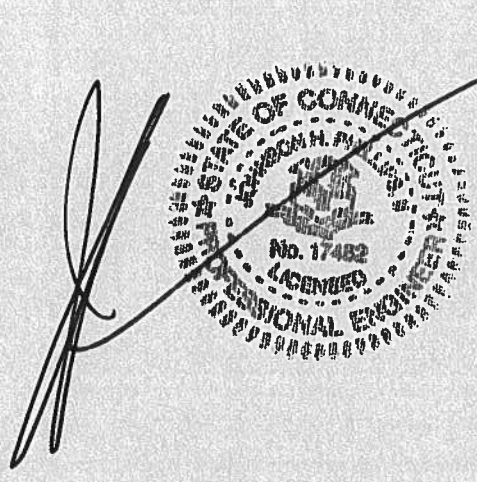
DRAINAGE REPORT

AJ Resources LLC

2285 Winsted Road
Torrington, CT

March 6, 2024



PREPARED BY:

BORGHESI BUILDING & ENGINEERING CO.
2155 EAST MAIN STREET
TORRINGTON, CT 06790
(860) 482-7613

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SUMMARY

The applicant proposes to excavate 160,000 cy of earth materials from their Winsted Road property. The existing site is a steeply sloped woodland with very little soil cover over bedrock. A detention basin is designed to reduce post -development flows to pre-development levels for the 2-yr, 10-yr, 25-yr, 50-yr, and 100-year storms for the full potential build-out of the site.

The proposed site grading will contain the runoff from the excavation in the excavated area by creating a swale along the west edge of an existing north-south running plateau at the toe of the existing slope.The runoff will be directing to the detention basin located at the southern end of the property. The detention basin will connect to an existing drainage system in Winsted Road. A summary of the watershed analysis is found on the next page. Hydraflow Hydrographs software is used to evaluate the pre- and post- development conditions.

BORGHESI BUILDING & ENGINEERING CO.
2155 EAST MAIN ST., TORRINGTON, CT

AJ Resources LLC
Winsted Road, Torrington, CT

SUMMARY OF DISCHARGES

STORM (YEAR)	EXISTING (CFS)	PROPOSED (CFS)	CHANGE (CFS)
2	3.10	2.89	-0.21
10	10.81	6.97	-3.84
25	15.73	9.97	-5.76
50	20.46	14.52	-5.94
100	26.16	16.94	-9.22

Watershed Model Schematic

App. A
Existing Conditions

Legend

Hyd.	Origin	Description
1	SCS Runoff	Existing

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	3.100	-------	-------	10.81	15.73	20.46	26.16	Existing

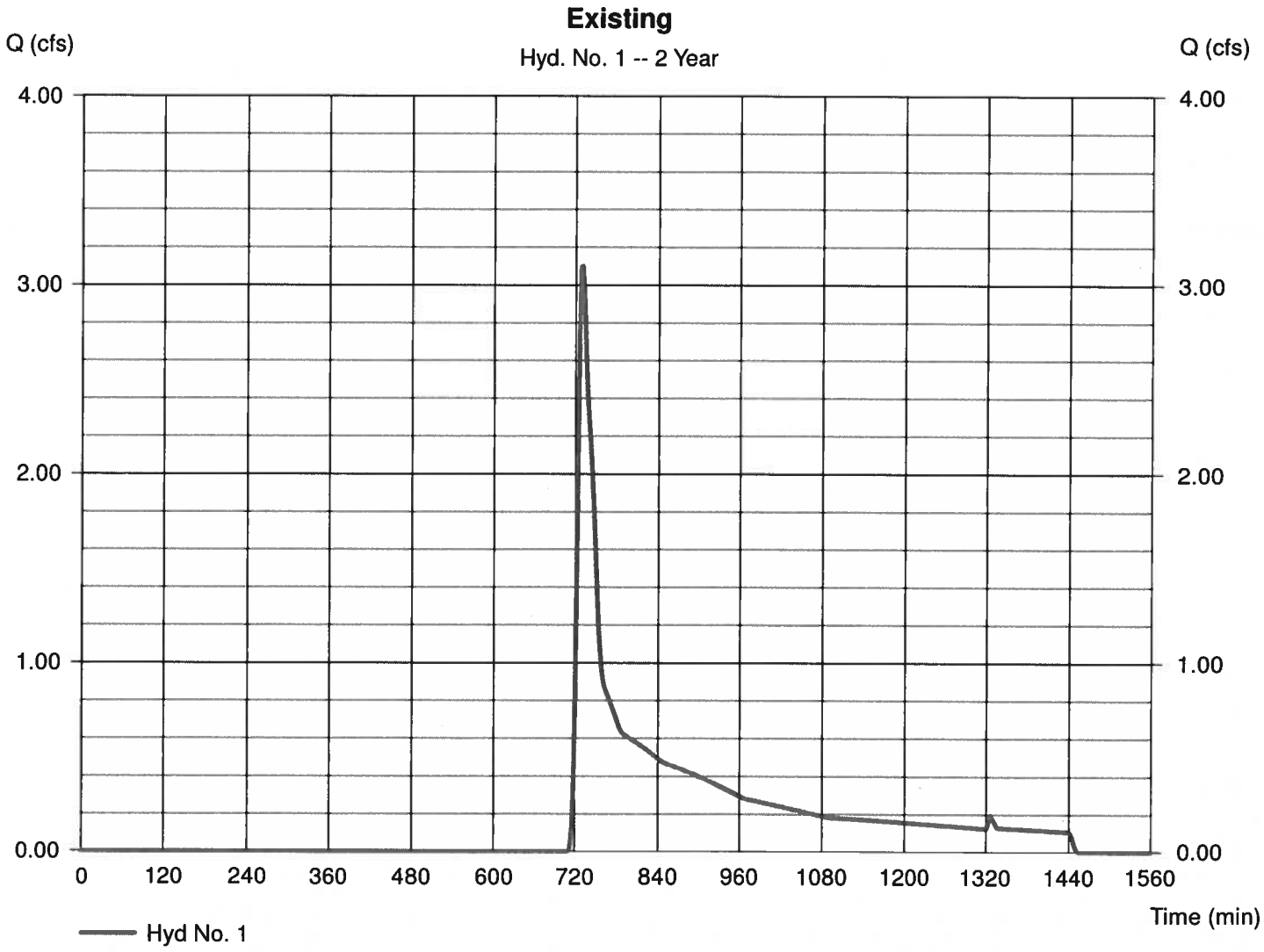
Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	= SCS Runoff	Peak discharge	= 3.100 cfs
Storm frequency	= 2 yrs	Time to peak	= 730 min
Time interval	= 2 min	Hyd. volume	= 15,713 cuft
Drainage area	= 9.000 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.10 min
Total precip.	= 3.20 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(5.000 x 55) + (4.000 x 70)] / 9.000



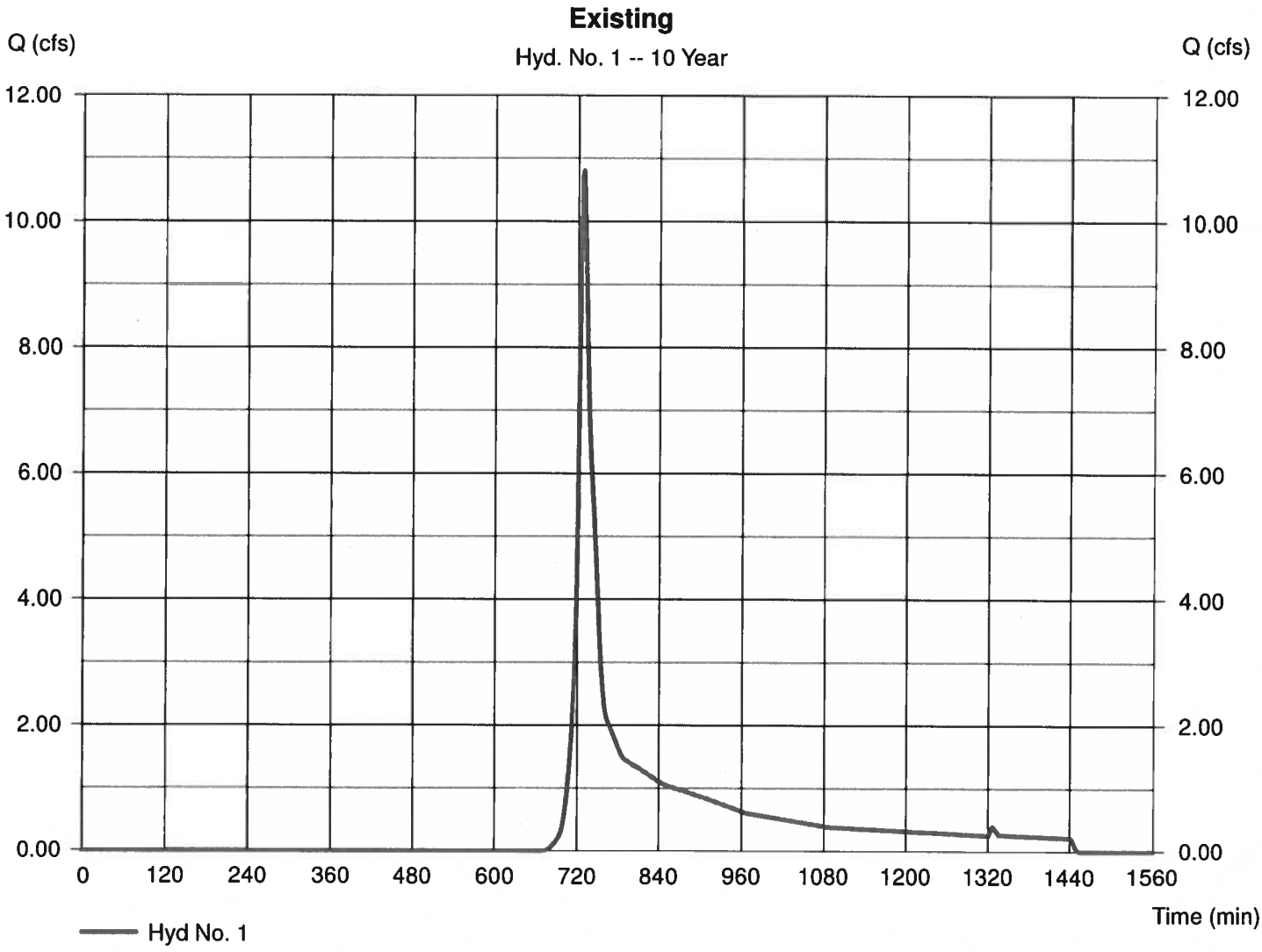
Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	= SCS Runoff	Peak discharge	= 10.81 cfs
Storm frequency	= 10 yrs	Time to peak	= 728 min
Time interval	= 2 min	Hyd. volume	= 41,062 cuft
Drainage area	= 9.000 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.10 min
Total precip.	= 4.70 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(5.000 x 55) + (4.000 x 70)] / 9.000



