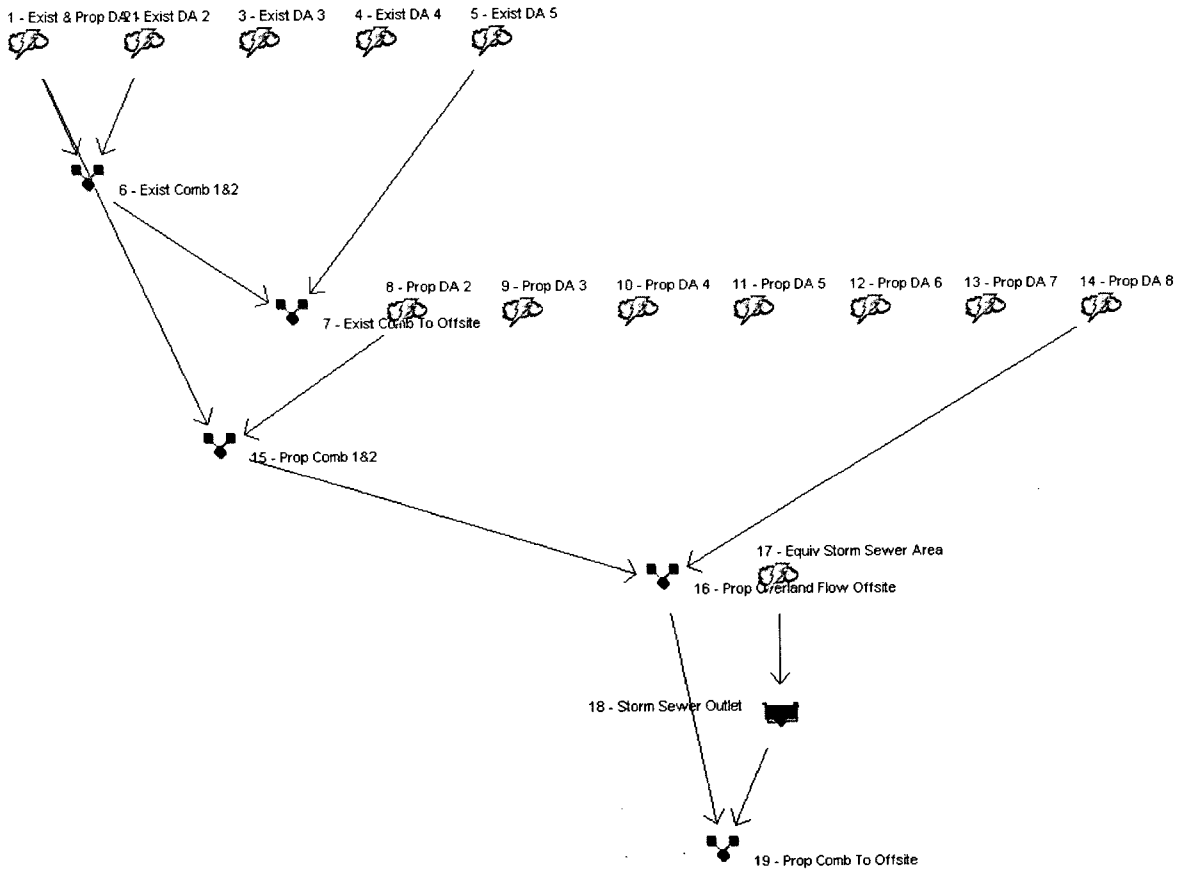
Watershed Model Schematic



Legend

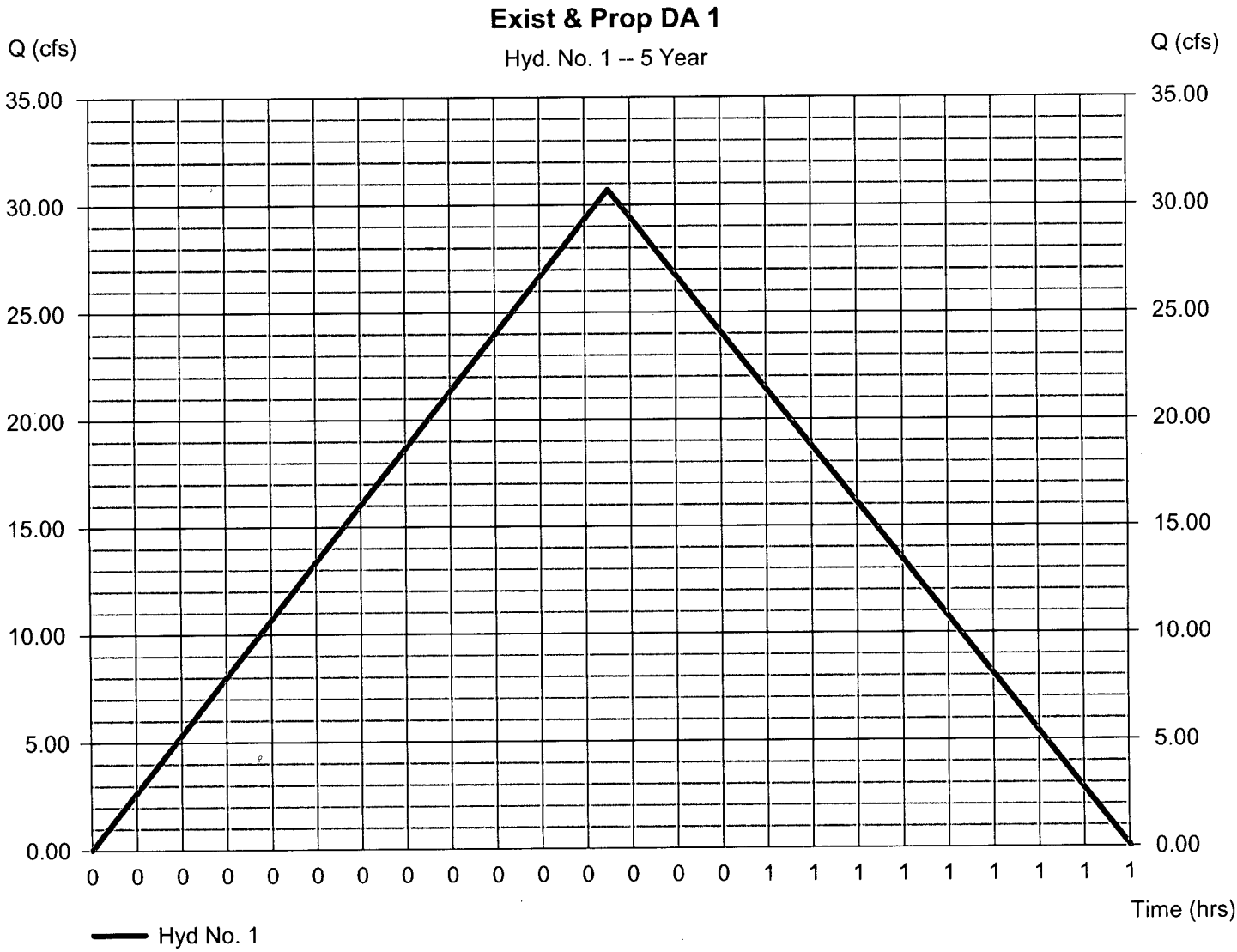
Hyd.	Origin	Description
1	Rational	Exist & Prop DA 1
2	Rational	Exist DA 2
3	Rational	Exist DA 3
4	Rational	Exist DA 4
5	Rational	Exist DA 5
6	Combine	Exist Comb 1&2
7	Combine	Exist Comb To Offsite
8	Rational	Prop DA 2
9	Rational	Prop DA 3
10	Rational	Prop DA 4
11	Rational	Prop DA 5
12	Rational	Prop DA 6
13	Rational	Prop DA 7
14	Rational	Prop DA 8
15	Combine	Prop Comb 1&2
16	Combine	Prop Overland Flow Offsite
17	Rational	Equiv Storm Sewer Area
18	Reservoir	Storm Sewer Outlet
19	Combine	Prop Comb To Offsite

Hydrograph Report

Hyd. No. 1

Exist & Prop DA 1

Hydrograph type	= Rational	Peak discharge	= 30.69 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 0.972 acft
Drainage area	= 12.800 ac	Runoff coeff.	= 0.63
Intensity	= 3.806 in/hr	Tc by TR55	= 23.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

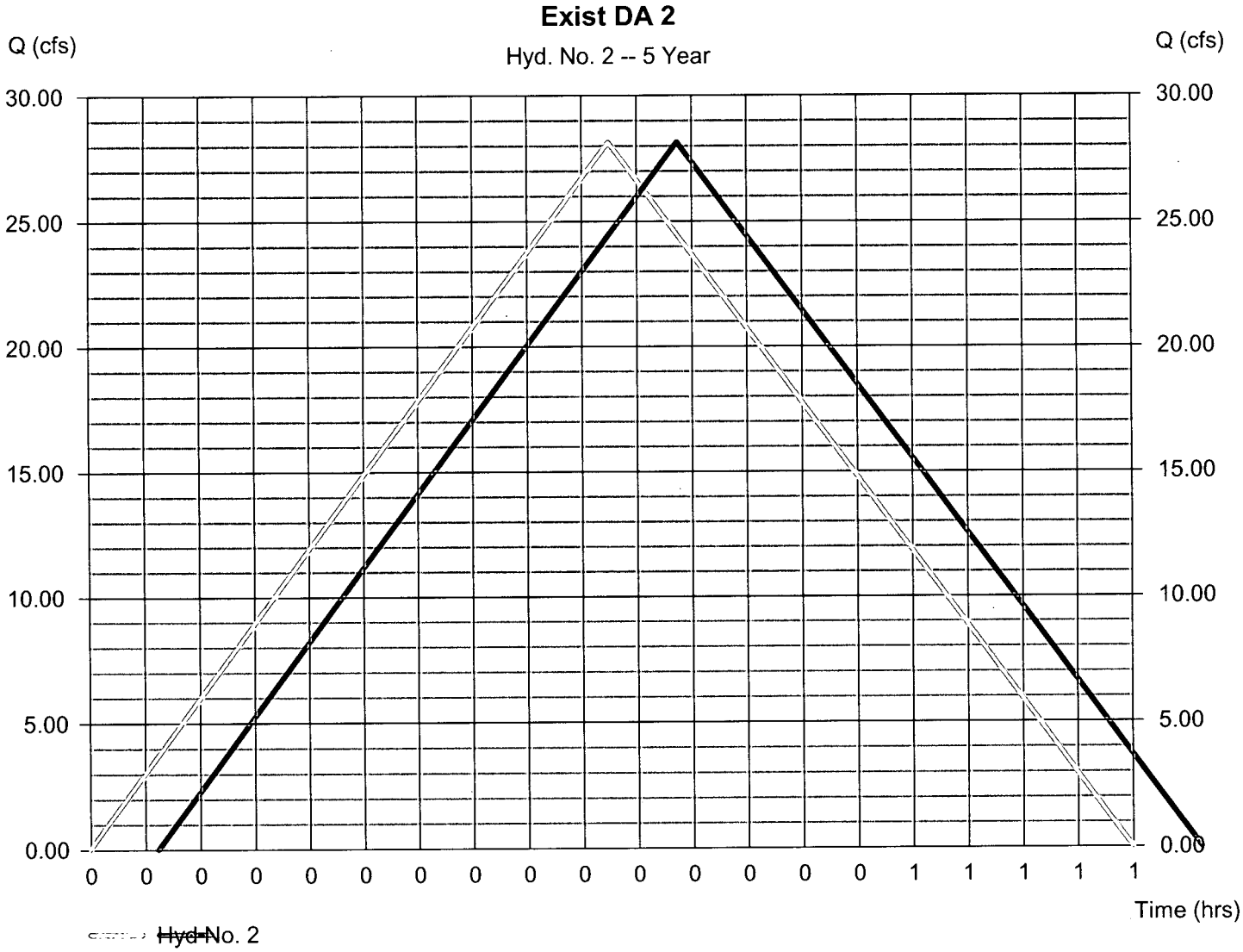
Hydraflow Hydrographs by Intelisolve v9.02

Friday, Jun 8, 2007

Hyd. No. 2

Exist DA 2

Hydrograph type	= Rational	Peak discharge	= 28.15 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 0.737 acft
Drainage area	= 10.200 ac	Runoff coeff.	= 0.66
Intensity	= 4.181 in/hr	Tc by TR55	= 19.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

