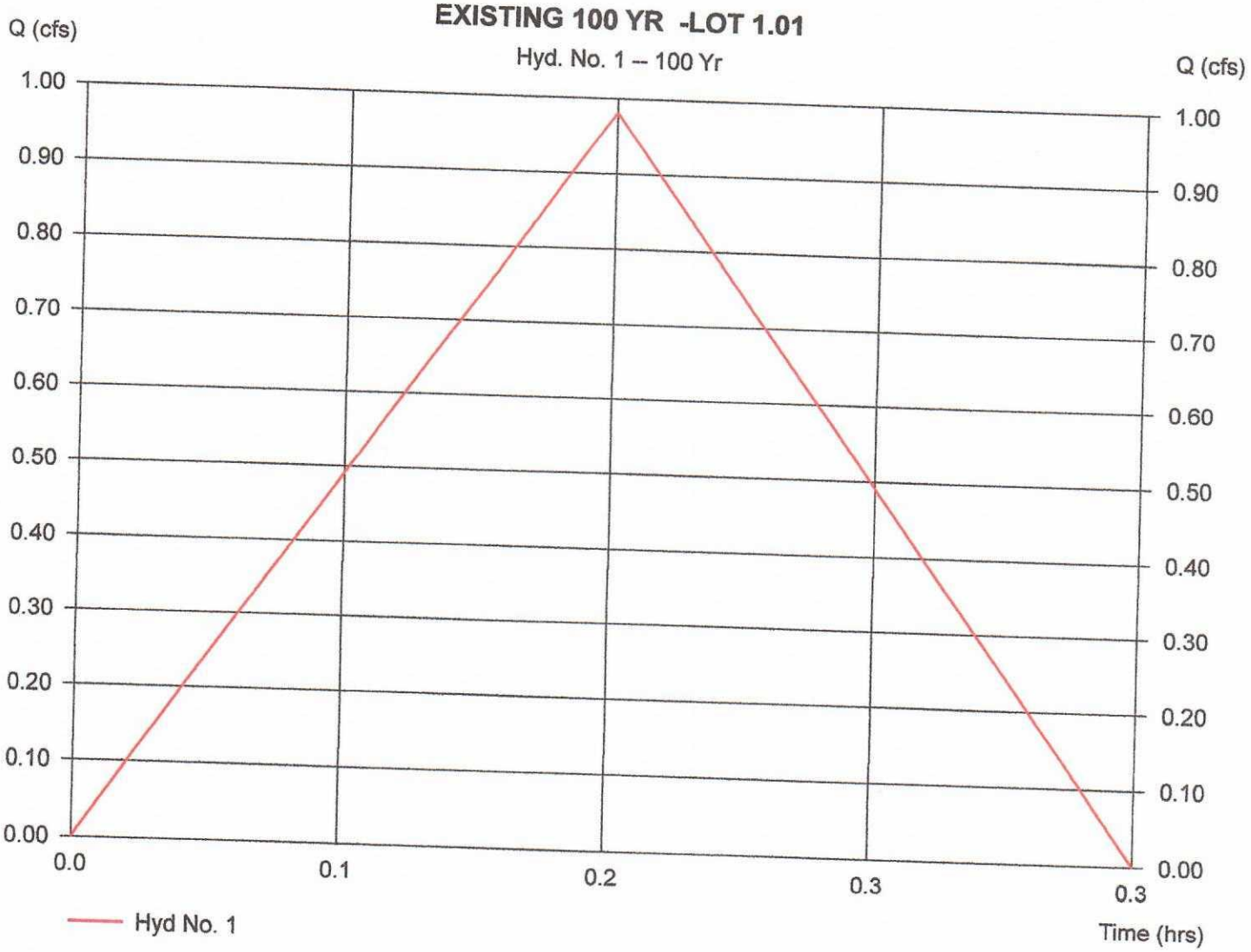
Sunday, Feb 28 2021, 10:13 PM

Hyd. No. 1

EXISTING 100 YR -LOT 1.01

Hydrograph type	= Rational	Peak discharge	= 0.98 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 0.233 ac	Runoff coeff.	= 0.63
Intensity	= 6.674 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 589 cuft



Pond Report

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 7:43 AM

Pond No. 1 - POND LOT 1.01

Pond Data

Pond storage is based on known values

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	98.20	00	0	0
0.06	98.26	00	13	13
0.13	98.33	00	19	32
0.19	98.39	00	20	52
0.25	98.45	00	21	73
0.32	98.52	00	22	95
0.38	98.58	00	27	122
0.44	98.64	00	23	145
0.51	98.71	00	26	171
0.57	98.77	00	25	196
0.63	98.83	00	24	220
0.70	98.90	00	24	244
0.76	98.96	00	25	269
0.83	99.03	00	26	295
0.89	99.09	00	23	318
0.95	99.15	00	25	343
1.02	99.22	00	24	367
1.08	99.28	00	21	388
1.14	99.34	00	20	408
1.21	99.41	00	19	427
1.28	99.48	00	13	440

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise (in)	= 2.50	4.50	0.00	0.00
Span (in)	= 2.50	4.50	0.00	0.00
No. Barrels	= 2	1	0	0
Invert El. (ft)	= 98.20	98.80	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .013	.013	.013	.000
Orif. Coeff.	= 0.60	0.60	0.60	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	3.33	3.33	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Stage / Storage / Discharge Table