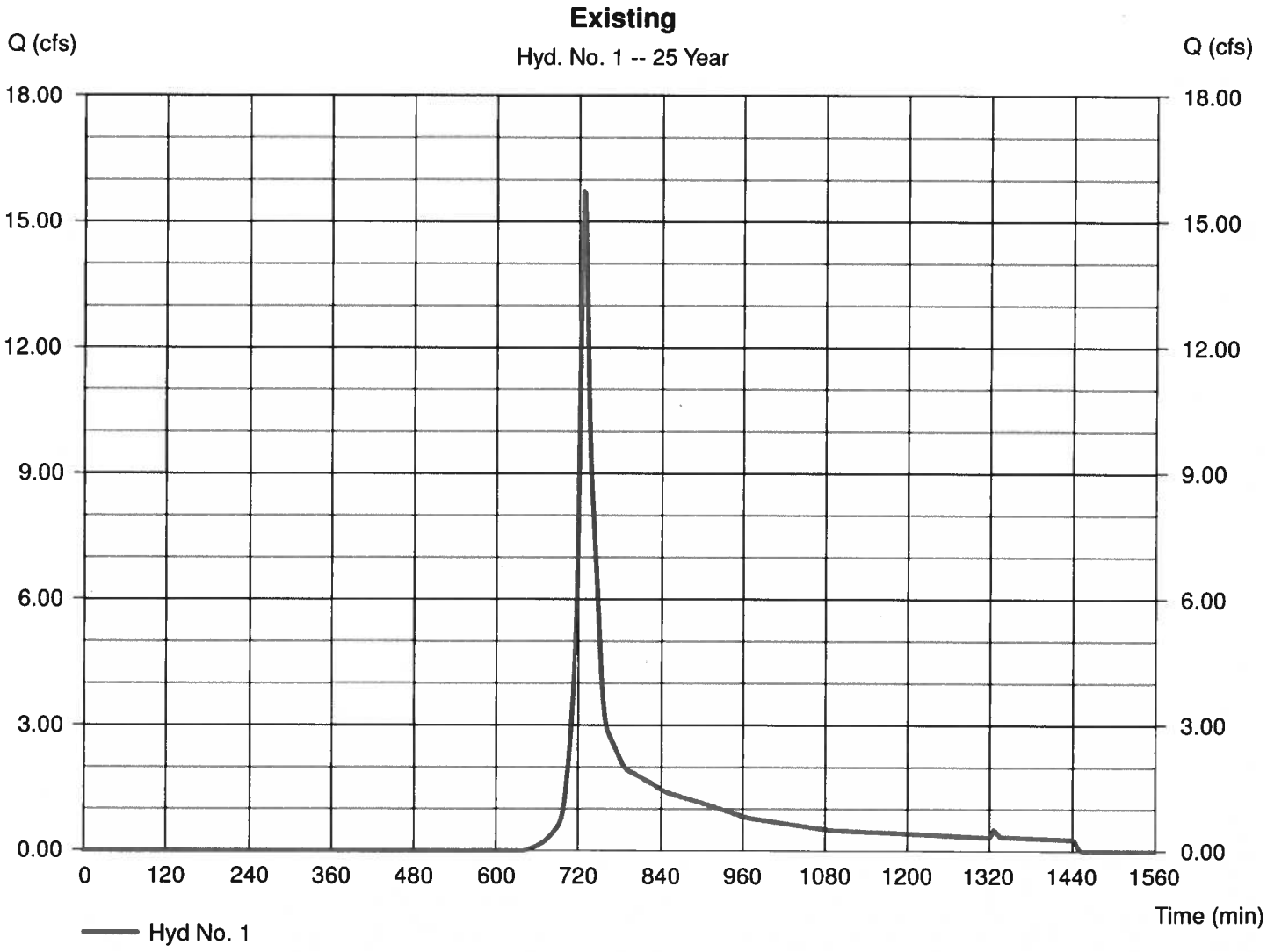
Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	= SCS Runoff	Peak discharge	= 15.73 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 57,371 cuft
Drainage area	= 9.000 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.10 min
Total precip.	= 5.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(5.000 x 55) + (4.000 x 70)] / 9.000



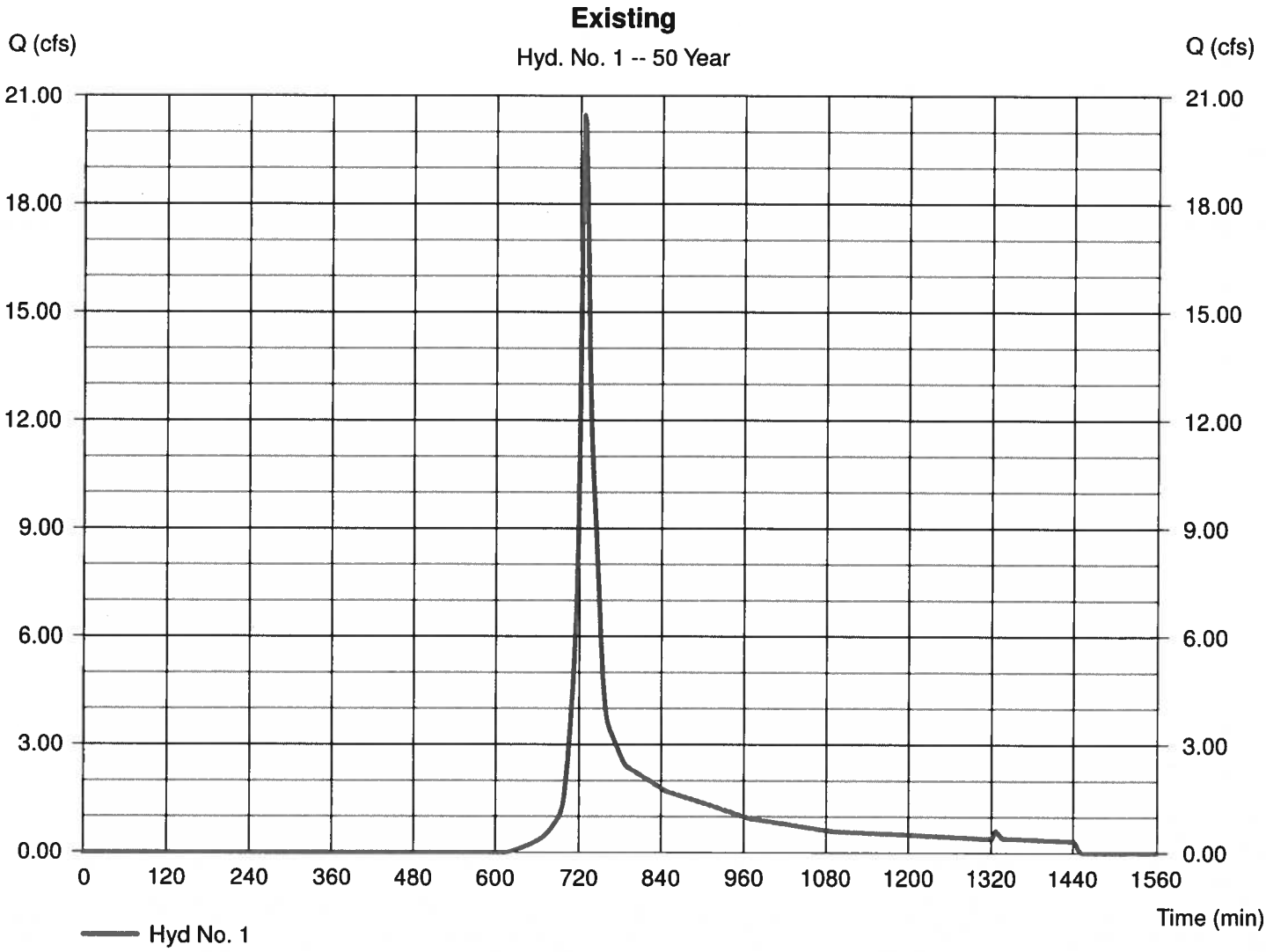
Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	= SCS Runoff	Peak discharge	= 20.46 cfs
Storm frequency	= 50 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 72,802 cuft
Drainage area	= 9.000 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.10 min
Total precip.	= 6.20 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(5.000 x 55) + (4.000 x 70)] / 9.000