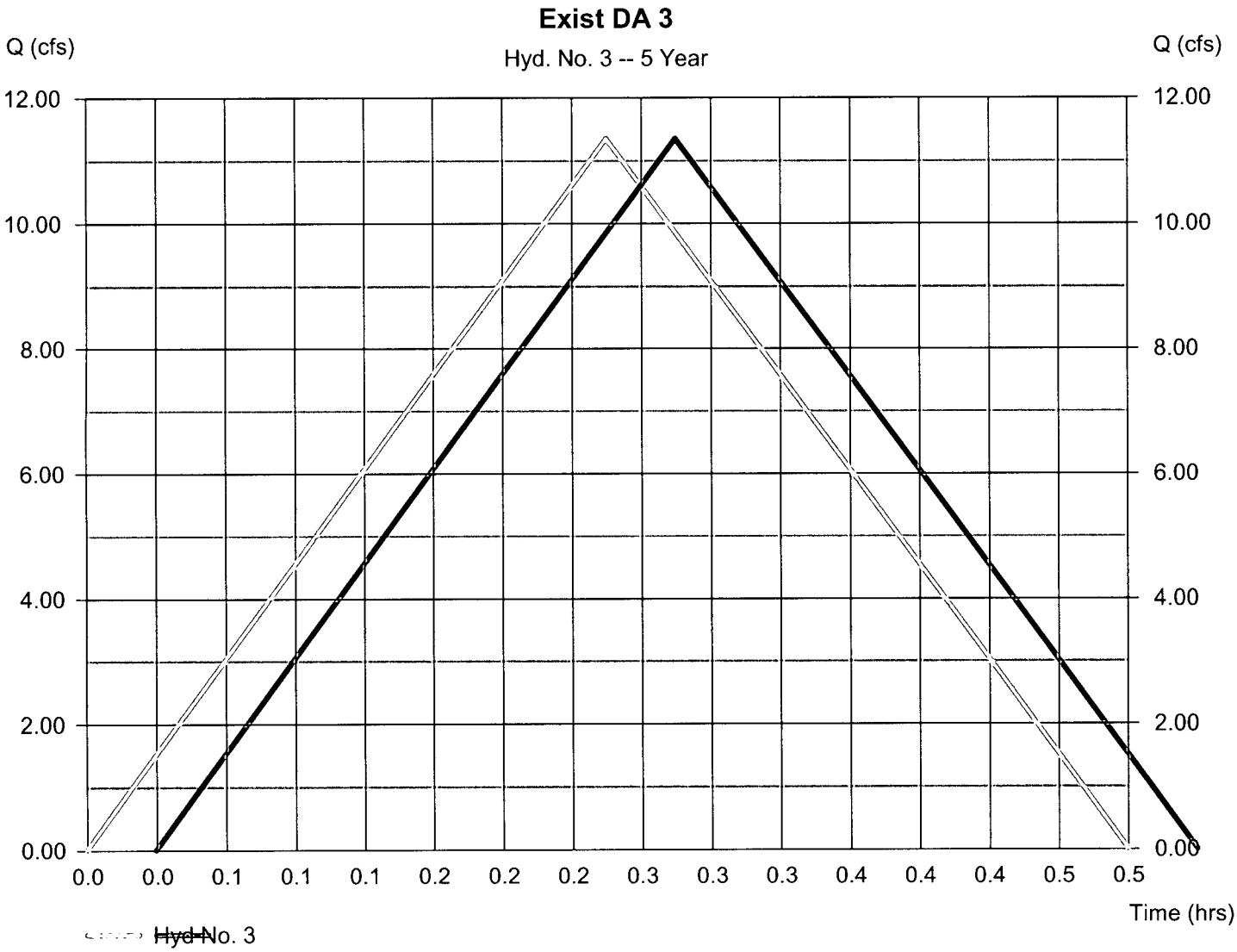


Hydrograph Report

Hyd. No. 3

Exist DA 3

Hydrograph type	= Rational	Peak discharge	= 11.35 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.235 acft
Drainage area	= 3.700 ac	Runoff coeff.	= 0.66
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

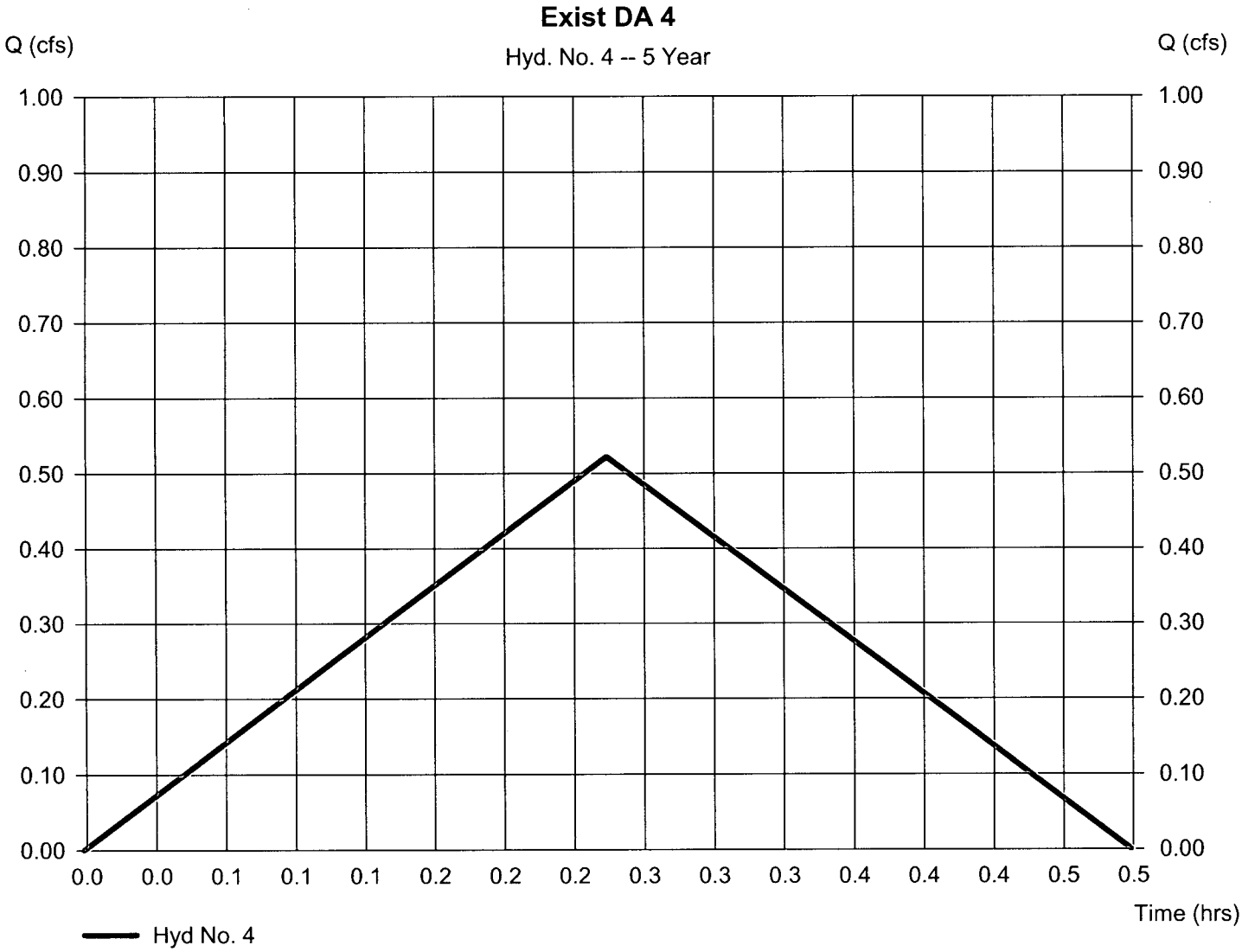


Hydrograph Report

Hyd. No. 4

Exist DA 4

Hydrograph type	= Rational	Peak discharge	= 0.522 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.011 acft
Drainage area	= 0.170 ac	Runoff coeff.	= 0.66
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

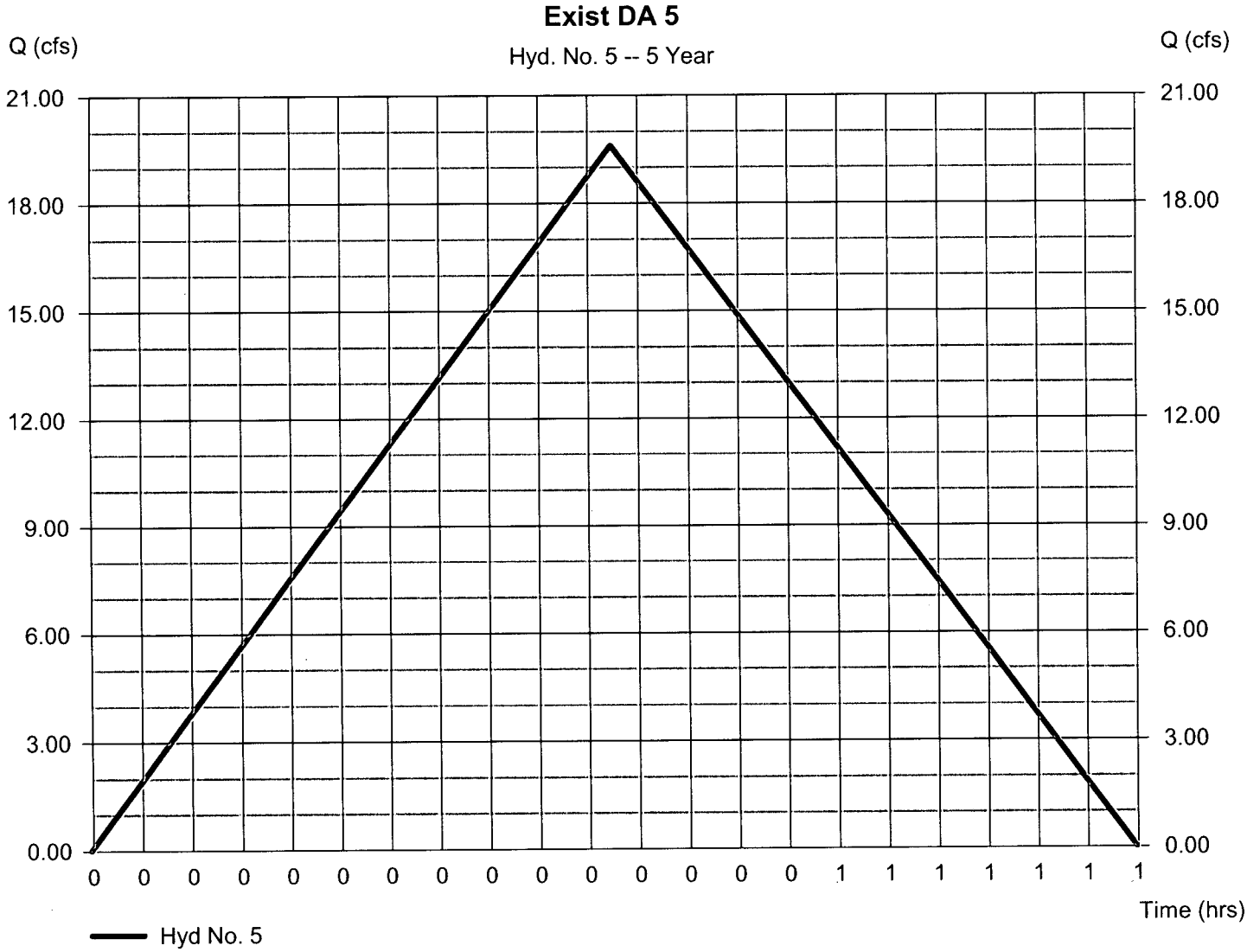
Hydraflow Hydrographs by Intelisolve v9.02

Friday, Jun 8, 2007

Hyd. No. 5

Exist DA 5

Hydrograph type	= Rational	Peak discharge	= 19.60 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.35 hrs
Time interval	= 1 min	Hyd. volume	= 0.567 acft
Drainage area	= 13.300 ac	Runoff coeff.	= 0.37
Intensity	= 3.984 in/hr	Tc by TR55	= 21.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