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	98.20	0.00	0.00	---	---	---	---	---	---	---	0.00
0.06	13	98.26	0.01	0.00	---	---	---	---	---	---	---	0.01
0.13	32	98.33	0.05	0.00	---	---	---	---	---	---	---	0.05
0.19	52	98.39	0.10	0.00	---	---	---	---	---	---	---	0.10
0.25	73	98.45	0.13	0.00	---	---	---	---	---	---	---	0.13
0.32	95	98.52	0.15	0.00	---	---	---	---	---	---	---	0.15
0.38	122	98.58	0.17	0.00	---	---	---	---	---	---	---	0.17
0.44	145	98.64	0.19	0.00	---	---	---	---	---	---	---	0.19
0.51	171	98.71	0.21	0.00	---	---	---	---	---	---	---	0.21
0.57	196	98.77	0.22	0.00	---	---	---	---	---	---	---	0.22
0.63	220	98.83	0.24	0.00	---	---	---	---	---	---	---	0.24
0.70	244	98.90	0.25	0.03	---	---	---	---	---	---	---	0.28
0.76	269	98.96	0.27	0.06	---	---	---	---	---	---	---	0.33
0.83	295	99.03	0.28	0.12	---	---	---	---	---	---	---	0.40
0.89	318	99.09	0.29	0.17	---	---	---	---	---	---	---	0.46
0.95	343	99.15	0.30	0.22	---	---	---	---	---	---	---	0.52
1.02	367	99.22	0.31	0.26	---	---	---	---	---	---	---	0.57
1.08	388	99.28	0.32	0.29	---	---	---	---	---	---	---	0.61
1.14	408	99.34	0.33	0.32	---	---	---	---	---	---	---	0.65
1.21	427	99.41	0.35	0.35	---	---	---	---	---	---	---	0.69
1.28	440	99.48	0.36	0.37	---	---	---	---	---	---	---	0.73

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.12	1	10	71	---	-----	-----	DIRECT RUNOFF LOT 1.01
2	Rational	0.53	1	10	321	---	-----	-----	RUNOFF TO DETENTIOC T/C-10
3	Reservoir	0.22	1	16	317	2	98.73	181	ROUTING T/C-10
4	Combine	0.29	1	11	389	1, 3	-----	-----	ROUTING T/C-20
5	Mod. Rational	0.39	1	10	467	---	-----	-----	TO DETENTION T/C-20
6	Reservoir	0.24	1	24	463	5	98.83	221	ROUTING T/C-20
7	Combine	0.26	1	11	535	1, 6	-----	-----	TOTAL RUNOFF T/C-20
8	Mod. Rational	0.31	1	10	554	---	-----	-----	TO DETENTINO T/C-30
9	Reservoir	0.24	1	32	551	8	98.81	214	ROUTING T/C-30

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 7:49 AM

Hyd. No. 1

DIRECT RUNOFF LOT 1.01

Hydrograph type	= Rational	Peak discharge	= 0.12 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Drainage area	= 0.049 ac	Runoff coeff.	= 0.63
Intensity	= 3.852 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 71 cuft

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

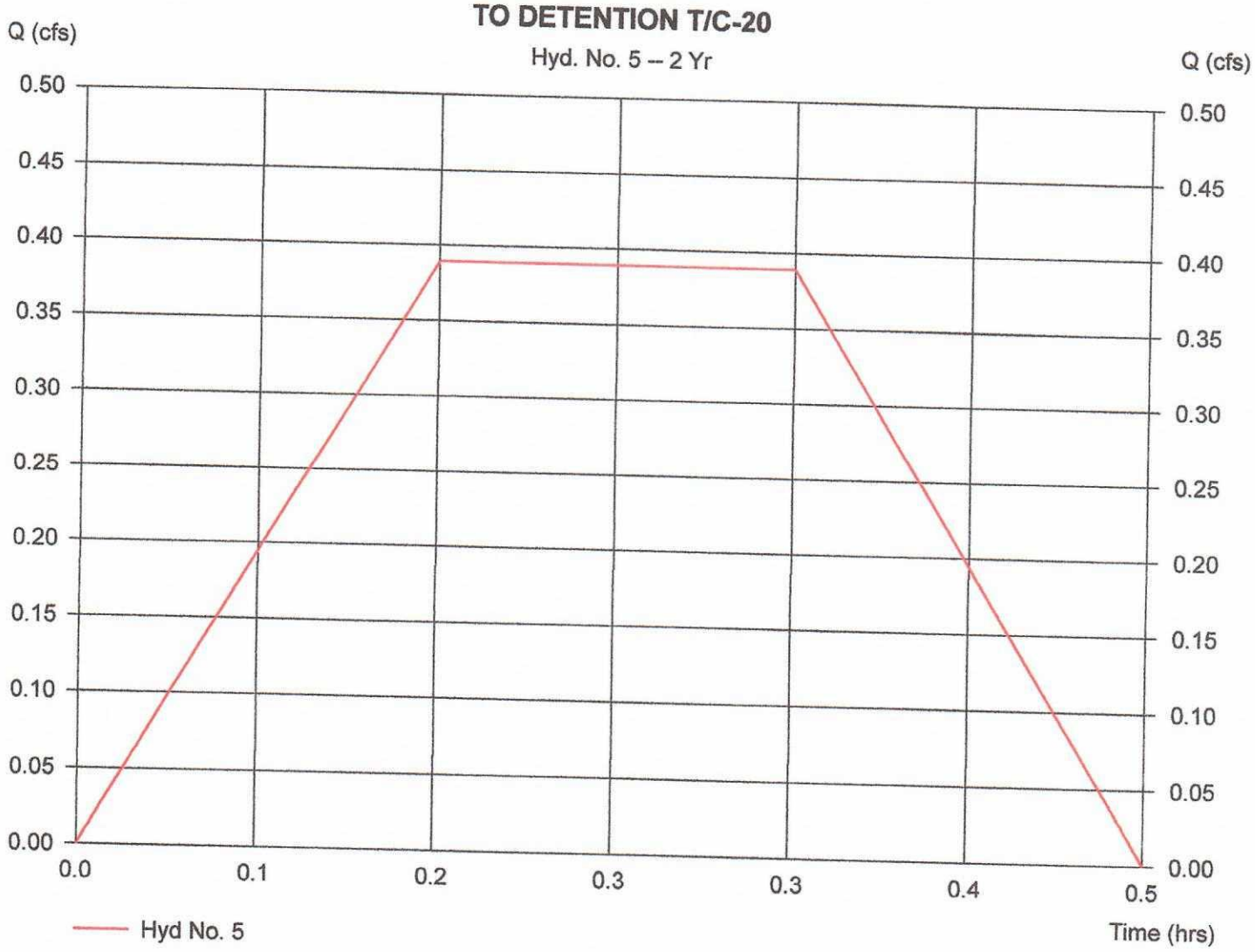
Monday, Mar 1 2021, 8:6 AM

Hyd. No. 5

TO DETENTION T/C-20

Hydrograph type	= Mod. Rational	Peak discharge	= 0.39 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Drainage area	= 0.185 ac	Runoff coeff.	= 0.75
Intensity	= 2.804 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Storm duration	= 2 x Tc