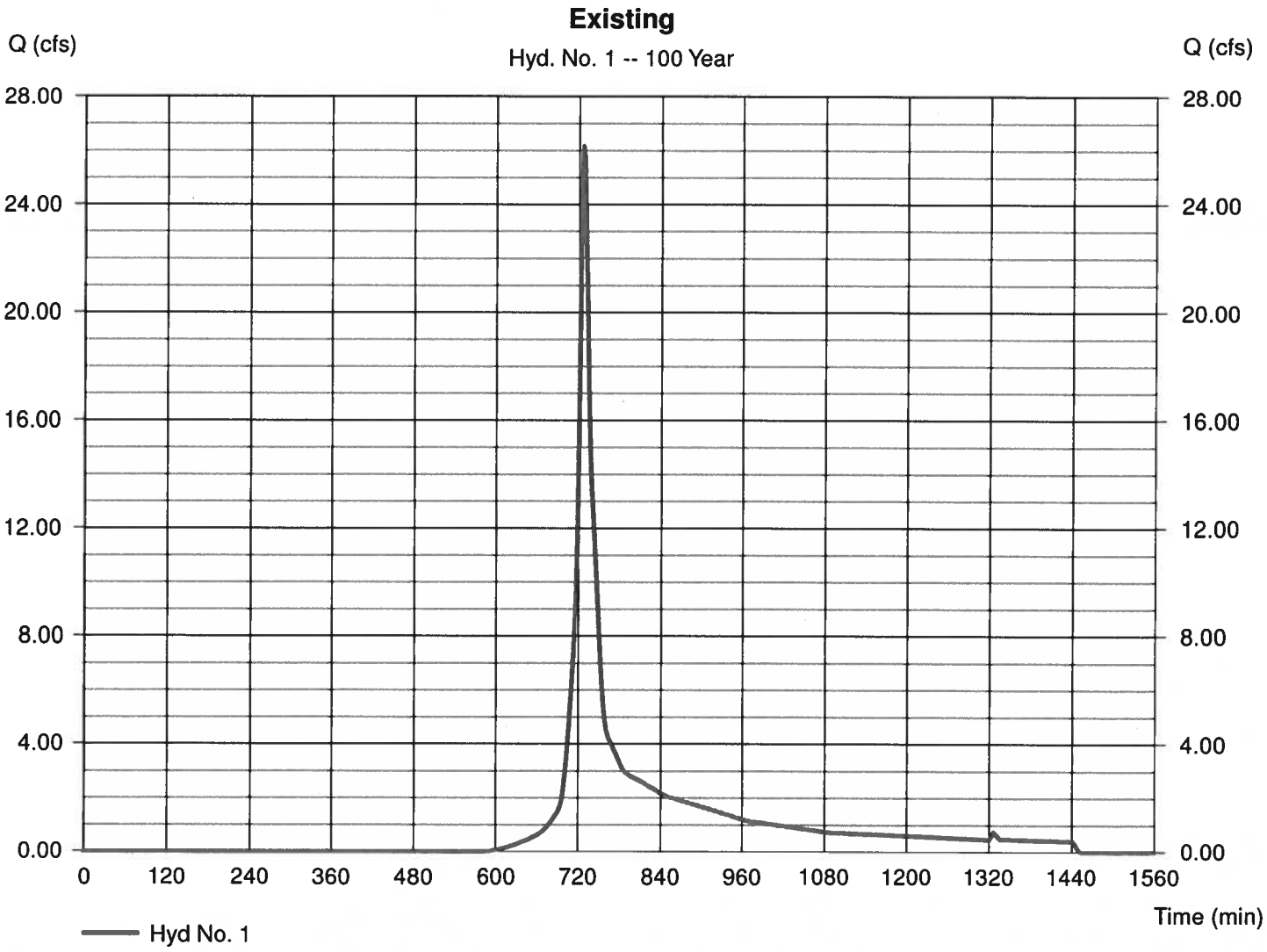
Hydrograph Report

Hyd. No. 1

Existing

Hydrograph type	= SCS Runoff	Peak discharge	= 26.16 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 91,510 cuft
Drainage area	= 9.000 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 7.10 min
Total precip.	= 7.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(5.000 x 55) + (4.000 x 70)] / 9.000



Watershed Model Schematic

App. B Proposed Conditions

Legend

Hyd.	Origin	Description
1	SCS Runoff	Proposed
2	Reservoir	det

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	-------	-------	17.24	-------	-------	30.51	37.71	44.03	51.25	Proposed
2	Reservoir	1	-------	2.892	-------	-------	6.974	9.969	14.52	16.94	det

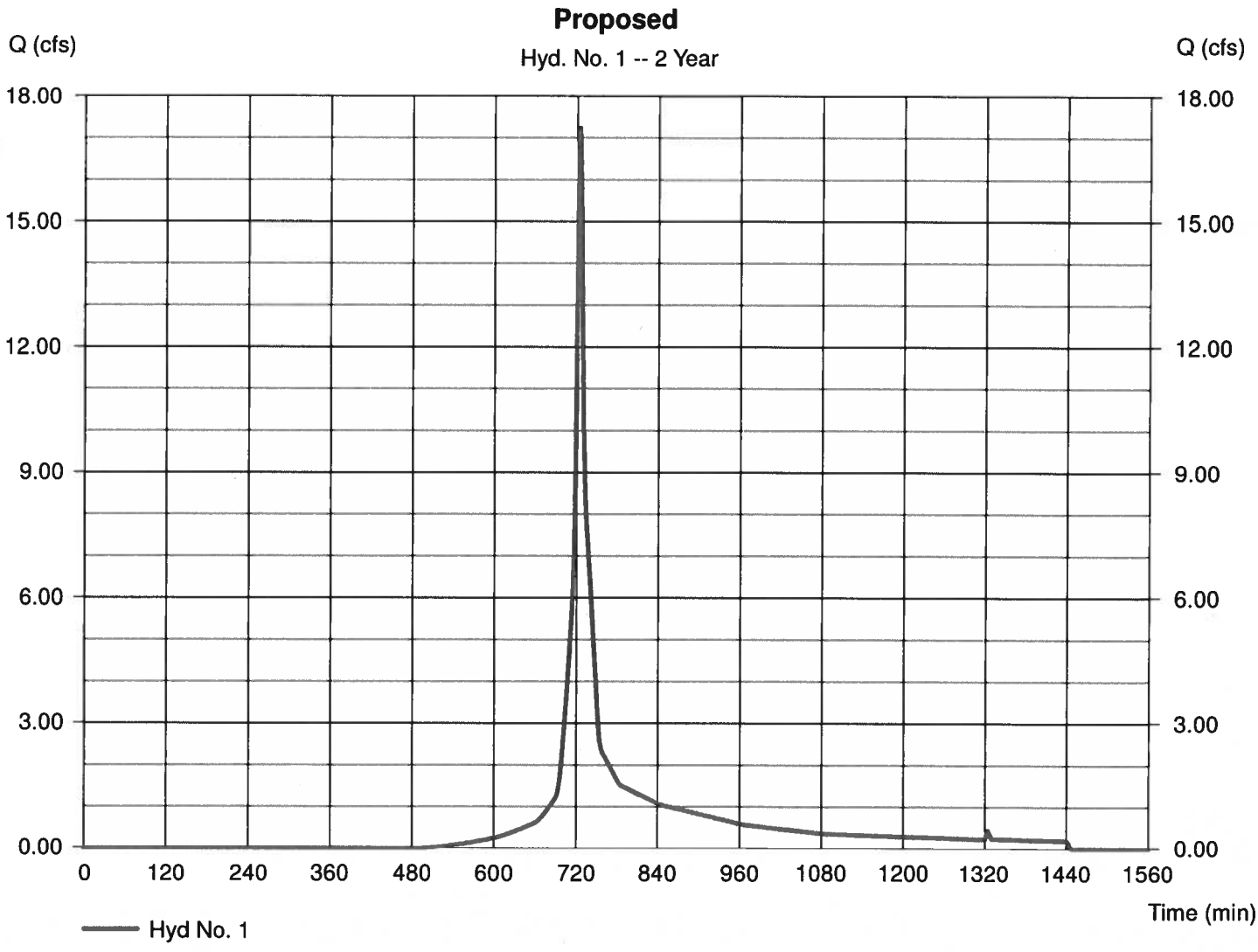
Hydrograph Report

Hyd. No. 1

Proposed

Hydrograph type	= SCS Runoff	Peak discharge	= 17.24 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 51,527 cuft
Drainage area	= 9.000 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 3.20 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.000 x 55) + (6.000 x 98)] / 9.000