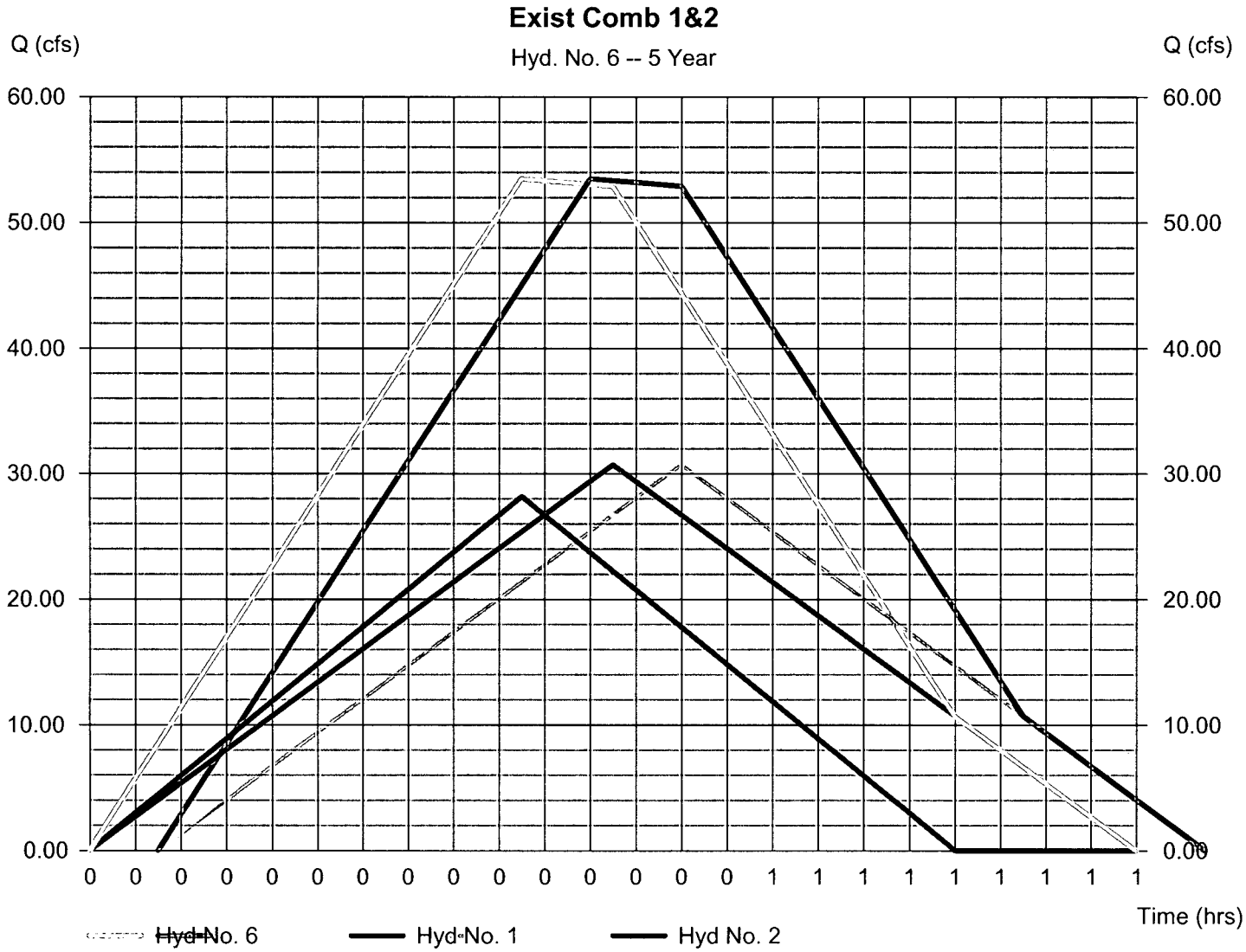


Hydrograph Report

Hyd. No. 6

Exist Comb 1&2

Hydrograph type	= Combine	Peak discharge	= 53.50 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1.709 acft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 23.000 ac

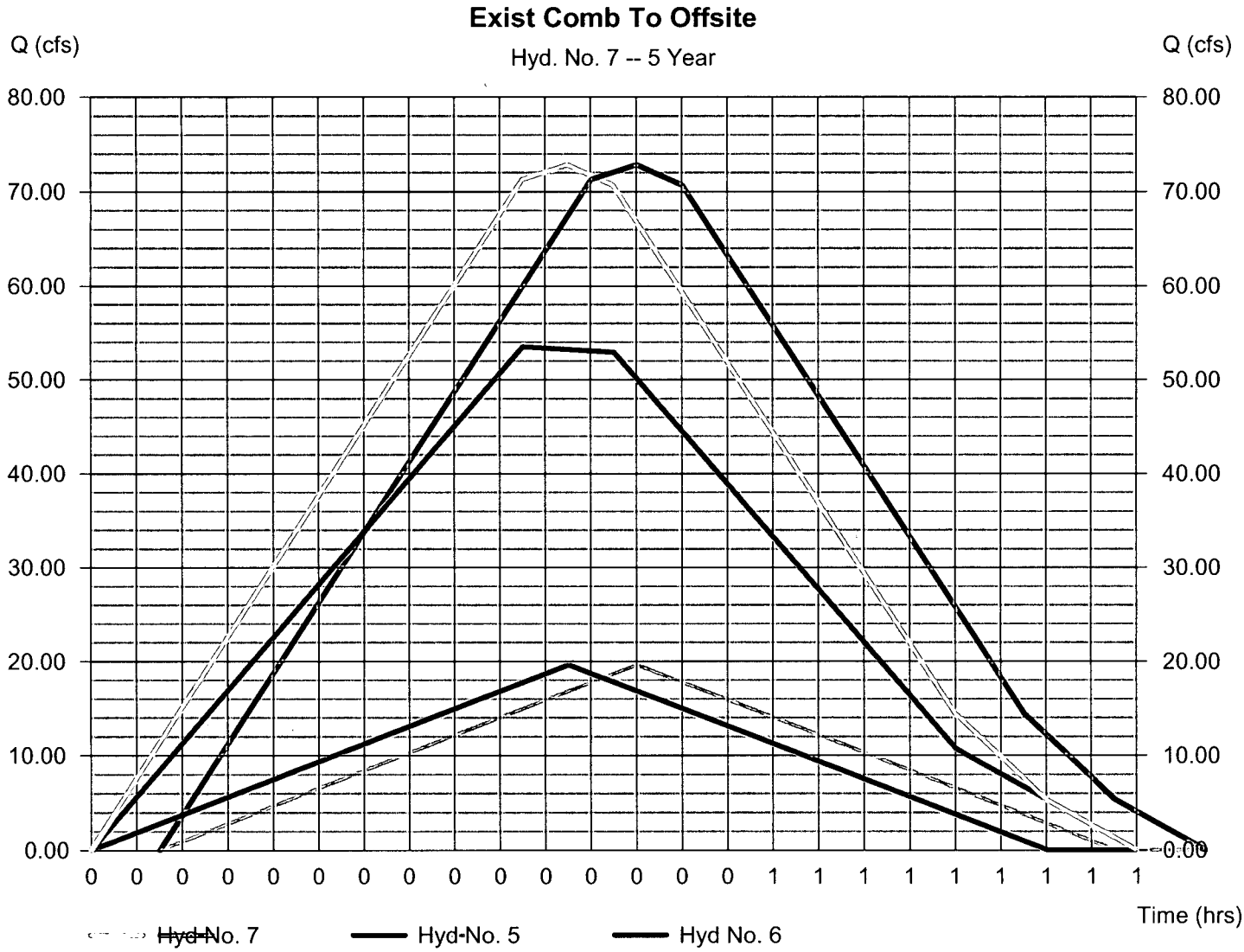


Hydrograph Report

Hyd. No. 7

Exist Comb To Offsite

Hydrograph type	= Combine	Peak discharge	= 72.81 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.35 hrs
Time interval	= 1 min	Hyd. volume	= 2.276 acft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 13.300 ac

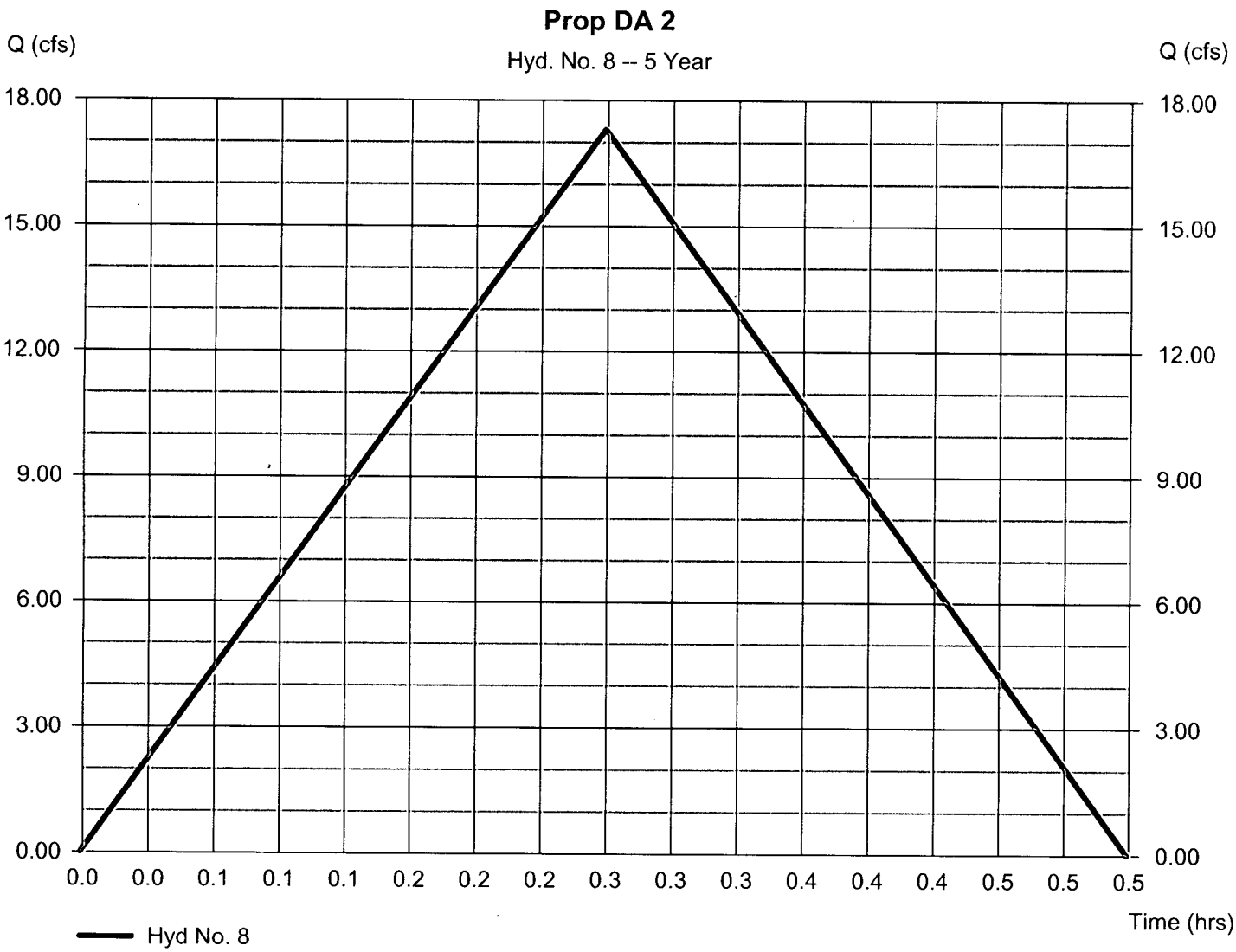


Hydrograph Report

Hyd. No. 8

Prop DA 2

Hydrograph type	= Rational	Peak discharge	= 17.31 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.27 hrs
Time interval	= 1 min	Hyd. volume	= 0.381 acft
Drainage area	= 5.800 ac	Runoff coeff.	= 0.66
Intensity	= 4.522 in/hr	Tc by TR55	= 16.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