Hydrograph Volume = 467 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 8:6 AM

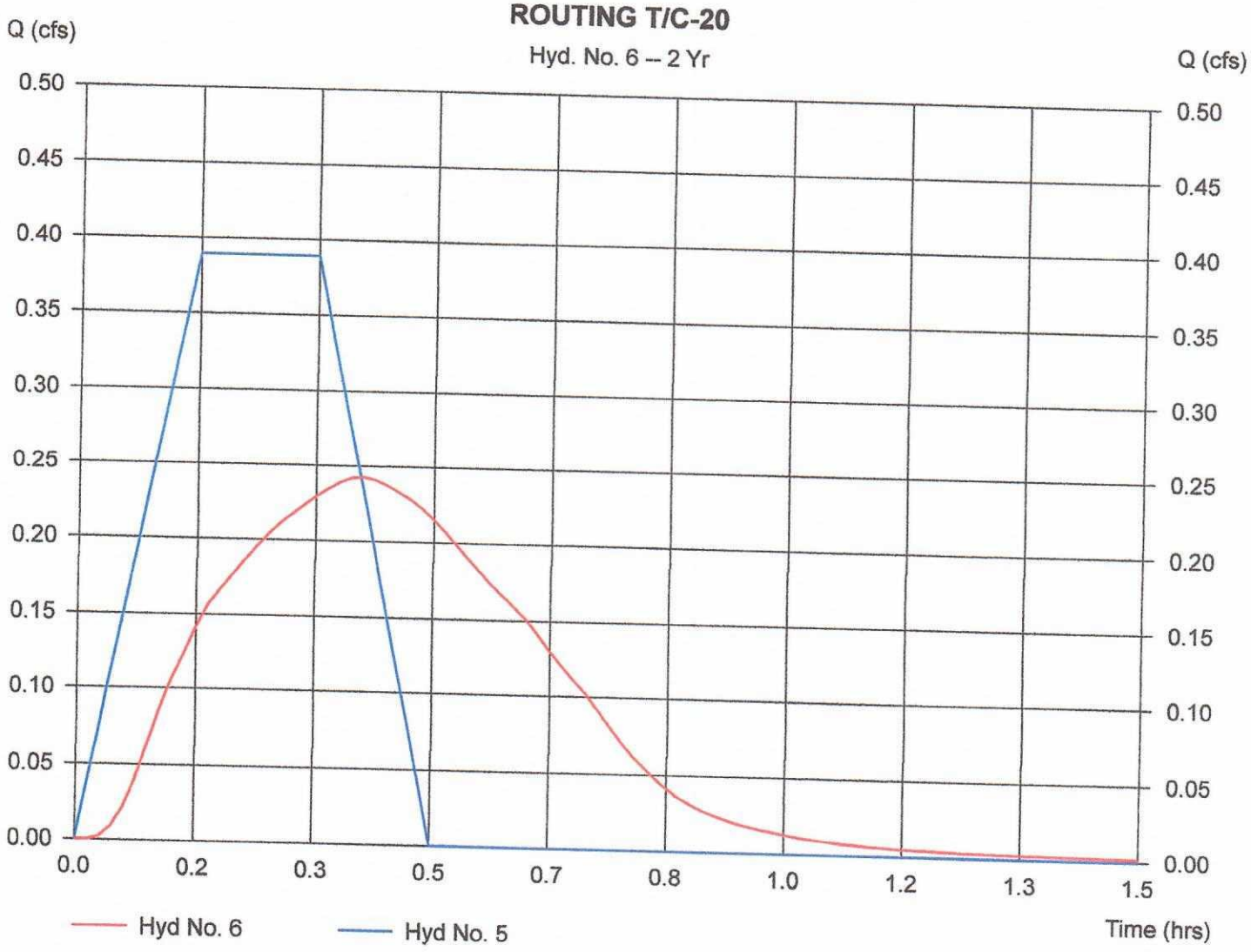
Hyd. No. 6

ROUTING T/C-20

Hydrograph type	= Reservoir	Peak discharge	= 0.24 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Inflow hyd. No.	= 5	Max. Elevation	= 98.83 ft
Reservoir name	= POND LOT 1.01	Max. Storage	= 221 cuft

Storage Indication method used.