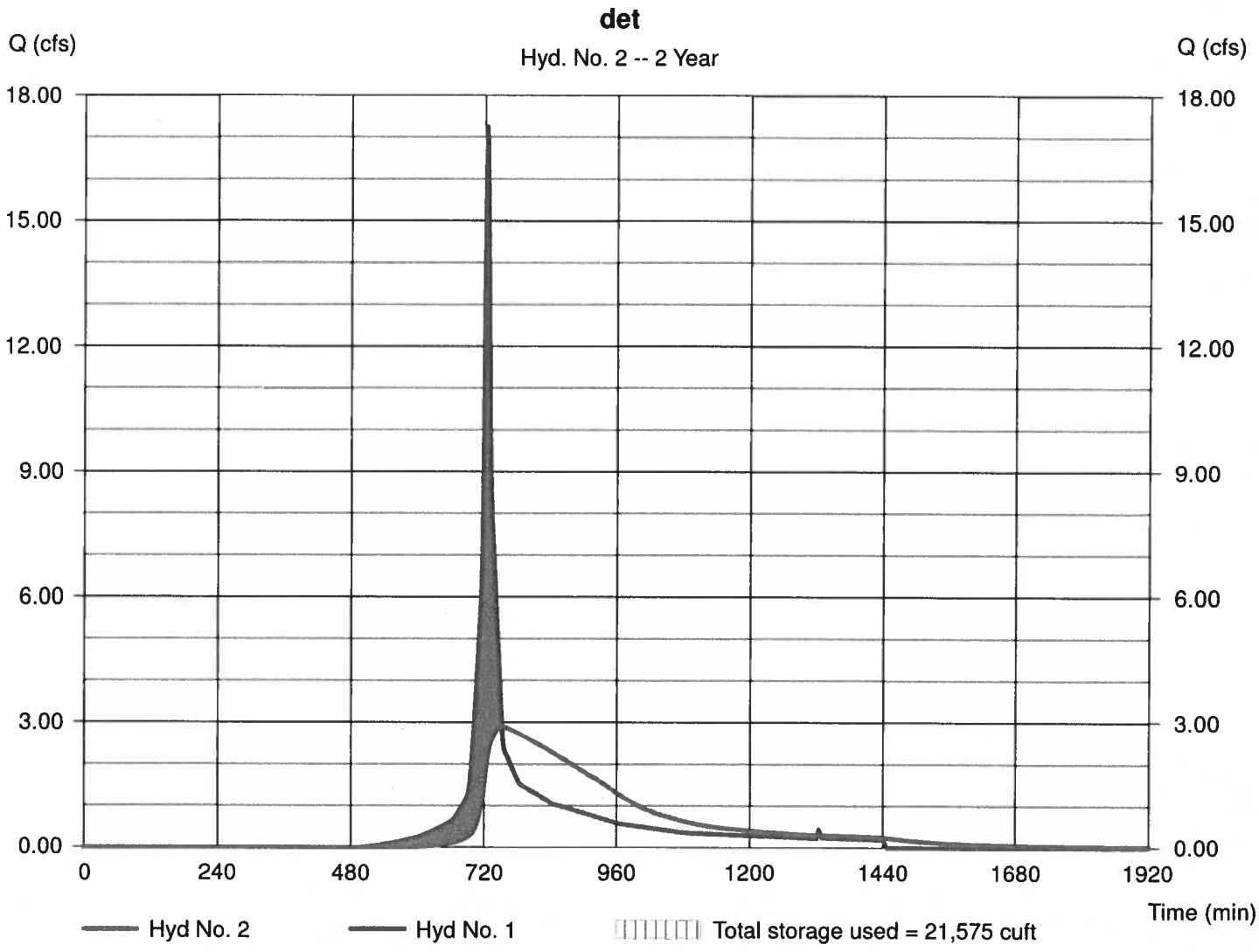
Hydrograph Report

Hyd. No. 2

det

Hydrograph type	= Reservoir	Peak discharge	= 2.892 cfs
Storm frequency	= 2 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 51,465 cuft
Inflow hyd. No.	= 1 - Proposed	Max. Elevation	= 727.60 ft
Reservoir name	= <New Pond>	Max. Storage	= 21,575 cuft

Storage Indication method used.



Pond No. 1 - <New Pond>

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 726.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	726.00	13,000	0	0
0.50	726.50	13,325	6,580	6,580
1.00	727.00	13,650	6,743	13,323
1.50	727.50	13,975	6,905	20,229
2.00	728.00	14,300	7,068	27,297
2.50	728.50	14,625	7,230	34,527
3.00	729.00	14,950	7,393	41,920
3.50	729.50	15,275	7,555	49,475
4.00	730.00	15,600	7,718	57,193

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	10.00	12.00	0.00
Span (in)	= 18.00	10.00	12.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 725.00	726.00	727.50	0.00
Length (ft)	= 100.00	1.00	1.00	0.00
Slope (%)	= 2.00	1.00	1.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

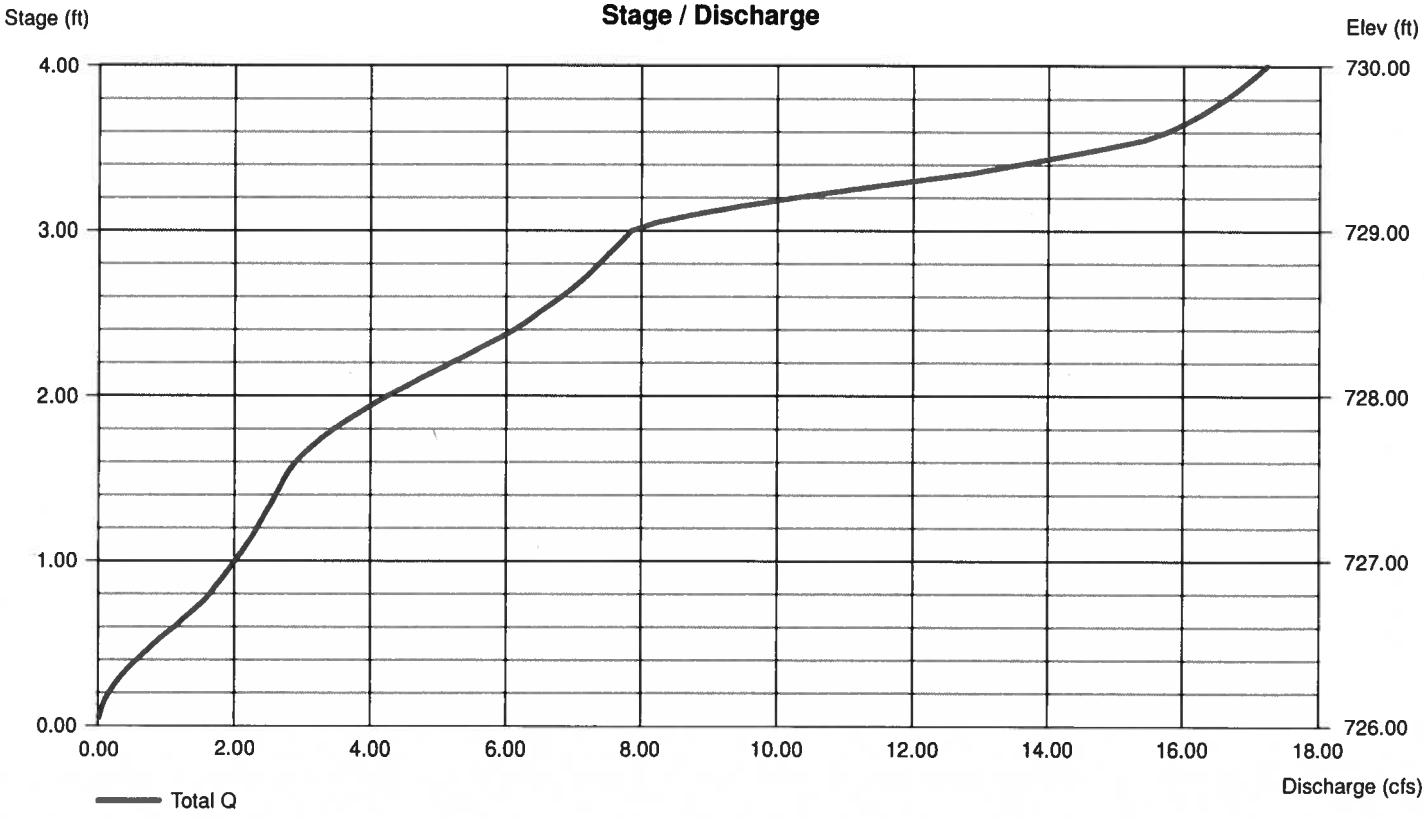
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 8.00	0.00	0.00	0.00
Crest El. (ft)	= 729.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 0.000 (by Wet area)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