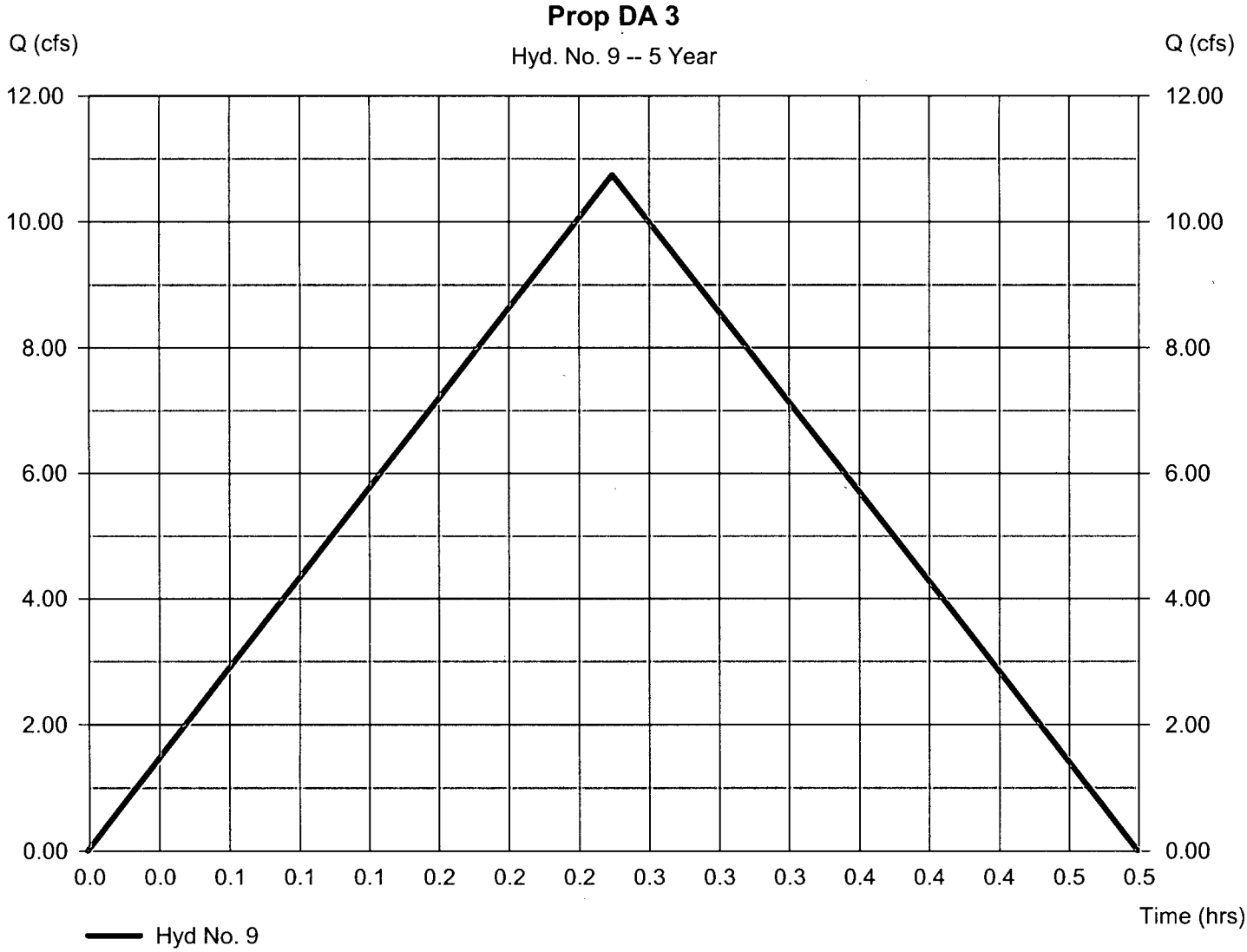


Hydrograph Report

Hyd. No. 9

Prop DA 3

Hydrograph type	= Rational	Peak discharge	= 10.74 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.222 acft
Drainage area	= 3.500 ac	Runoff coeff.	= 0.66
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

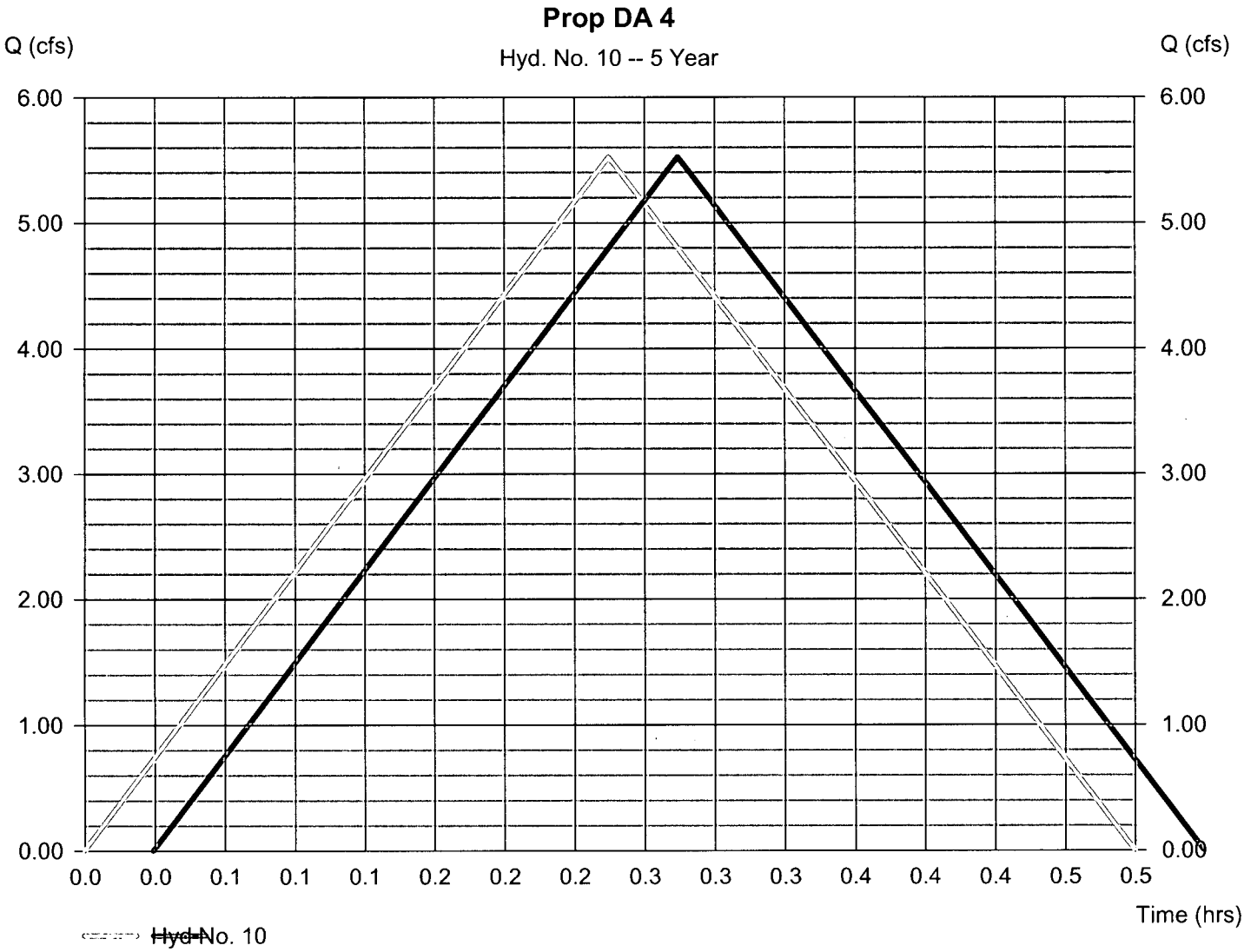


Hydrograph Report

Hyd. No. 10

Prop DA 4

Hydrograph type	= Rational	Peak discharge	= 5.524 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.114 acft
Drainage area	= 1.800 ac	Runoff coeff.	= 0.66
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 11

Prop DA 5

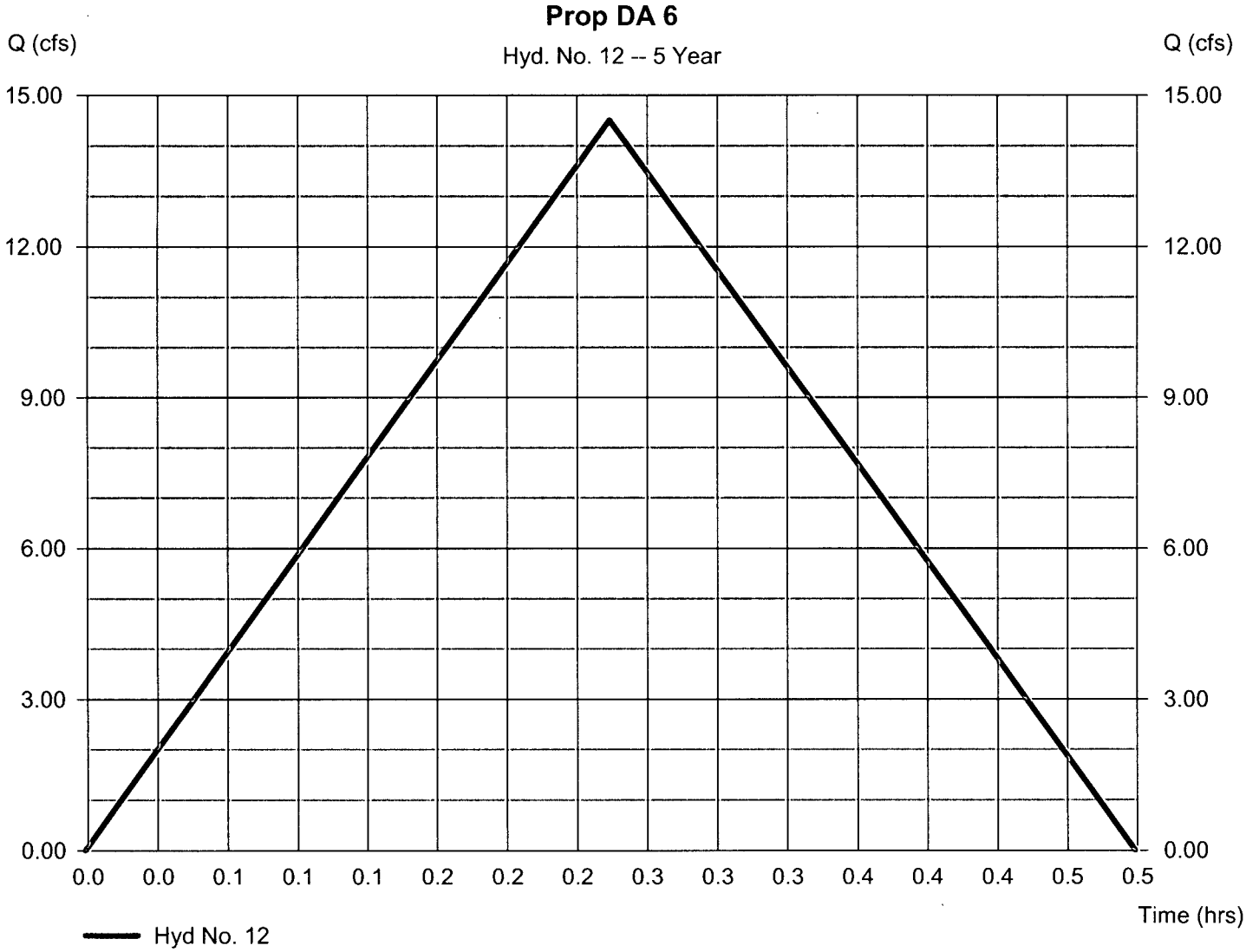
Hydrograph type	= Rational	Peak discharge	= 8.927 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.184 acft
Drainage area	= 2.400 ac	Runoff coeff.	= 0.8
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Report

Hyd. No. 12

Prop DA 6

Hydrograph type	= Rational	Peak discharge	= 14.51 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.300 acft
Drainage area	= 3.900 ac	Runoff coeff.	= 0.8
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