Hydrograph Volume = 463 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

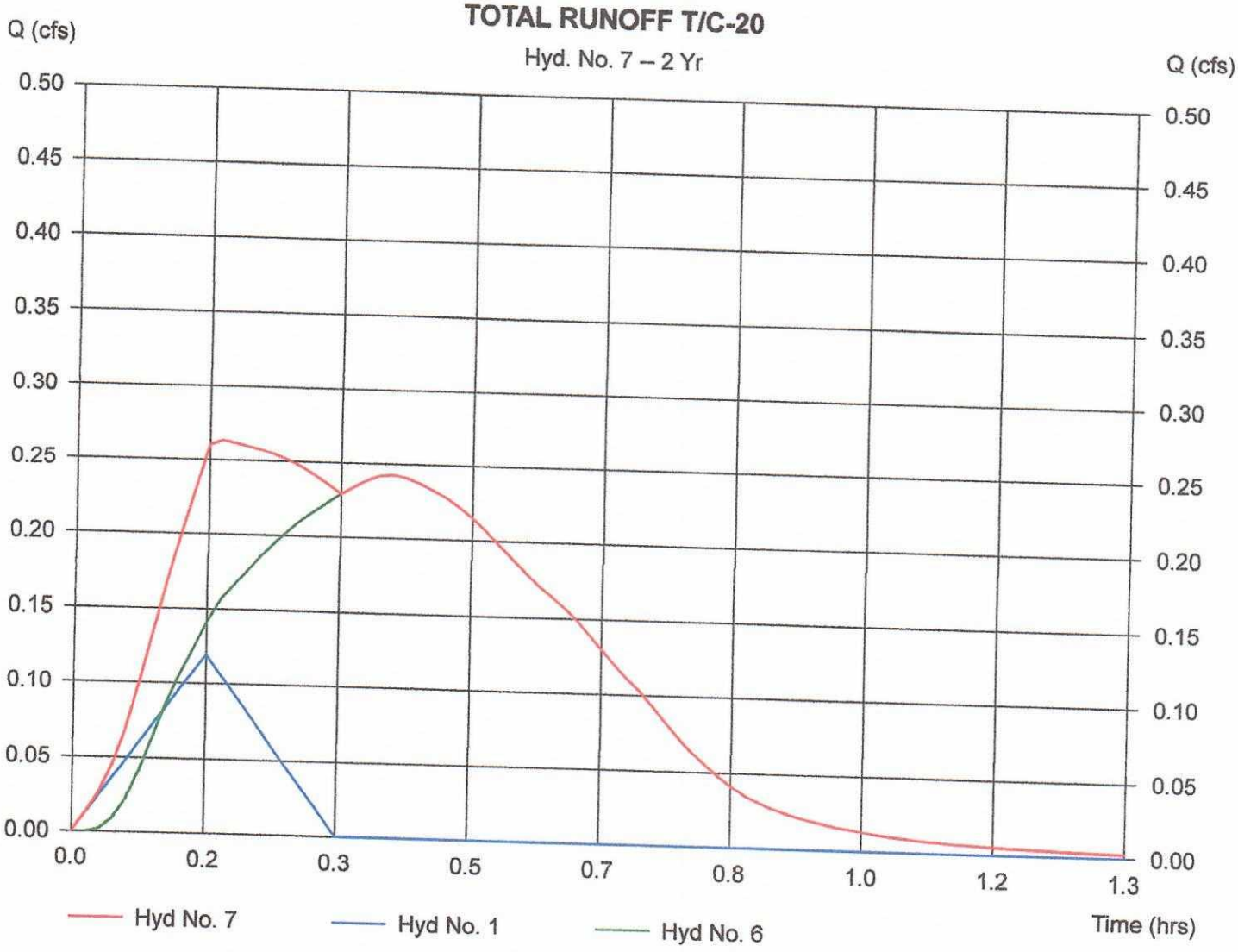
Monday, Mar 1 2021, 8:6 AM

Hyd. No. 7

TOTAL RUNOFF T/C-20

Hydrograph type	= Combine	Peak discharge	= 0.26 cfs
Storm frequency	= 2 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 6		

Hydrograph Volume = 535 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.16	1	10	95	---	-----	-----	DIRECT RUNOFF LOT 1.01
2	Rational	0.71	1	10	428	---	-----	-----	RUNOFF TO DETENTIOC T/C-10
3	Reservoir	0.29	1	16	424	2	98.92	251	ROUTING T/C-10
4	Combine	0.37	1	14	520	1, 3	-----	-----	ROUTING T/C-20
5	Mod. Rational	0.53	1	10	636	---	-----	-----	TO DETENTION T/C-20
6	Reservoir	0.40	1	23	633	5	99.03	296	ROUTING T/C-20
7	Combine	0.40	1	23	728	1, 6	-----	-----	TOTAL RUNOFF T/C-20
8	Mod. Rational	0.43	1	10	769	---	-----	-----	TO DETENTINO T/C-30
9	Reservoir	0.39	1	31	765	8	99.02	291	ROUTING T/C-30

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 7:49 AM

Hyd. No. 1

DIRECT RUNOFF LOT 1.01

Hydrograph type	= Rational	Peak discharge	= 0.16 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Drainage area	= 0.049 ac	Runoff coeff.	= 0.63
Intensity	= 5.139 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 95 cuft