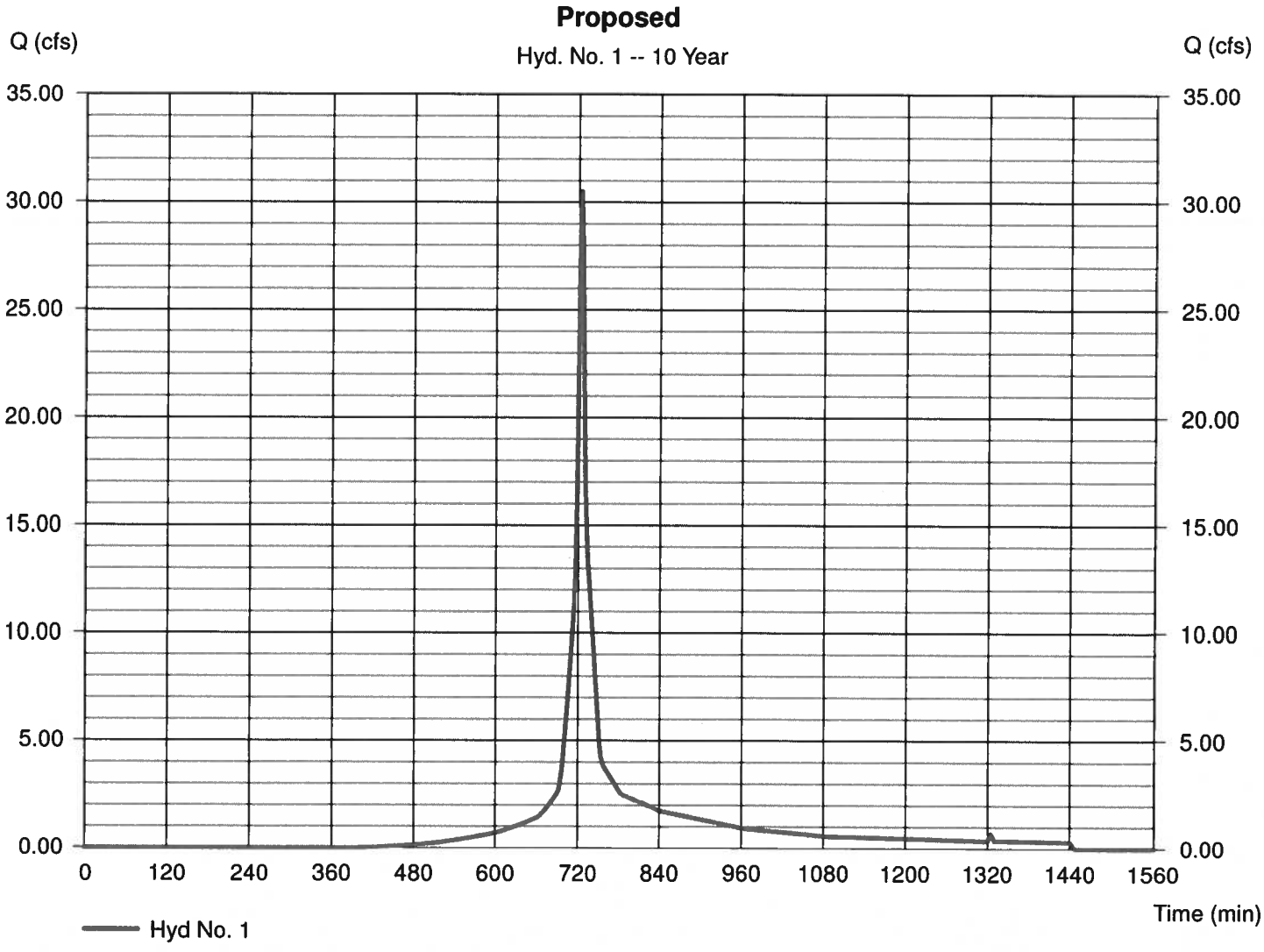
Hydrograph Report

Hyd. No. 1

Proposed

Hydrograph type	= SCS Runoff	Peak discharge	= 30.51 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 91,799 cuft
Drainage area	= 9.000 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.70 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.000 x 55) + (6.000 x 98)] / 9.000



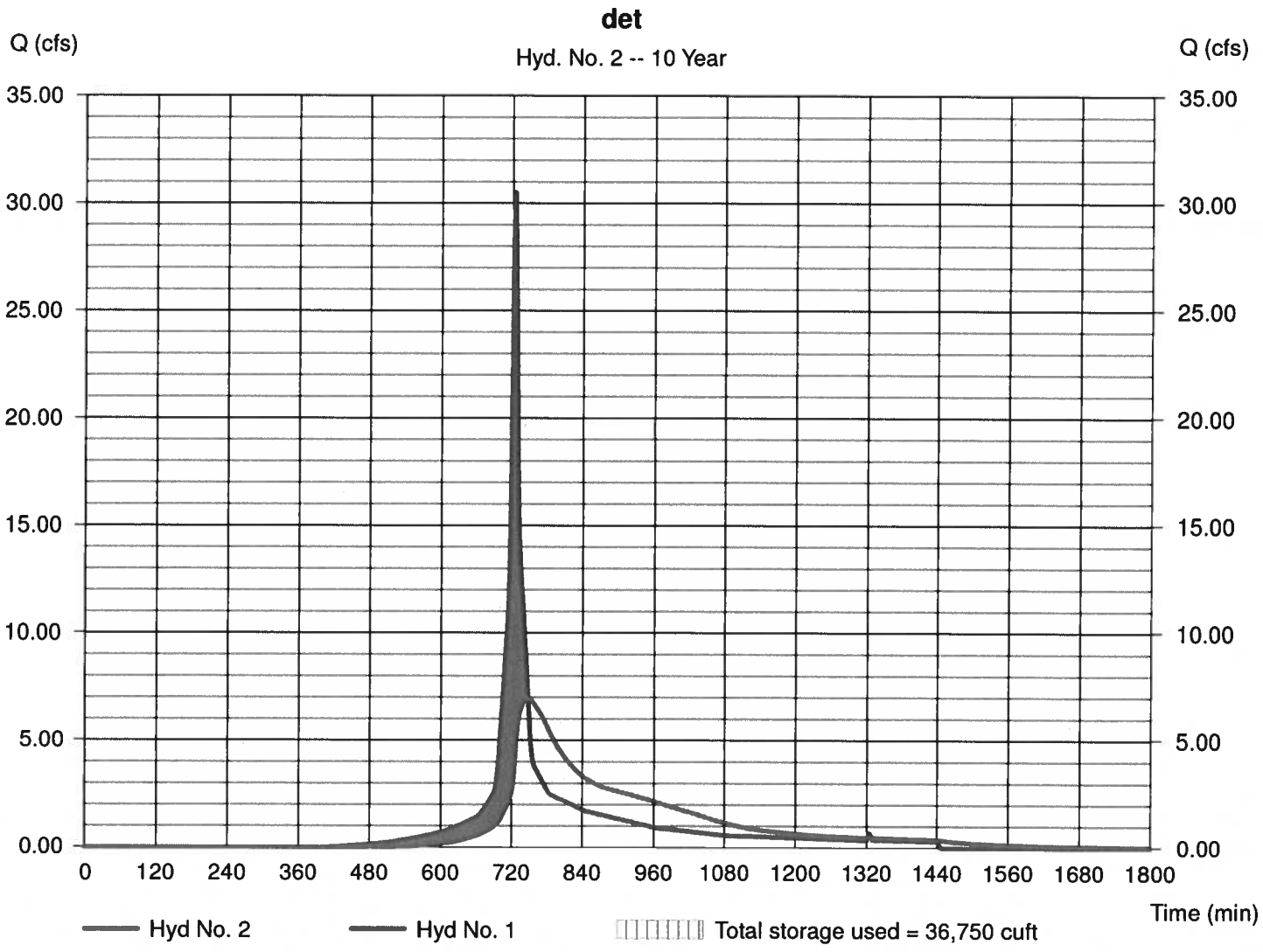
Hydrograph Report

Hyd. No. 2

det

Hydrograph type	= Reservoir	Peak discharge	= 6.974 cfs
Storm frequency	= 10 yrs	Time to peak	= 748 min
Time interval	= 2 min	Hyd. volume	= 91,738 cuft
Inflow hyd. No.	= 1 - Proposed	Max. Elevation	= 728.65 ft
Reservoir name	= <New Pond>	Max. Storage	= 36,750 cuft

Storage Indication method used.