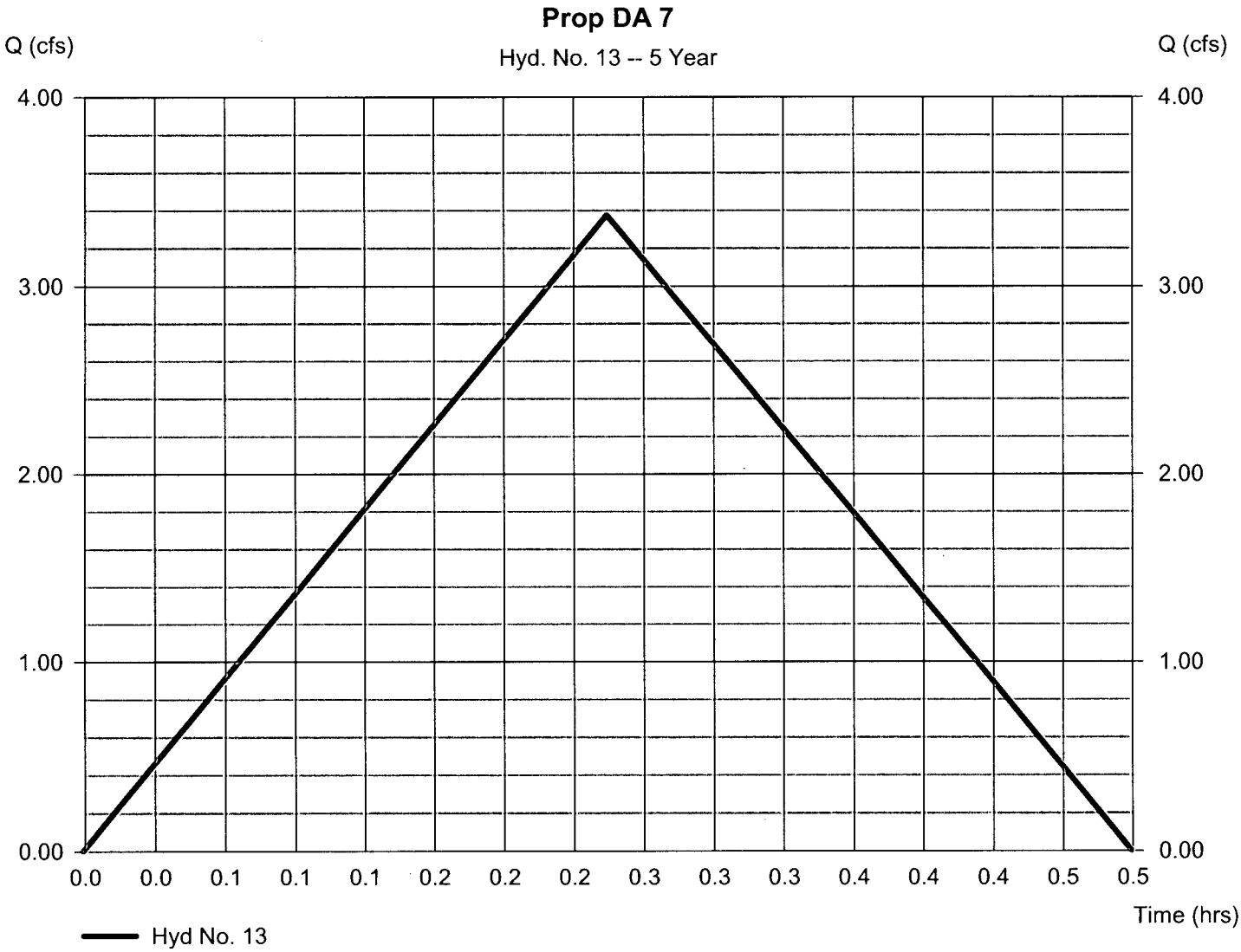


Hydrograph Report

Hyd. No. 13

Prop DA 7

Hydrograph type	= Rational	Peak discharge	= 3.376 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.070 acft
Drainage area	= 1.100 ac	Runoff coeff.	= 0.66
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

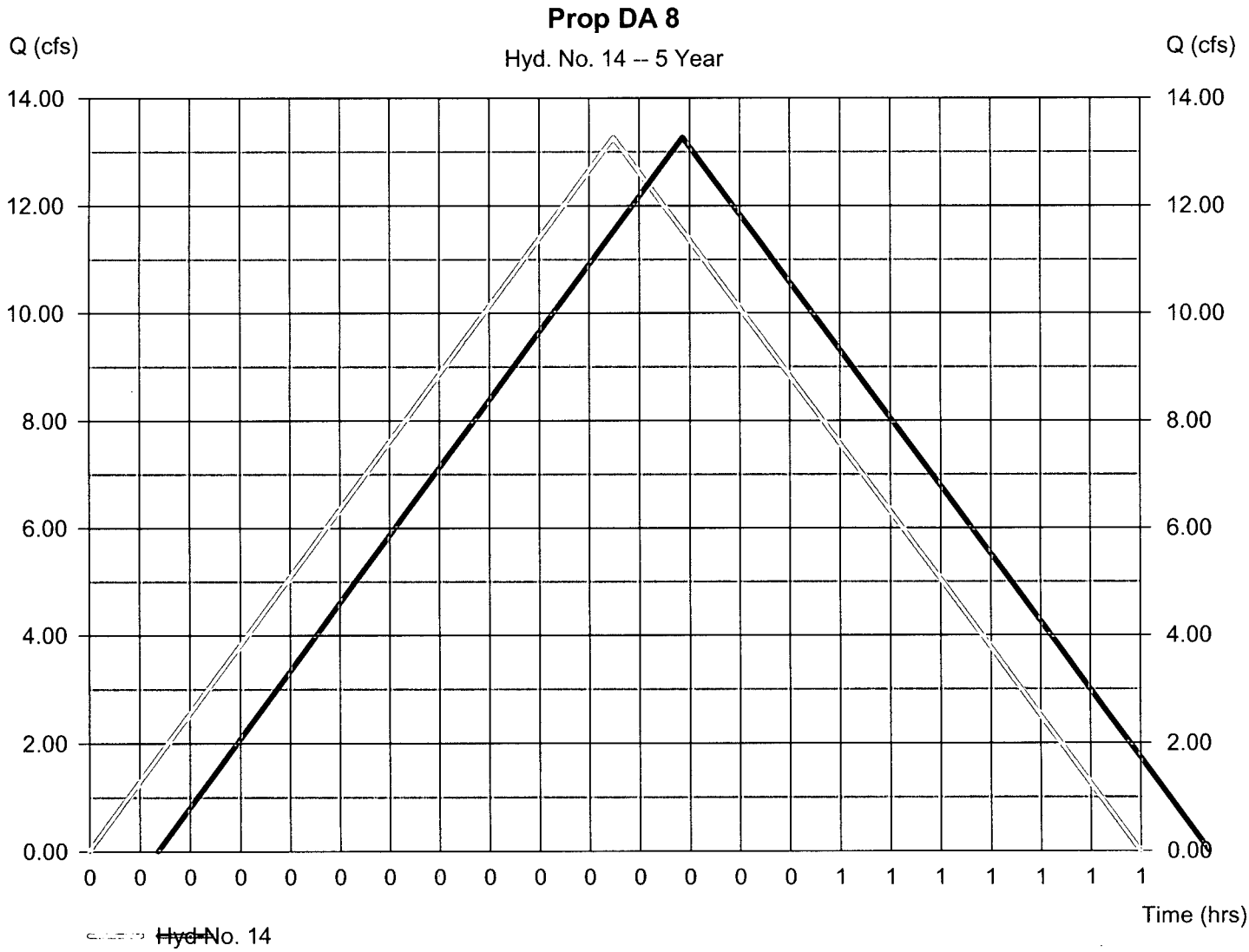


Hydrograph Report

Hyd. No. 14

Prop DA 8

Hydrograph type	= Rational	Peak discharge	= 13.27 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.35 hrs
Time interval	= 1 min	Hyd. volume	= 0.384 acft
Drainage area	= 9.000 ac	Runoff coeff.	= 0.37
Intensity	= 3.984 in/hr	Tc by TR55	= 21.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



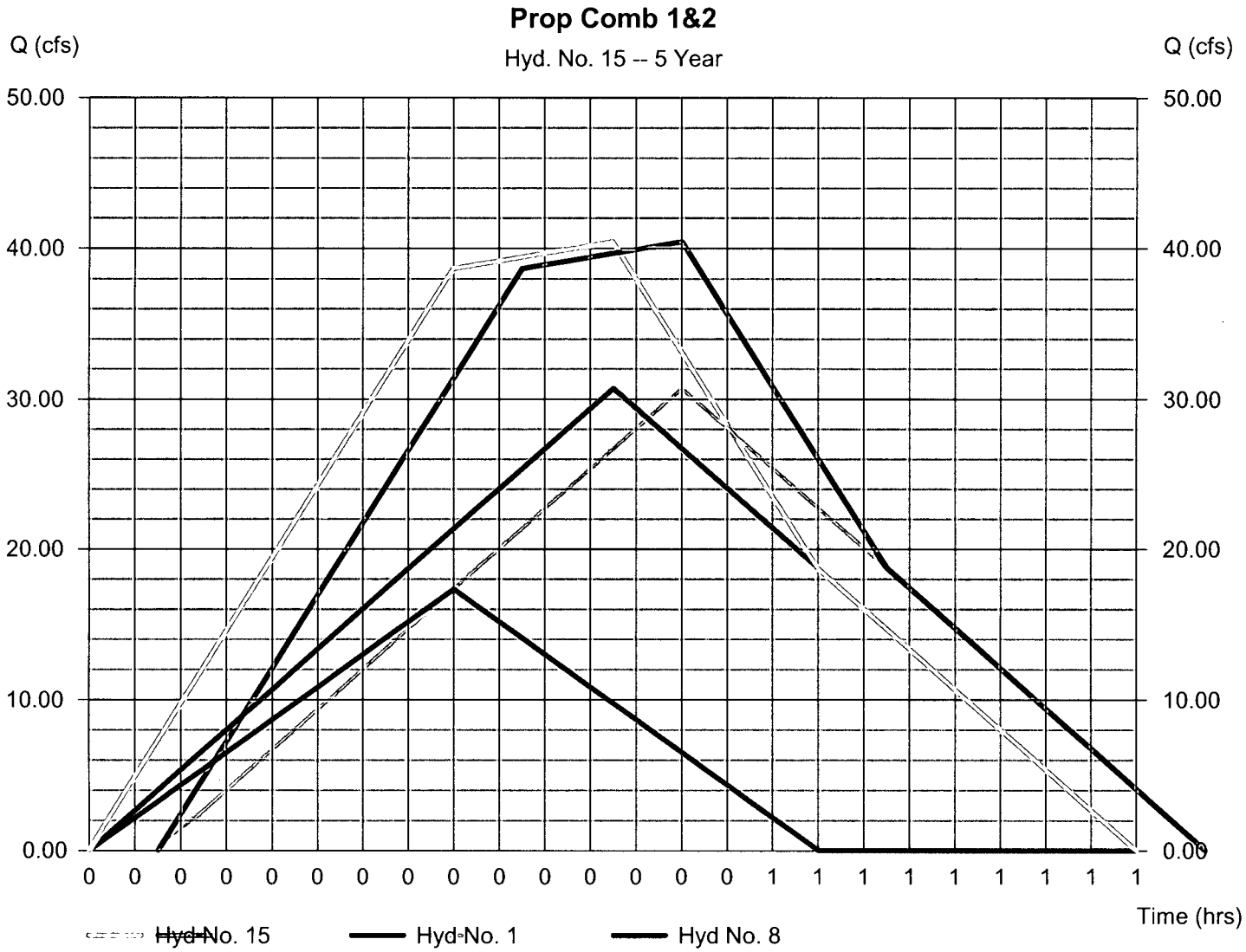
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 15

Prop Comb 1&2

Hydrograph type	= Combine	Peak discharge	= 40.43 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 1.354 acft
Inflow hyds.	= 1, 8	Contrib. drain. area	= 18.600 ac



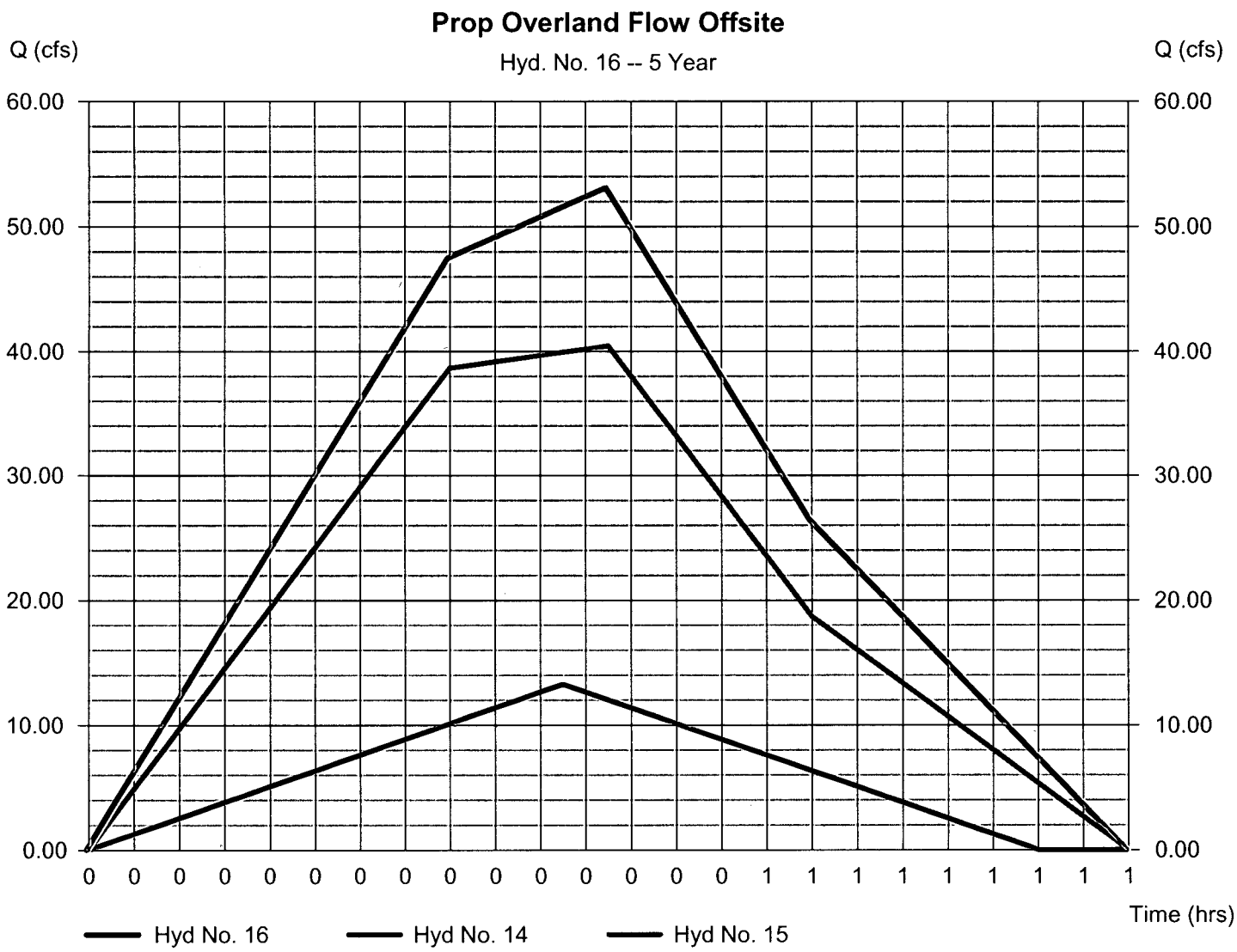
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 16