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

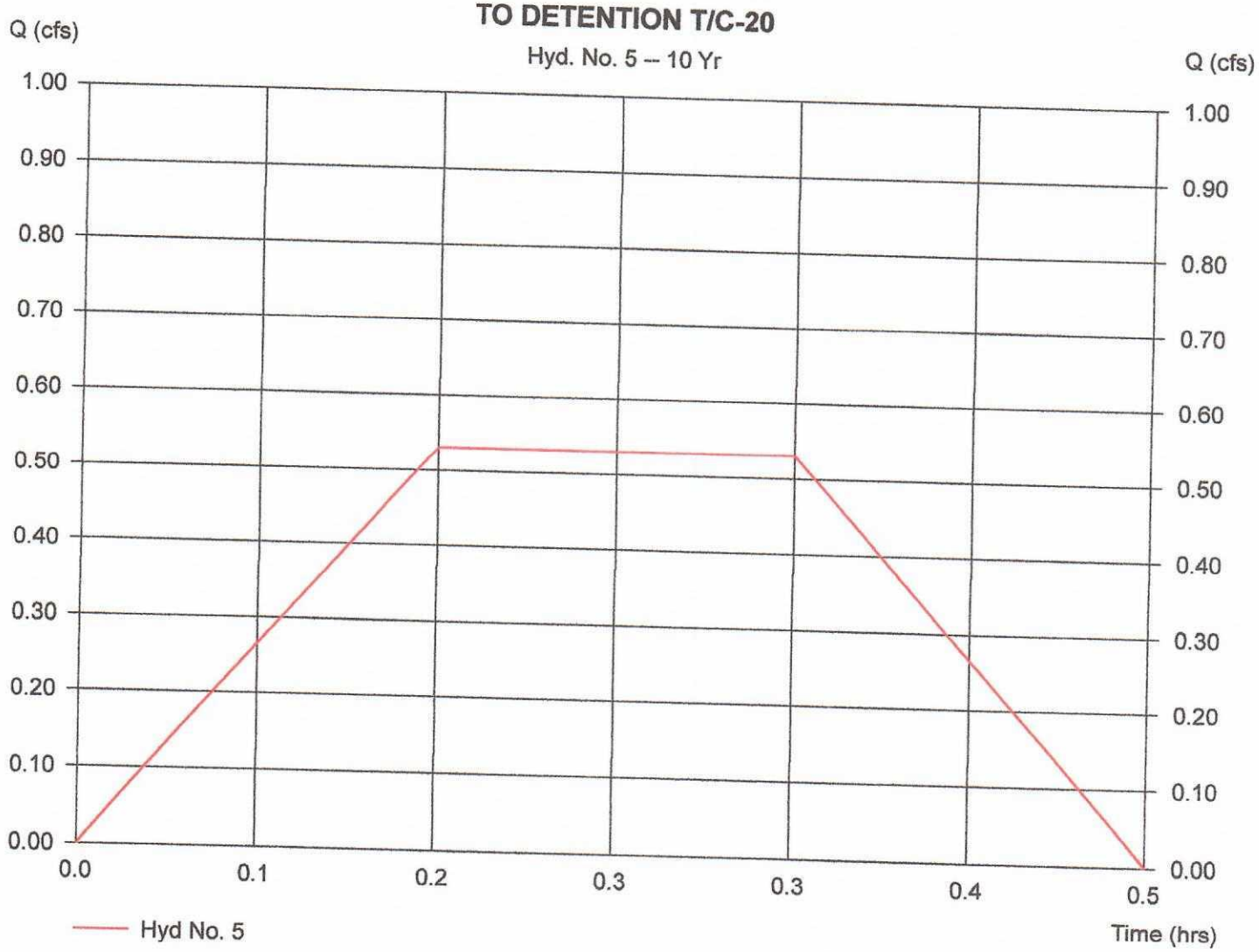
Monday, Mar 1 2021, 8:6 AM

Hyd. No. 5

TO DETENTION T/C-20

Hydrograph type	= Mod. Rational	Peak discharge	= 0.53 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Drainage area	= 0.185 ac	Runoff coeff.	= 0.75
Intensity	= 3.824 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Storm duration	= 2 x Tc

Hydrograph Volume = 636 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 8:6 AM

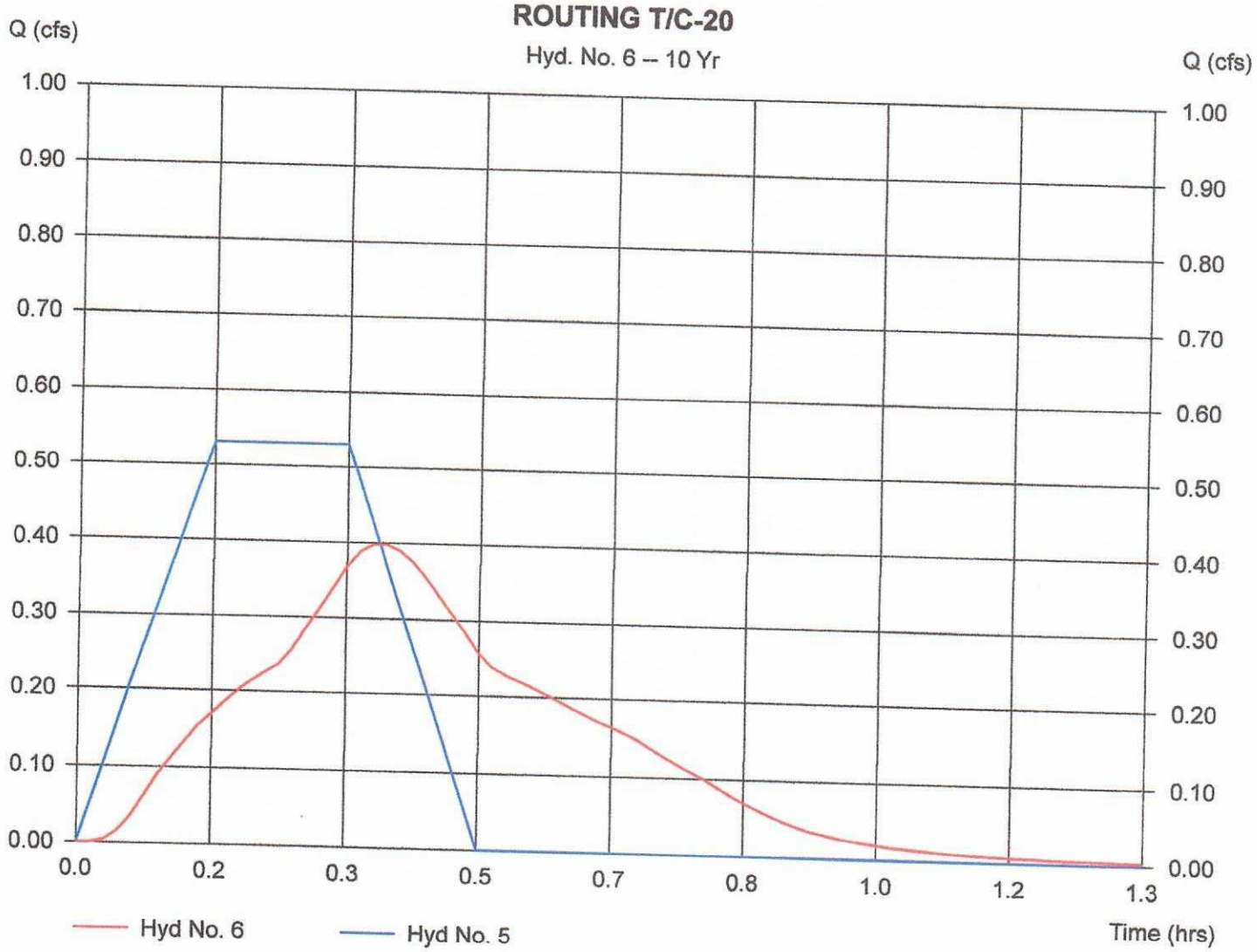
Hyd. No. 6

ROUTING T/C-20

Hydrograph type	= Reservoir	Peak discharge	= 0.40 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Inflow hyd. No.	= 5	Max. Elevation	= 99.03 ft
Reservoir name	= POND LOT 1.01	Max. Storage	= 296 cuft

Storage Indication method used.