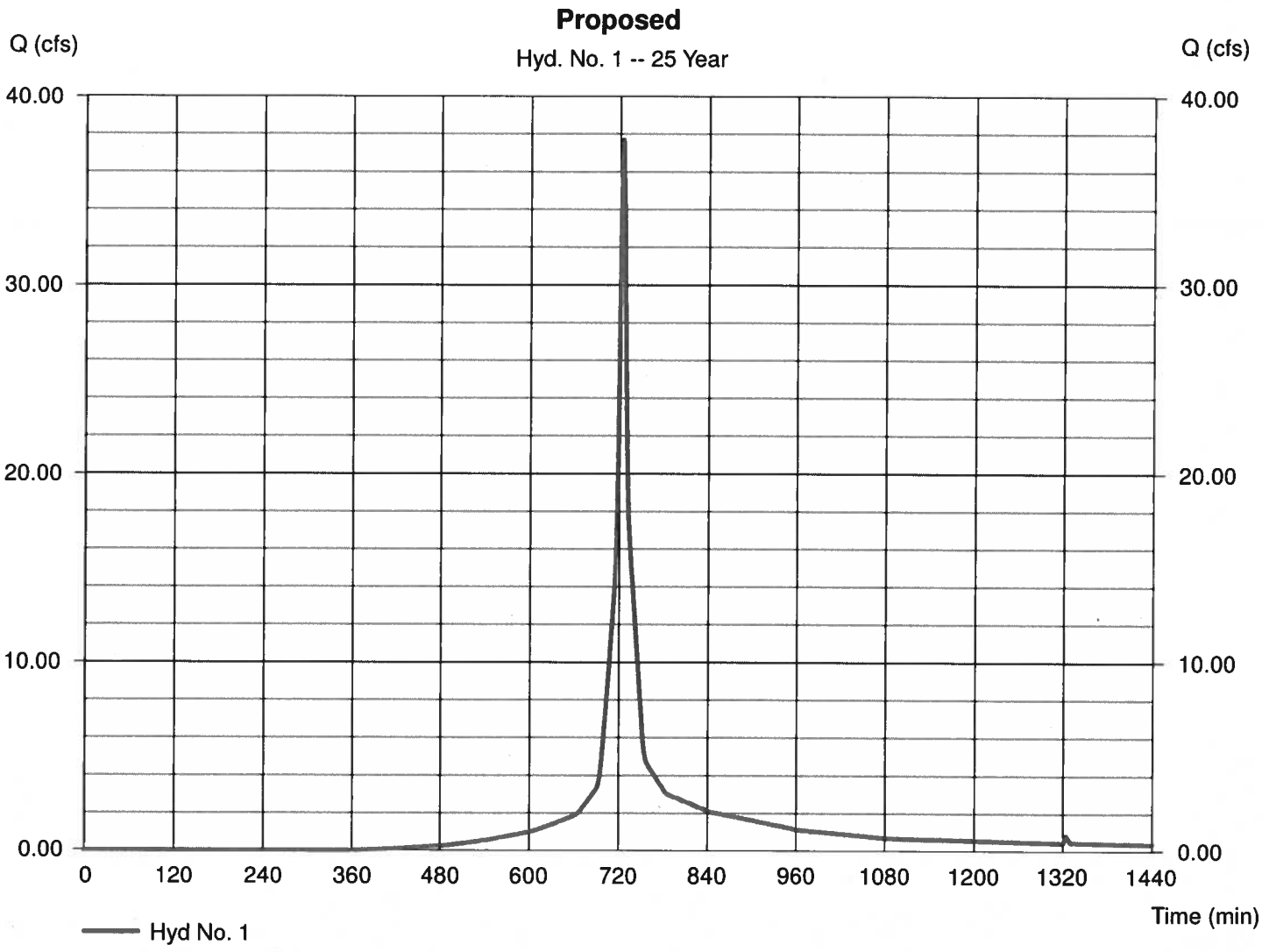
Hydrograph Report

Hyd. No. 1

Proposed

Hydrograph type	= SCS Runoff	Peak discharge	= 37.71 cfs
Storm frequency	= 25 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 114,268 cuft
Drainage area	= 9.000 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 5.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.000 x 55) + (6.000 x 98)] / 9.000



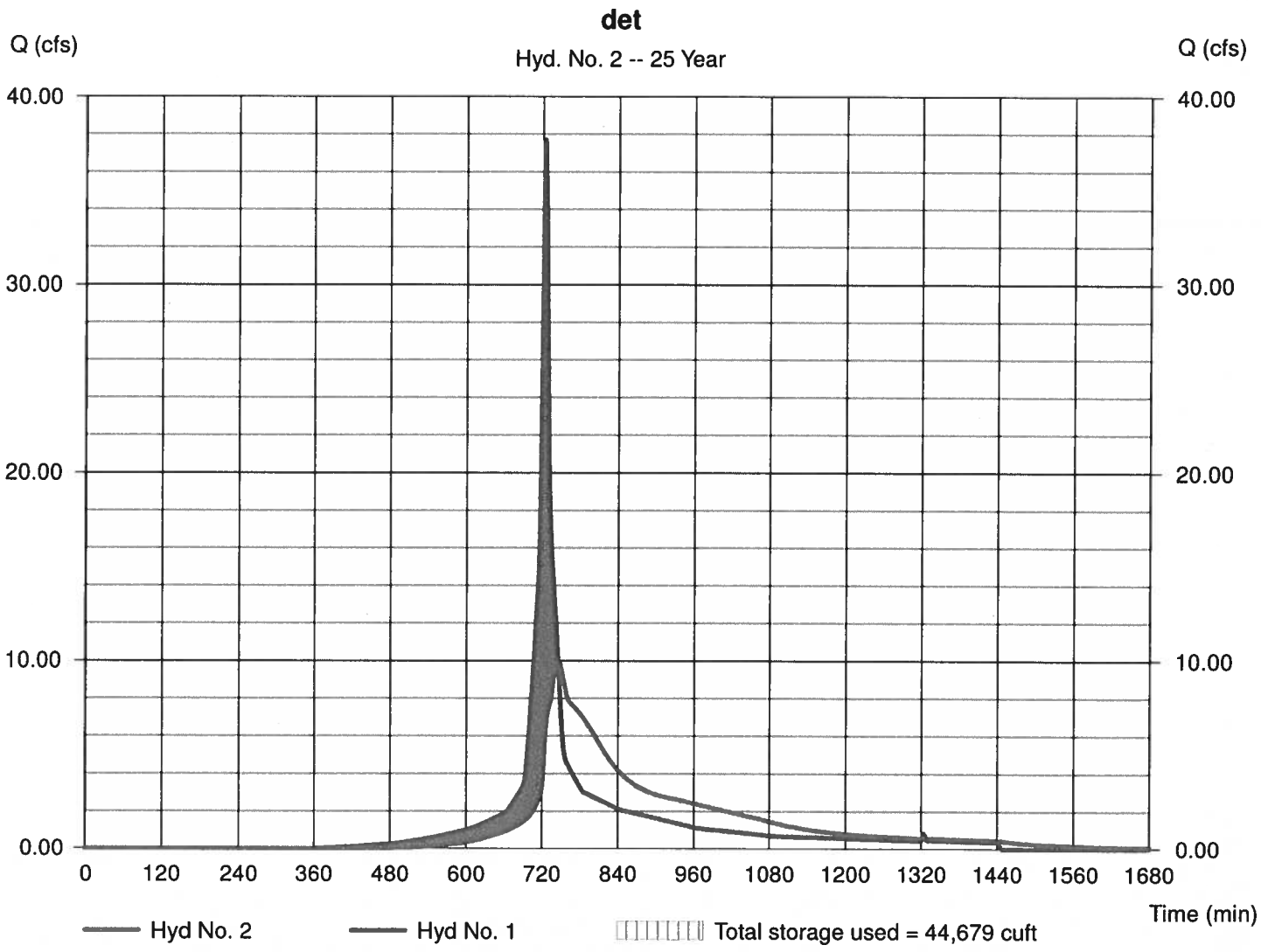
Hydrograph Report

Hyd. No. 2

det

Hydrograph type	= Reservoir	Peak discharge	= 9.969 cfs
Storm frequency	= 25 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 114,207 cuft
Inflow hyd. No.	= 1 - Proposed	Max. Elevation	= 729.18 ft
Reservoir name	= <New Pond>	Max. Storage	= 44,679 cuft

Storage Indication method used.