Prop Overland Flow Offsite

Hydrograph type	= Combine	Peak discharge	= 53.10 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 1.755 acft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 9.000 ac

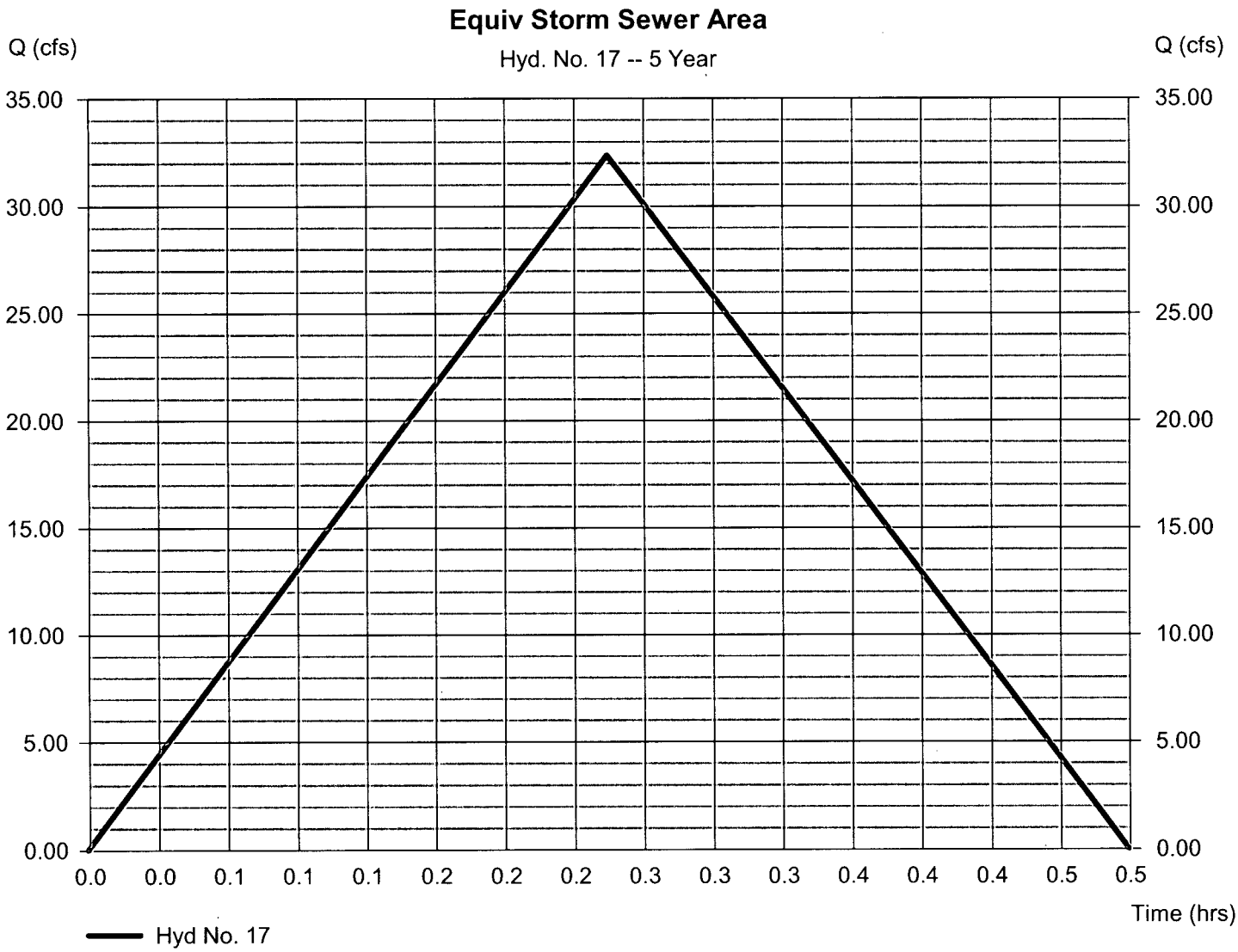


Hydrograph Report

Hyd. No. 17

Equiv Storm Sewer Area

Hydrograph type	= Rational	Peak discharge	= 32.36 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.669 acft
Drainage area	= 8.700 ac	Runoff coeff.	= 0.8
Intensity	= 4.650 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02

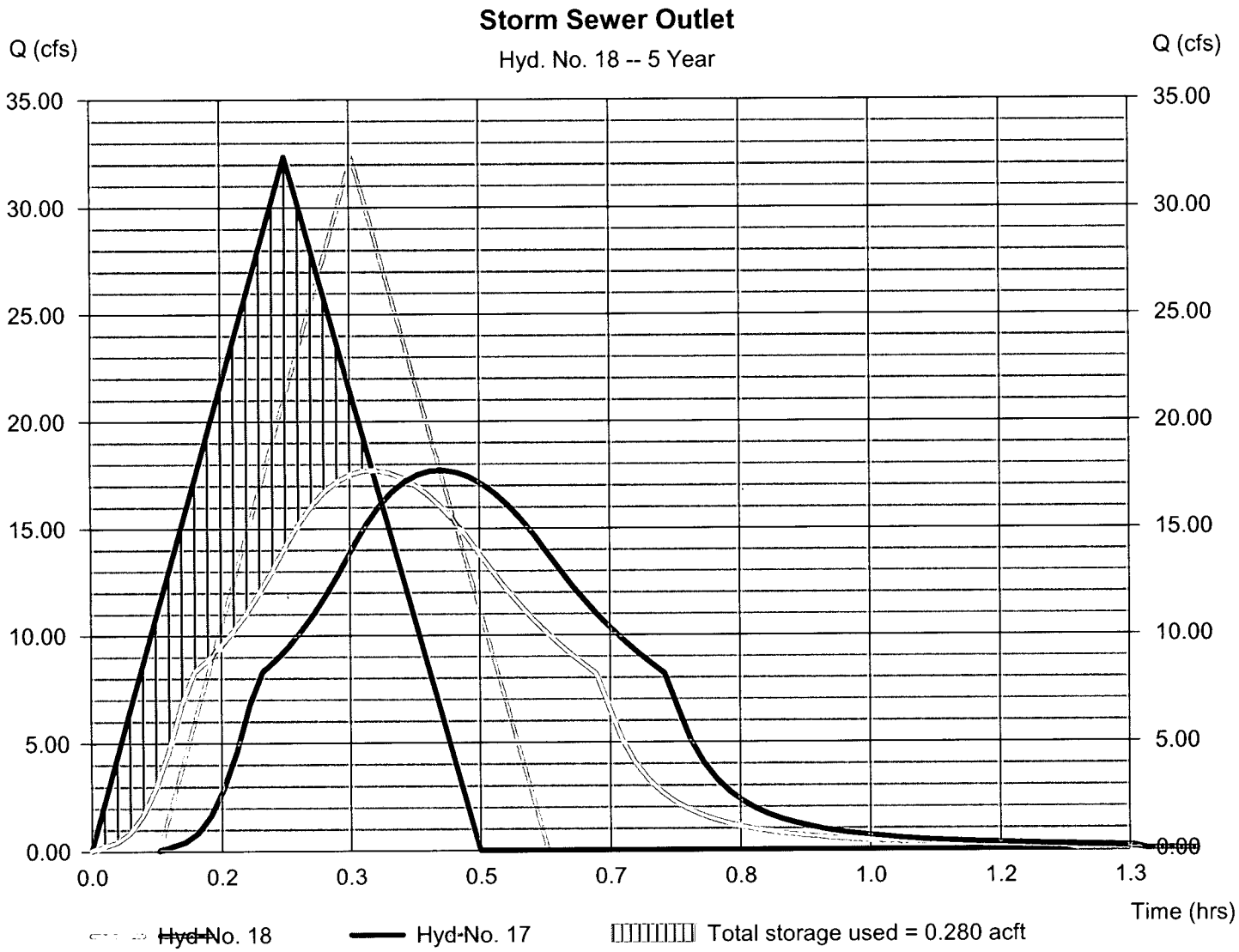
Friday, Jun 8, 2007

Hyd. No. 18

Storm Sewer Outlet

Hydrograph type	= Reservoir	Peak discharge	= 17.71 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.37 hrs
Time interval	= 1 min	Hyd. volume	= 0.669 acft
Inflow hyd. No.	= 17 - Equiv Storm Sewer Area	Max. Elevation	= 150.68 ft
Reservoir name	= Prop Storm Sewer Equiv	Max. Storage	= 0.280 acft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.02

Friday, Jun 8, 2007

Pond No. 1 - Prop Storm Sewer Equiv

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 148.85 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	148.85	08	0.000	0.000
0.15	149.00	121	0.000	0.000
1.15	150.00	6,805	0.060	0.060
2.15	151.00	23,000	0.324	0.384
3.15	152.00	42,000	0.735	1.119

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	0.00	0.00	0.00
Span (in)	= 30.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 148.85	0.00	0.00	0.00
Length (ft)	= 800.00	0.00	0.00	0.00
Slope (%)	= 0.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

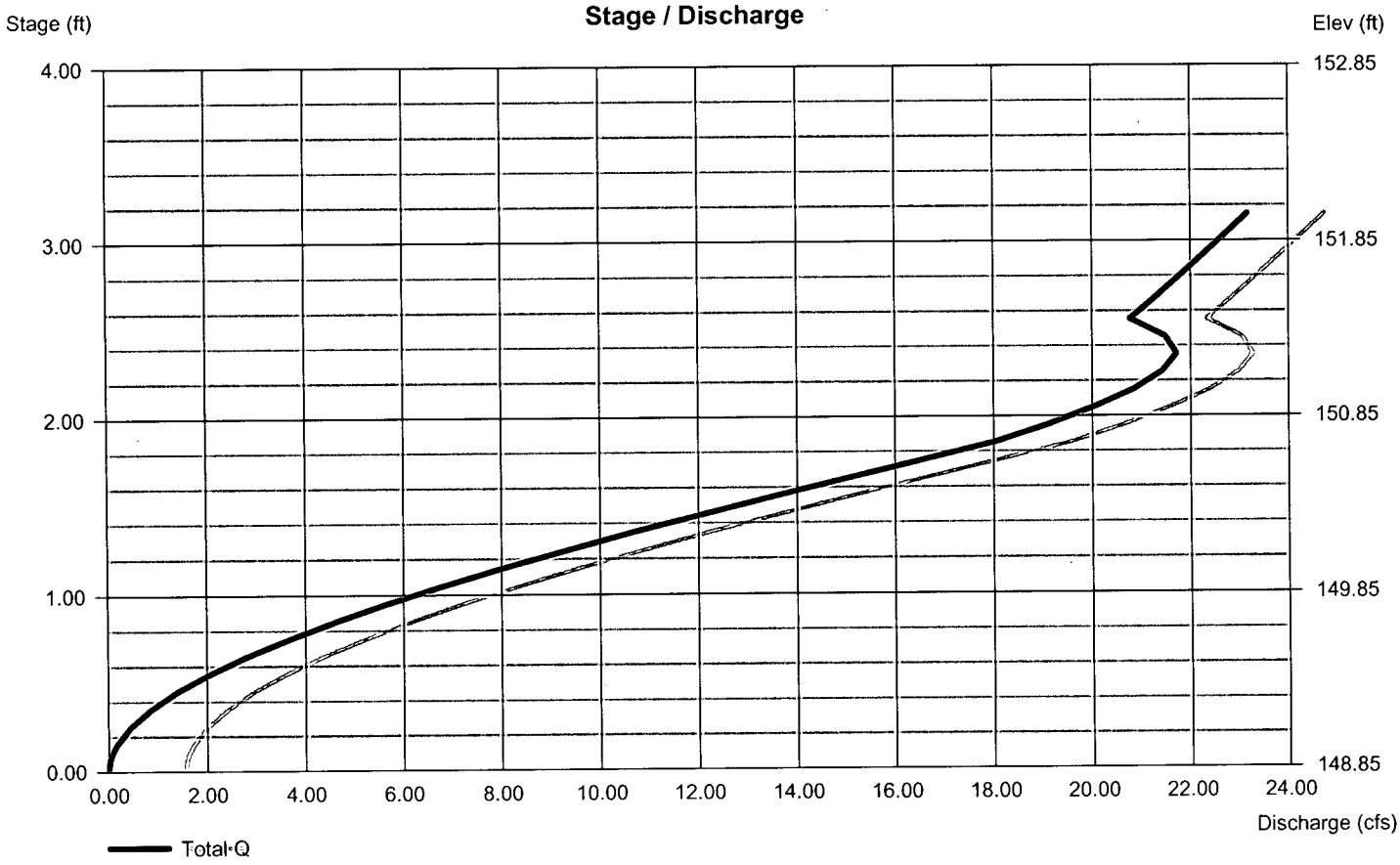
Weir Structures

	[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.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet and outlet control. Weir risers are checked for orifice conditions.