Hydrograph Volume = 633 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

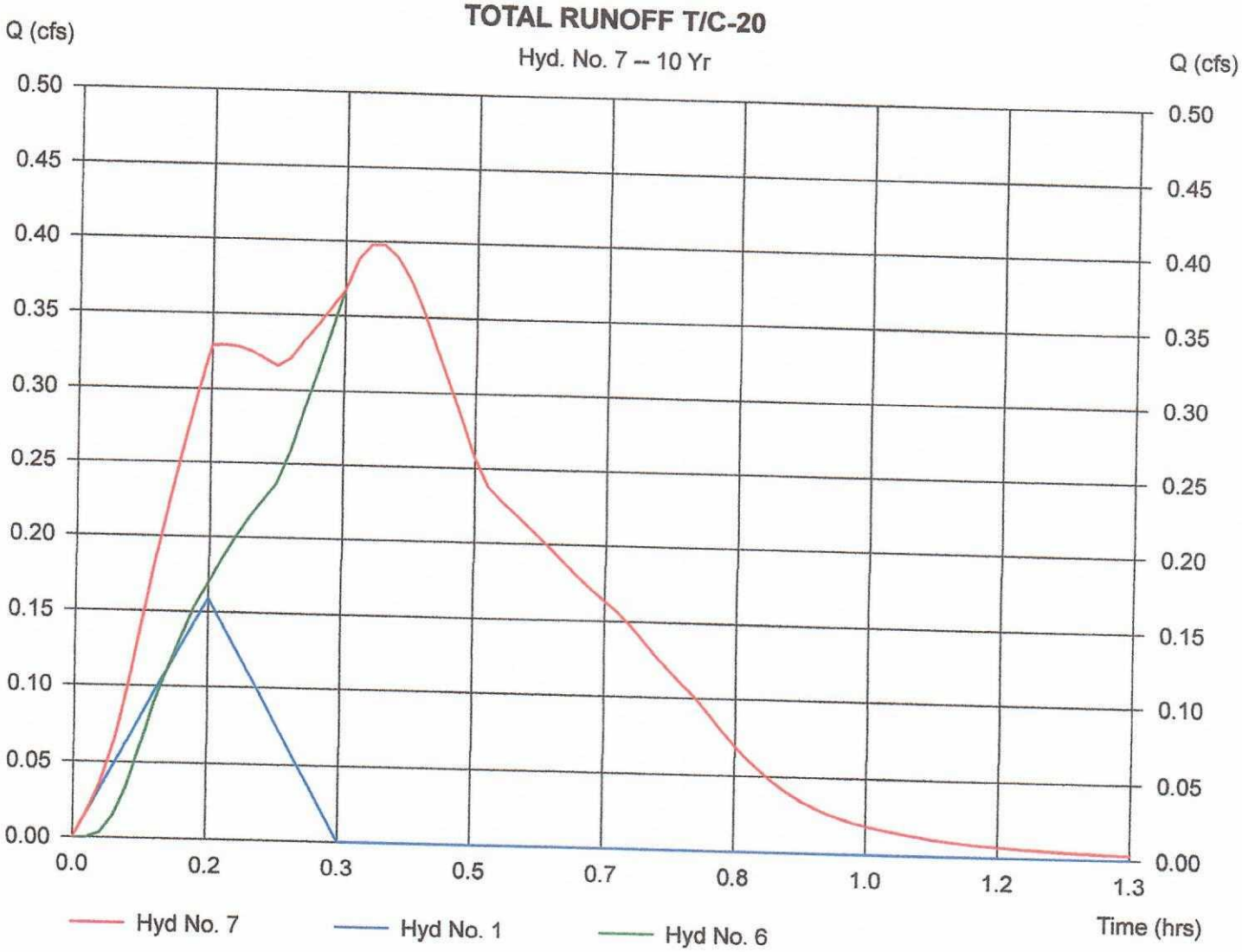
Monday, Mar 1 2021, 8:6 AM

Hyd. No. 7

TOTAL RUNOFF T/C-20

Hydrograph type	= Combine	Peak discharge	= 0.40 cfs
Storm frequency	= 10 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 6		

Hydrograph Volume = 728 cuft



Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	0.26	1	10	153	---	-----	-----	DIRECT RUNOFF LOT 1.01
2	Rational	1.16	1	10	696	---	-----	-----	RUNOFF TO DETENTIOC T/C-10
3	Reservoir	0.59	1	15	693	2	99.25	378	ROUTING T/C-10
4	Combine	0.74	1	13	846	1, 3	-----	-----	ROUTING T/C-20
5	Mod. Rational	0.88	1	10	1,057	---	-----	-----	TO DETENTION T/C-20
6	Reservoir	0.73	1	22	1,054	5	99.47	439	ROUTING T/C-20
7	Combine	0.73	1	22	1,207	1, 6	-----	-----	TOTAL RUNOFF T/C-20
8	Mod. Rational	0.73	1	10	1,308	---	-----	-----	TO DETENTINO T/C-30
9	Reservoir	0.68	1	31	1,304	8	99.39	422	ROUTING T/C-30