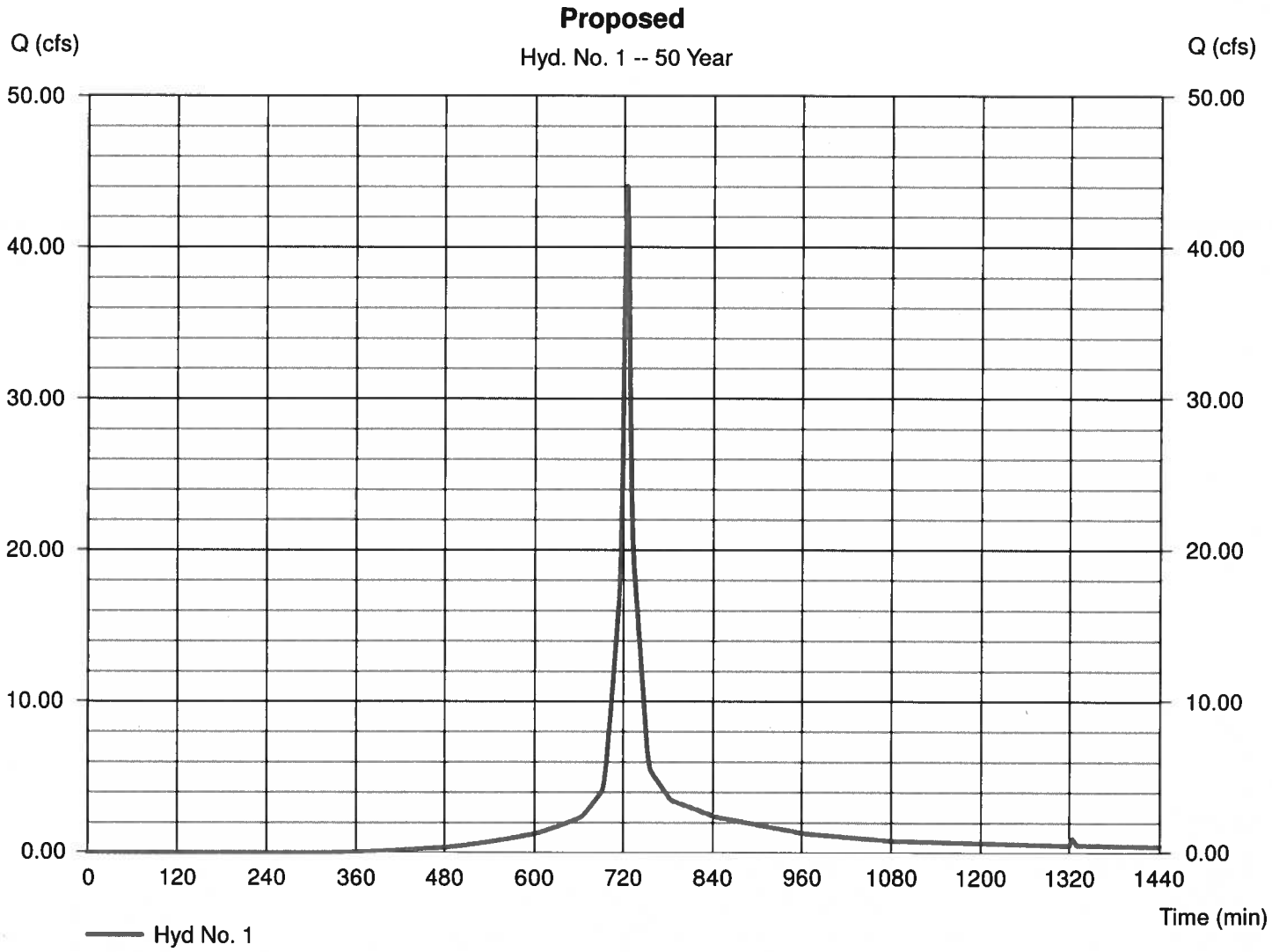
Hydrograph Report

Hyd. No. 1

Proposed

Hydrograph type	= SCS Runoff	Peak discharge	= 44.03 cfs
Storm frequency	= 50 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 134,274 cuft
Drainage area	= 9.000 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.20 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.000 x 55) + (6.000 x 98)] / 9.000



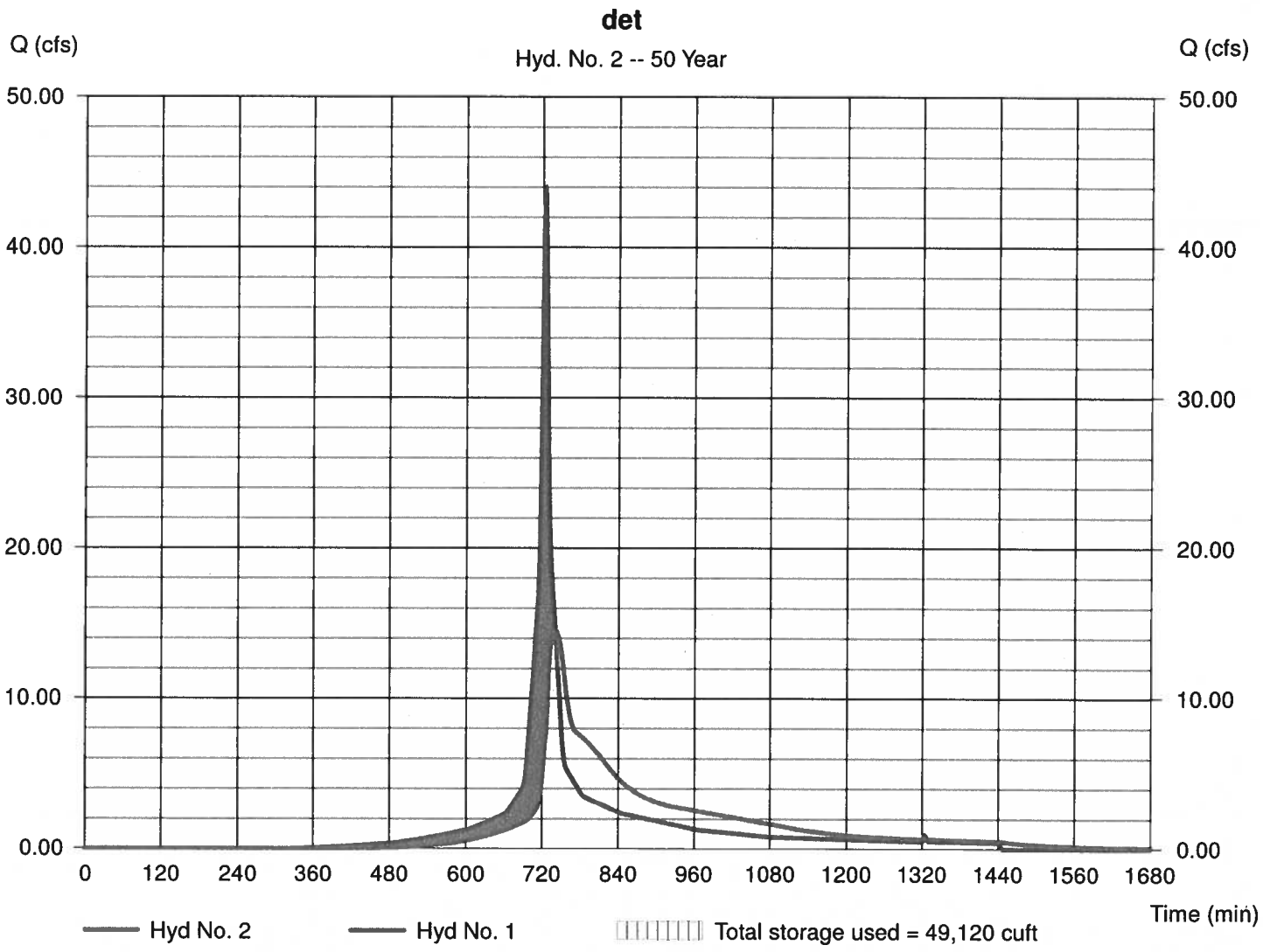
Hydrograph Report

Hyd. No. 2

det

Hydrograph type	= Reservoir	Peak discharge	= 14.52 cfs
Storm frequency	= 50 yrs	Time to peak	= 740 min
Time interval	= 2 min	Hyd. volume	= 134,212 cuft
Inflow hyd. No.	= 1 - Proposed	Max. Elevation	= 729.48 ft
Reservoir name	= <New Pond>	Max. Storage	= 49,120 cuft

Storage Indication method used.



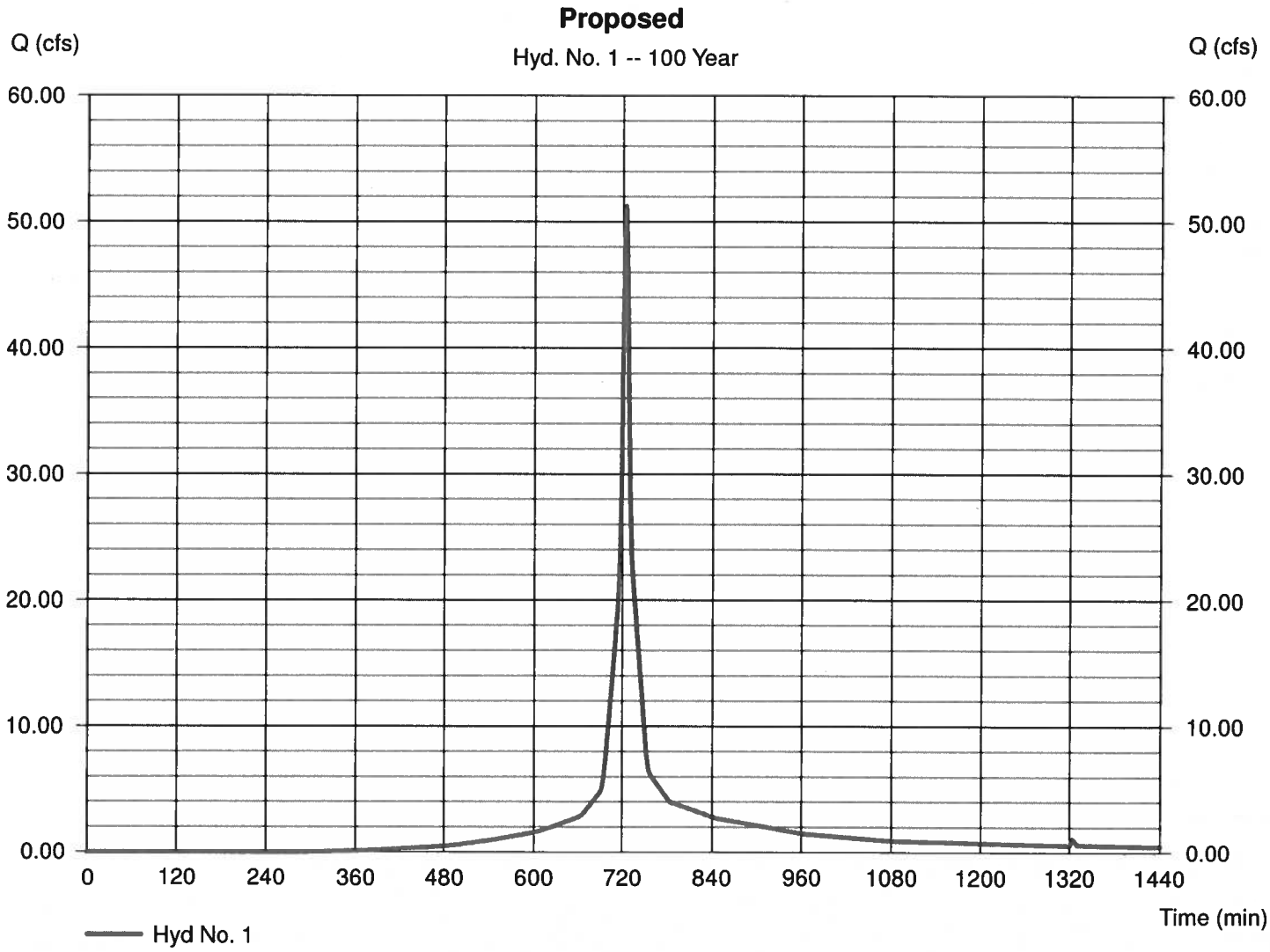
Hydrograph Report

Hyd. No. 1

Proposed

Hydrograph type	= SCS Runoff	Peak discharge	= 51.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 157,426 cuft
Drainage area	= 9.000 ac	Curve number	= 84*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 7.00 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.000 x 55) + (6.000 x 98)] / 9.000