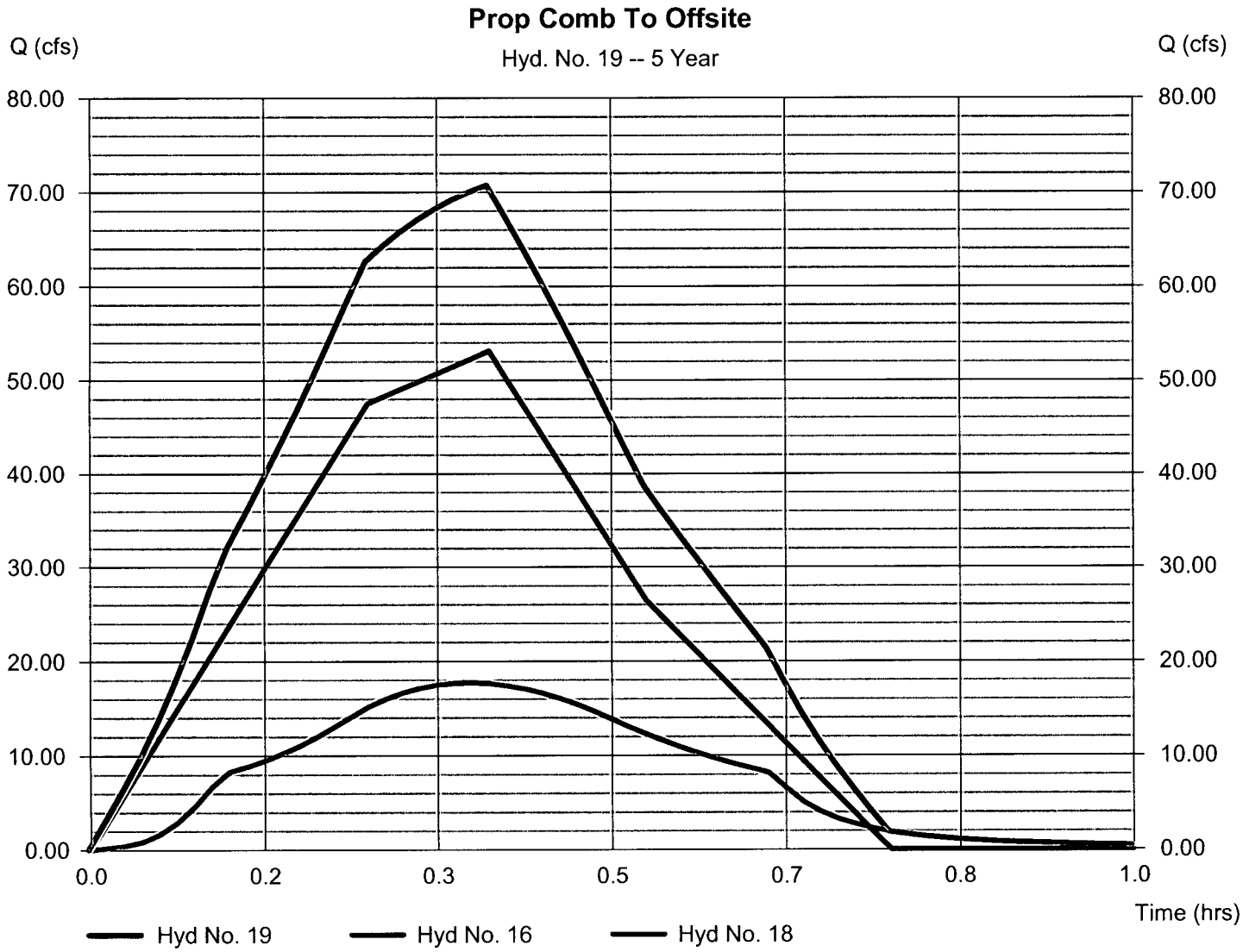


Hydrograph Report

Hyd. No. 19

Prop Comb To Offsite

Hydrograph type	= Combine	Peak discharge	= 70.72 cfs
Storm frequency	= 5 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 2.424 acft
Inflow hyds.	= 16, 18	Contrib. drain. area	= 0.000 ac

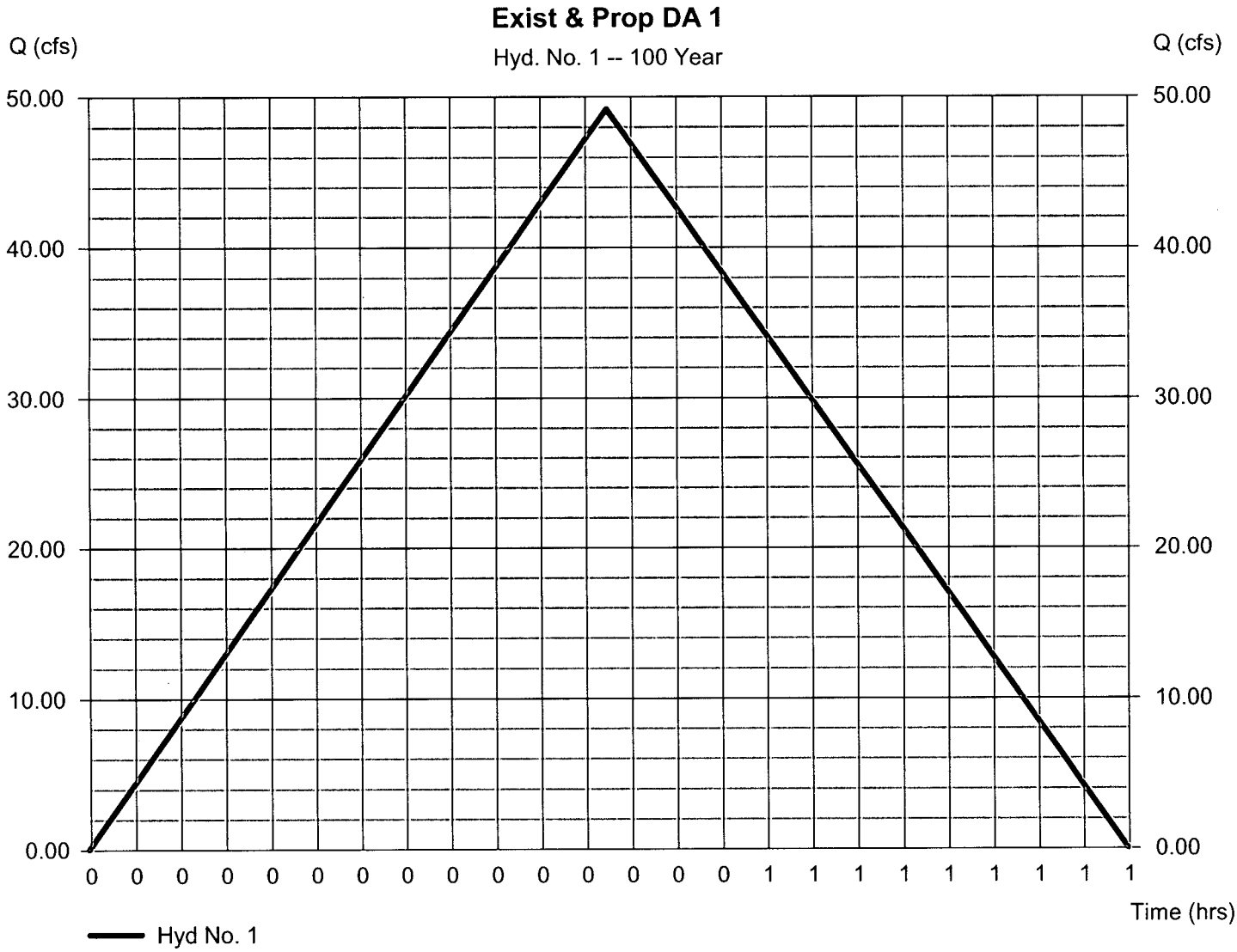


Hydrograph Report

Hyd. No. 1

Exist & Prop DA 1

Hydrograph type	= Rational	Peak discharge	= 49.20 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 1.559 acft
Drainage area	= 12.800 ac	Runoff coeff.	= 0.63
Intensity	= 6.101 in/hr	Tc by TR55	= 23.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

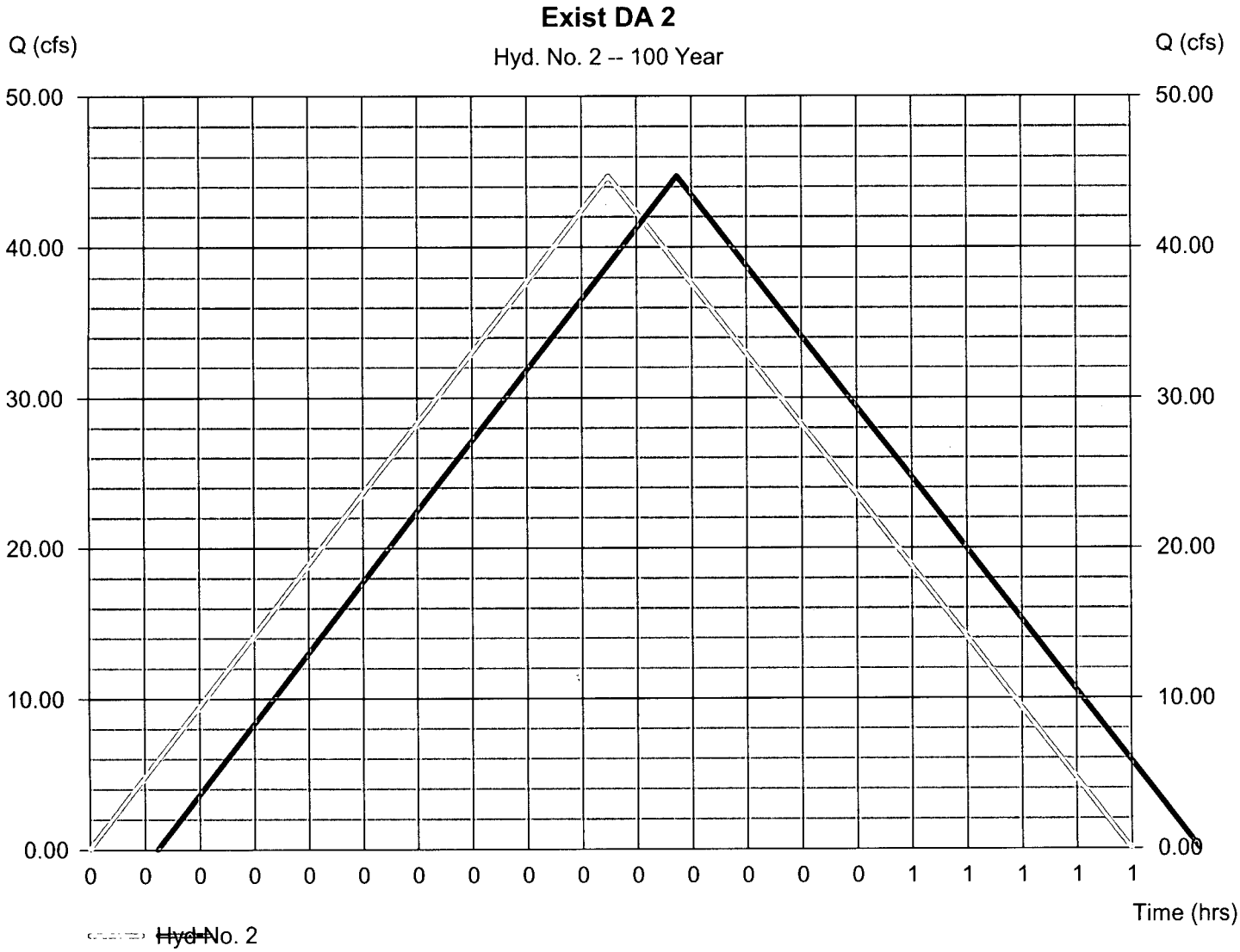


Hydrograph Report

Hyd. No. 2

Exist DA 2

Hydrograph type	= Rational	Peak discharge	= 44.69 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 1.170 acft
Drainage area	= 10.200 ac	Runoff coeff.	= 0.66
Intensity	= 6.639 in/hr	Tc by TR55	= 19.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