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

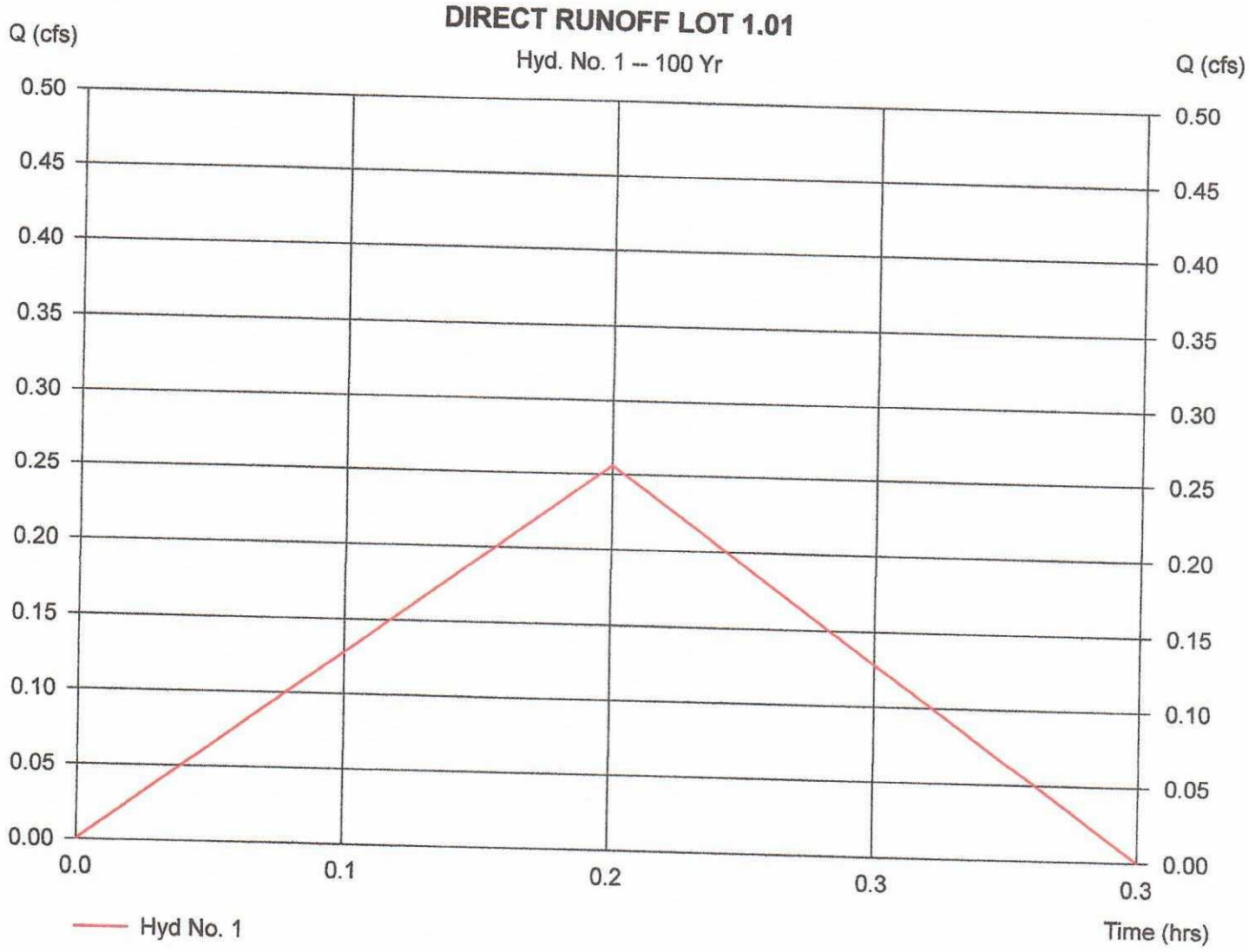
Monday, Mar 1 2021, 12:21 PM

Hyd. No. 1

DIRECT RUNOFF LOT 1.01

Hydrograph type	= Rational	Peak discharge	= 0.26 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 0.049 ac	Runoff coeff.	= 0.78
Intensity	= 6.674 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 153 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