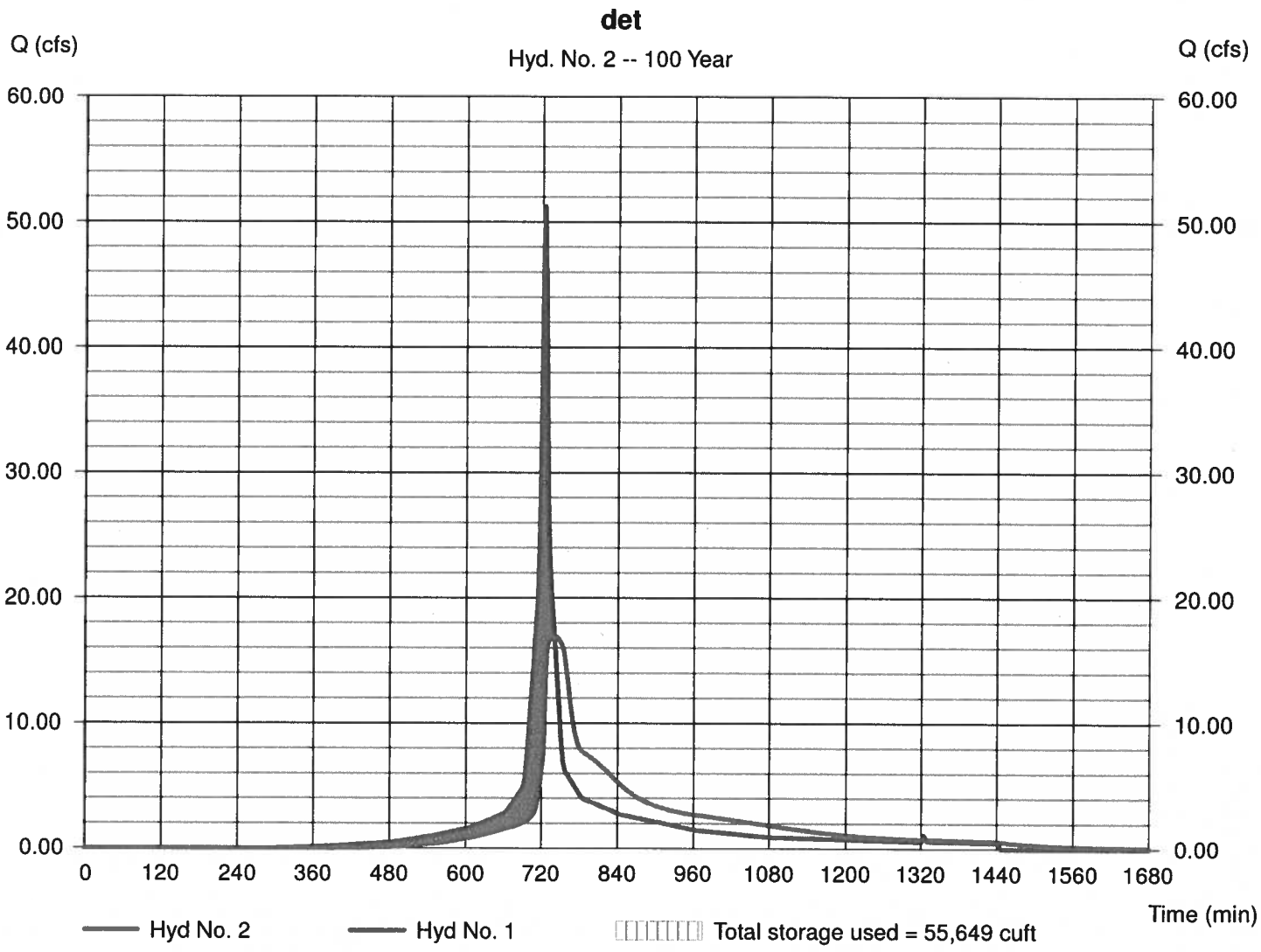
Hydrograph Report

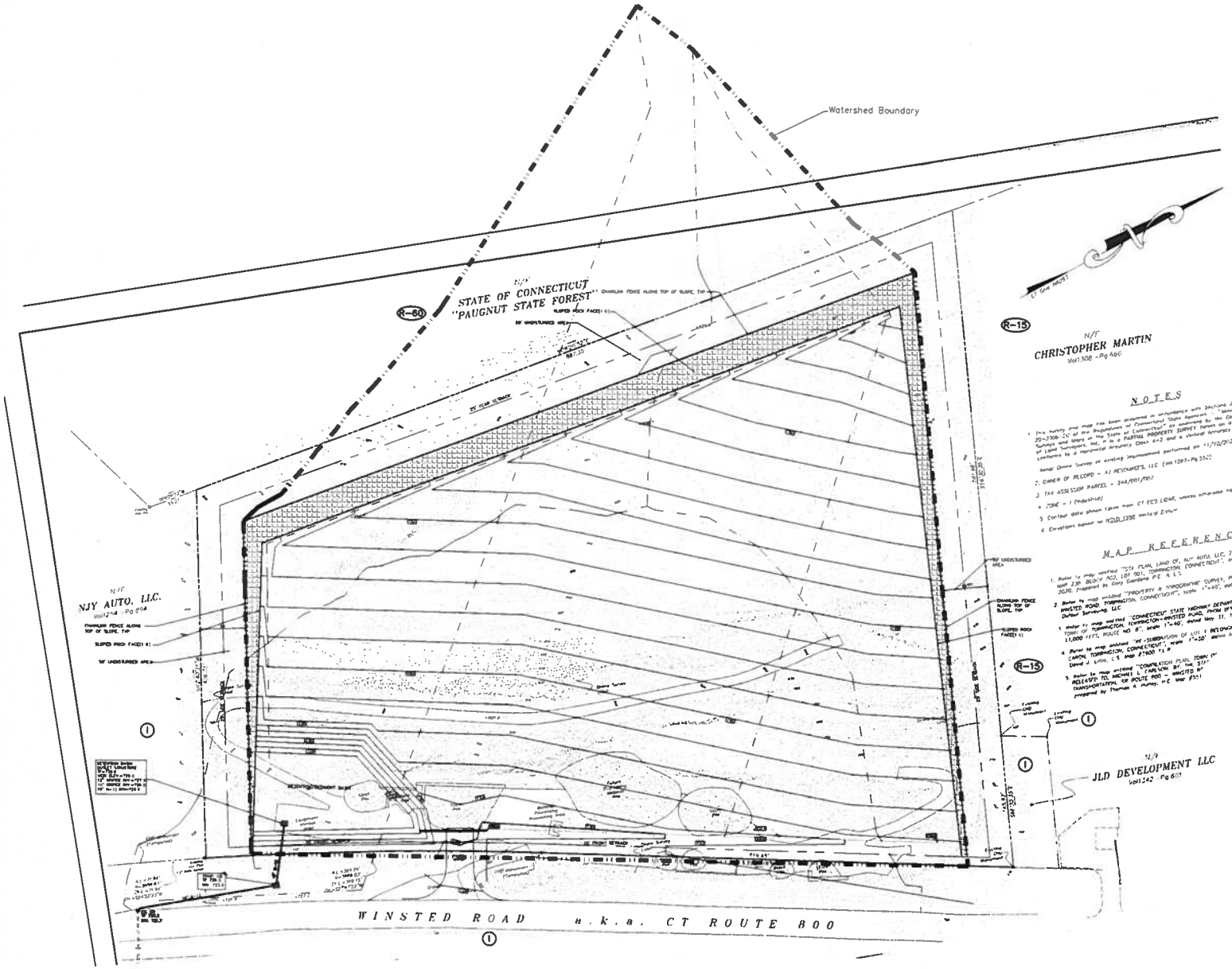
Hyd. No. 2

det

Hydrograph type	= Reservoir	Peak discharge	= 16.94 cfs
Storm frequency	= 100 yrs	Time to peak	= 740 min
Time interval	= 2 min	Hyd. volume	= 157,365 cuft
Inflow hyd. No.	= 1 - Proposed	Max. Elevation	= 729.90 ft
Reservoir name	= <New Pond>	Max. Storage	= 55,649 cuft

Storage Indication method used.





WATERSHED MAP

SCALE 1"=50'

Borghesi Building & Engineering Co., Inc.

SEAL

REVISIONS

PROJECT
AJ RESOURCES LLC
WINSTED ROAD, TORRINGTON, CT

DRAWN BY: DAN | APPROVED BY: JAP
DATE: 3/9/24 | SCALE: AS SHOWN

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SHEET NO
WM