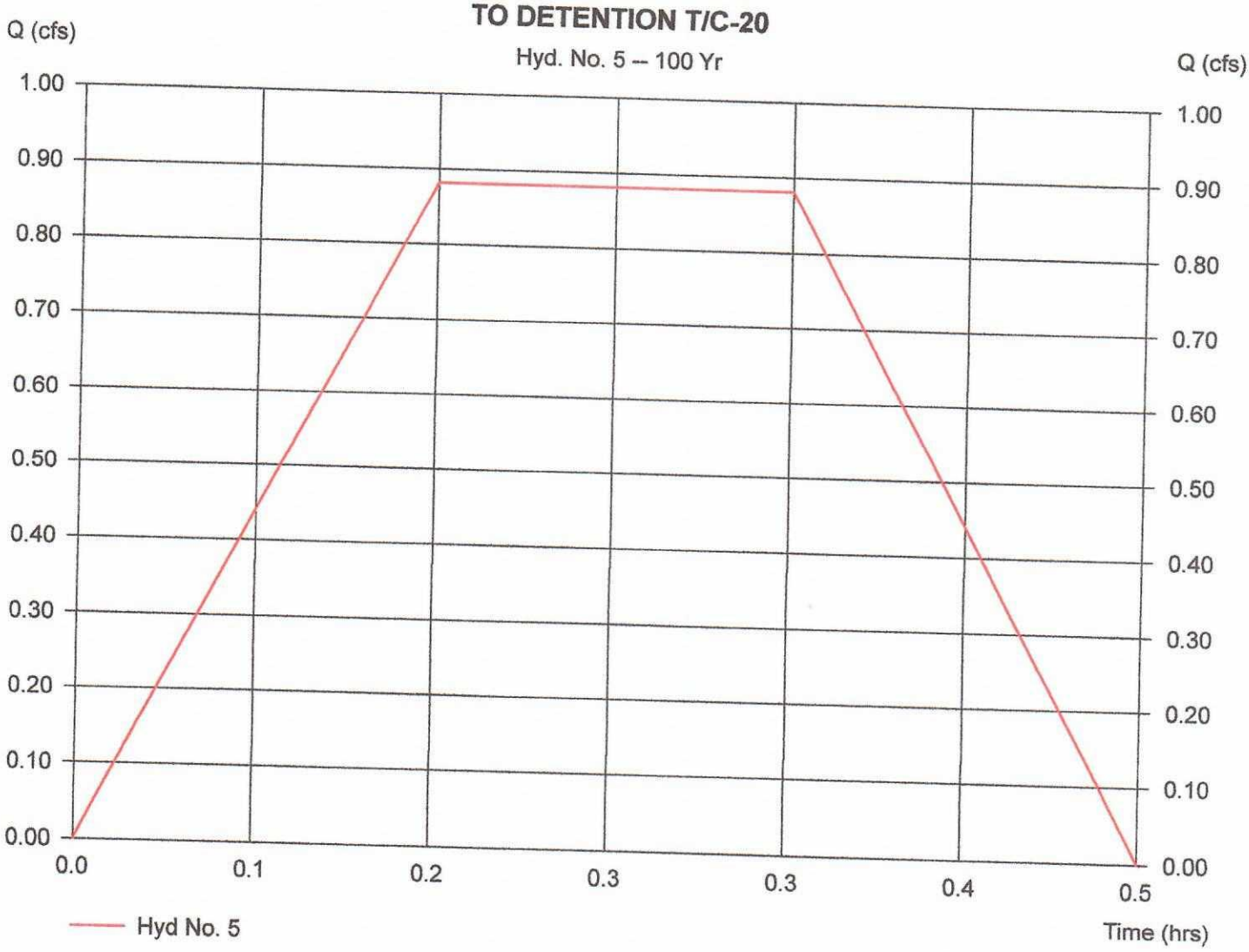
Monday, Mar 1 2021, 12:21 PM

Hyd. No. 5

TO DETENTION T/C-20

Hydrograph type	= Mod. Rational	Peak discharge	= 0.88 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 0.185 ac	Runoff coeff.	= 0.94
Intensity	= 5.070 in/hr	Tc by User	= 10.00 min
IDF Curve	= NOAA, 2019.IDF	Storm duration	= 2 x Tc

Hydrograph Volume = 1,057 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 12:21 PM

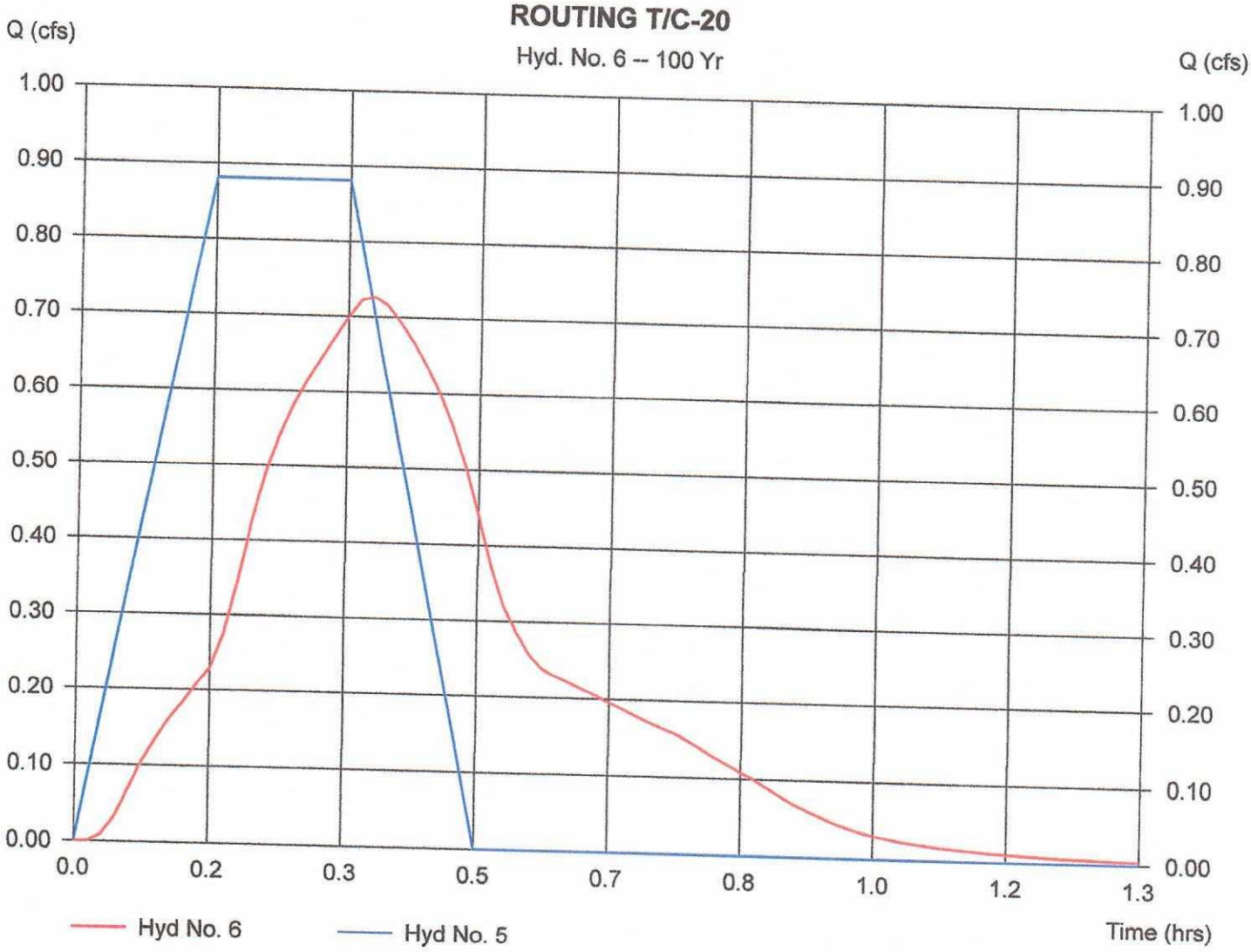
Hyd. No. 6

ROUTING T/C-20

Hydrograph type	= Reservoir	Peak discharge	= 0.73 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyd. No.	= 5	Max. Elevation	= 99.47 ft
Reservoir name	= POND LOT 1.01	Max. Storage	= 439 cuft

Storage Indication method used.

Hydrograph Volume = 1,054 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Monday, Mar 1 2021, 12:21 PM

Hyd. No. 7

TOTAL RUNOFF T/C-20

Hydrograph type	= Combine	Peak discharge	= 0.73 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Inflow hyds.	= 1, 6		

Hydrograph Volume = 1,207 cuft