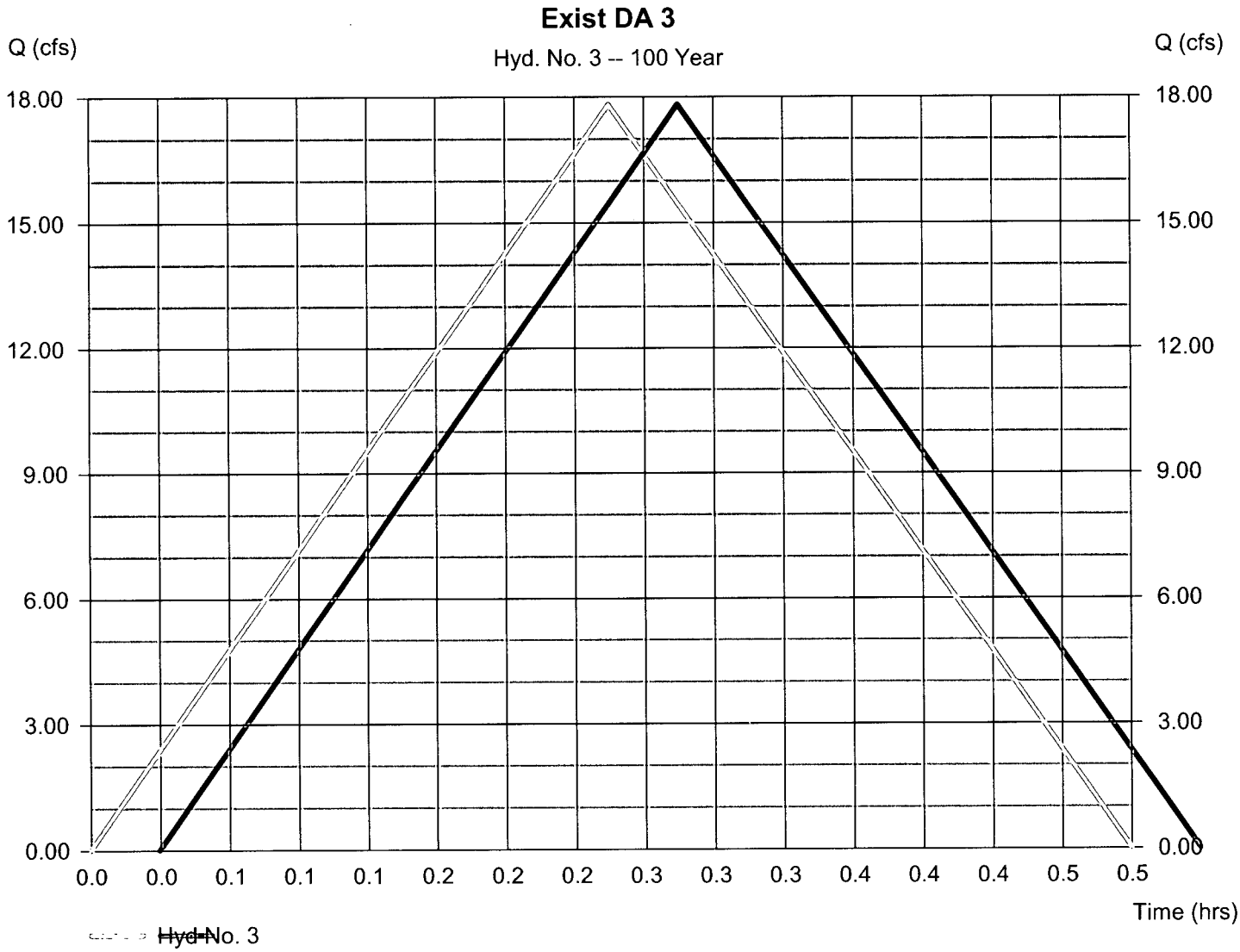


Hydrograph Report

Hyd. No. 3

Exist DA 3

Hydrograph type	= Rational	Peak discharge	= 17.82 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.368 acft
Drainage area	= 3.700 ac	Runoff coeff.	= 0.66
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

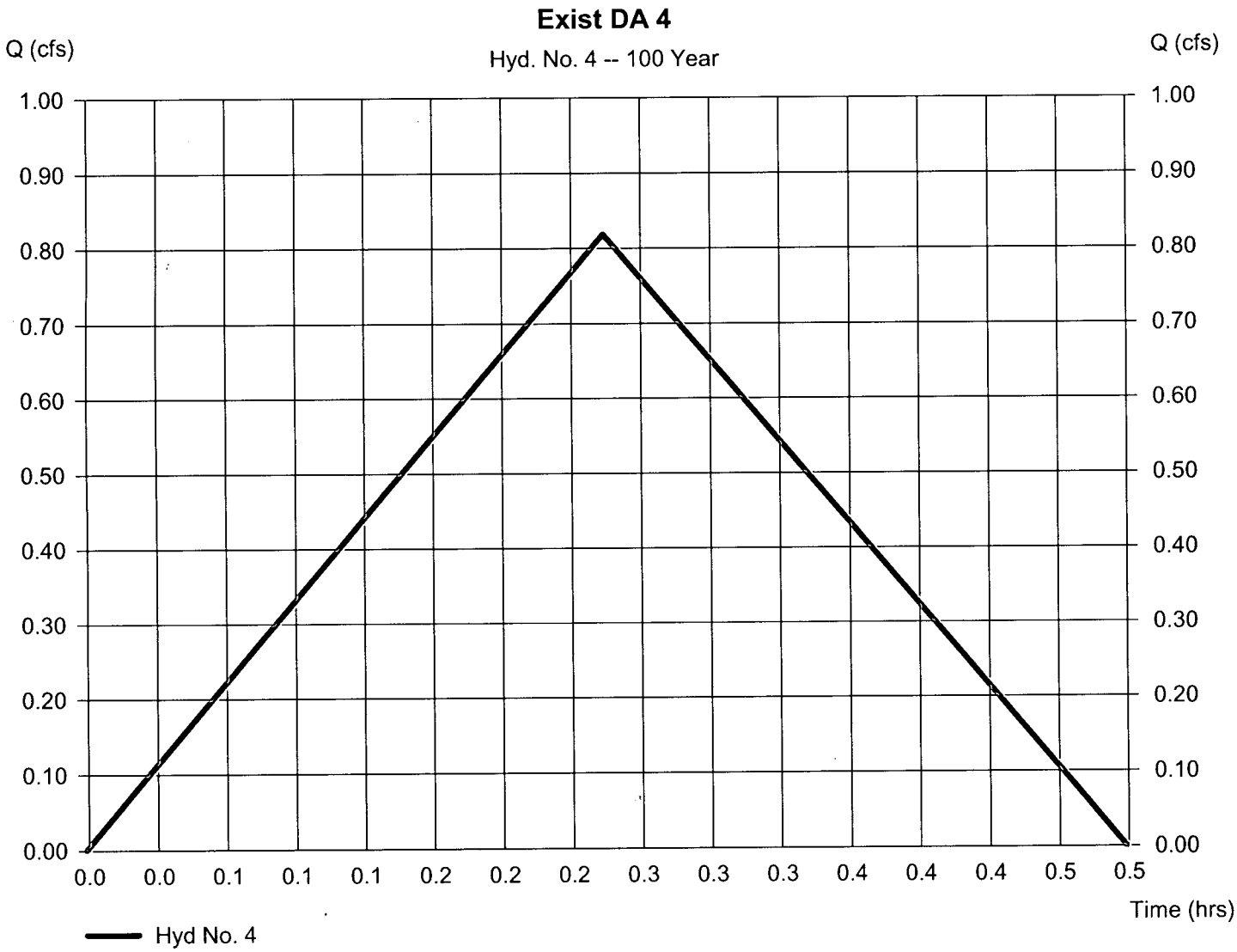


Hydrograph Report

Hyd. No. 4

Exist DA 4

Hydrograph type	= Rational	Peak discharge	= 0.819 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.017 acft
Drainage area	= 0.170 ac	Runoff coeff.	= 0.66
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



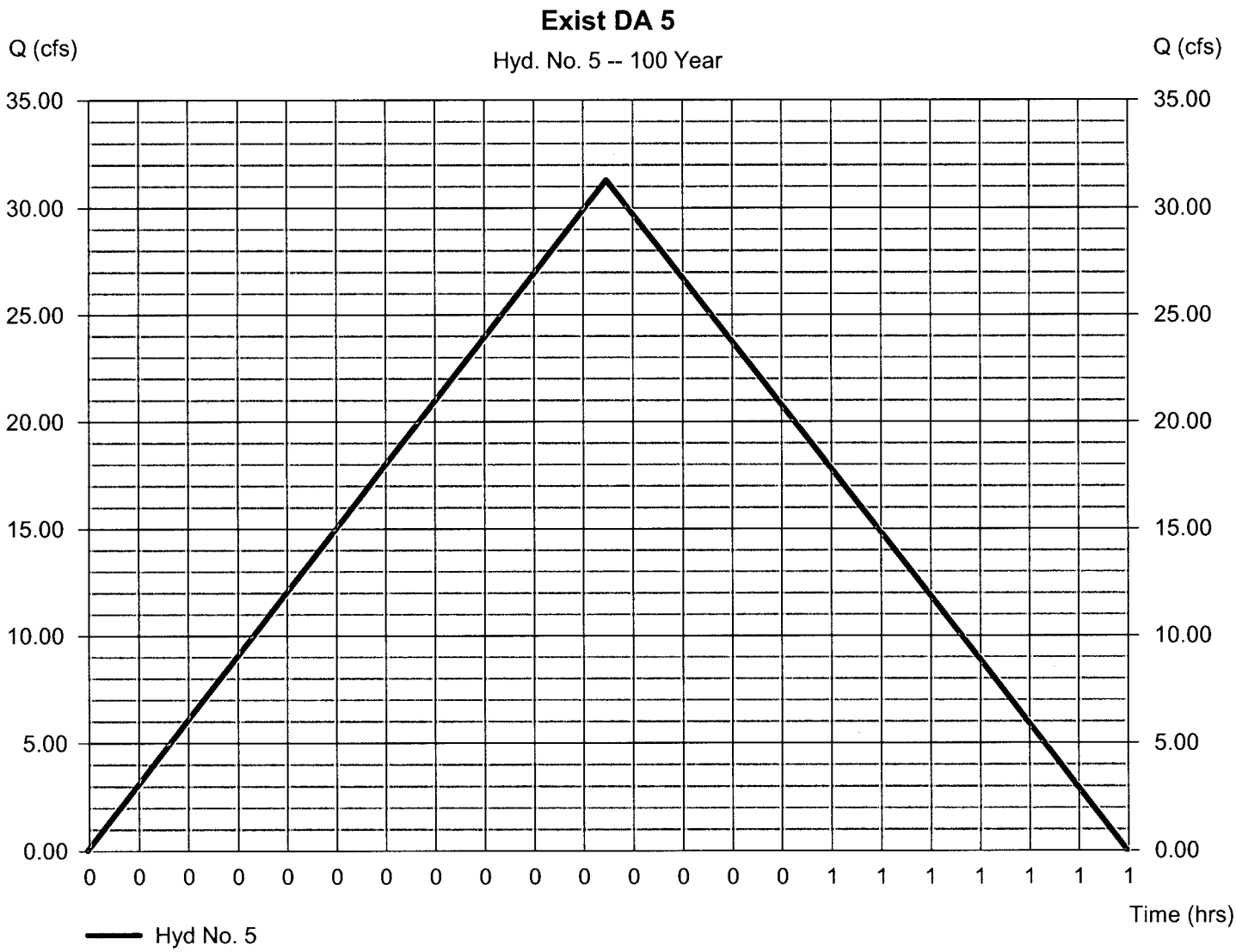
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 5

Exist DA 5

Hydrograph type	= Rational	Peak discharge	= 31.29 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.35 hrs
Time interval	= 1 min	Hyd. volume	= 0.905 acft
Drainage area	= 13.300 ac	Runoff coeff.	= 0.37
Intensity	= 6.358 in/hr	Tc by TR55	= 21.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



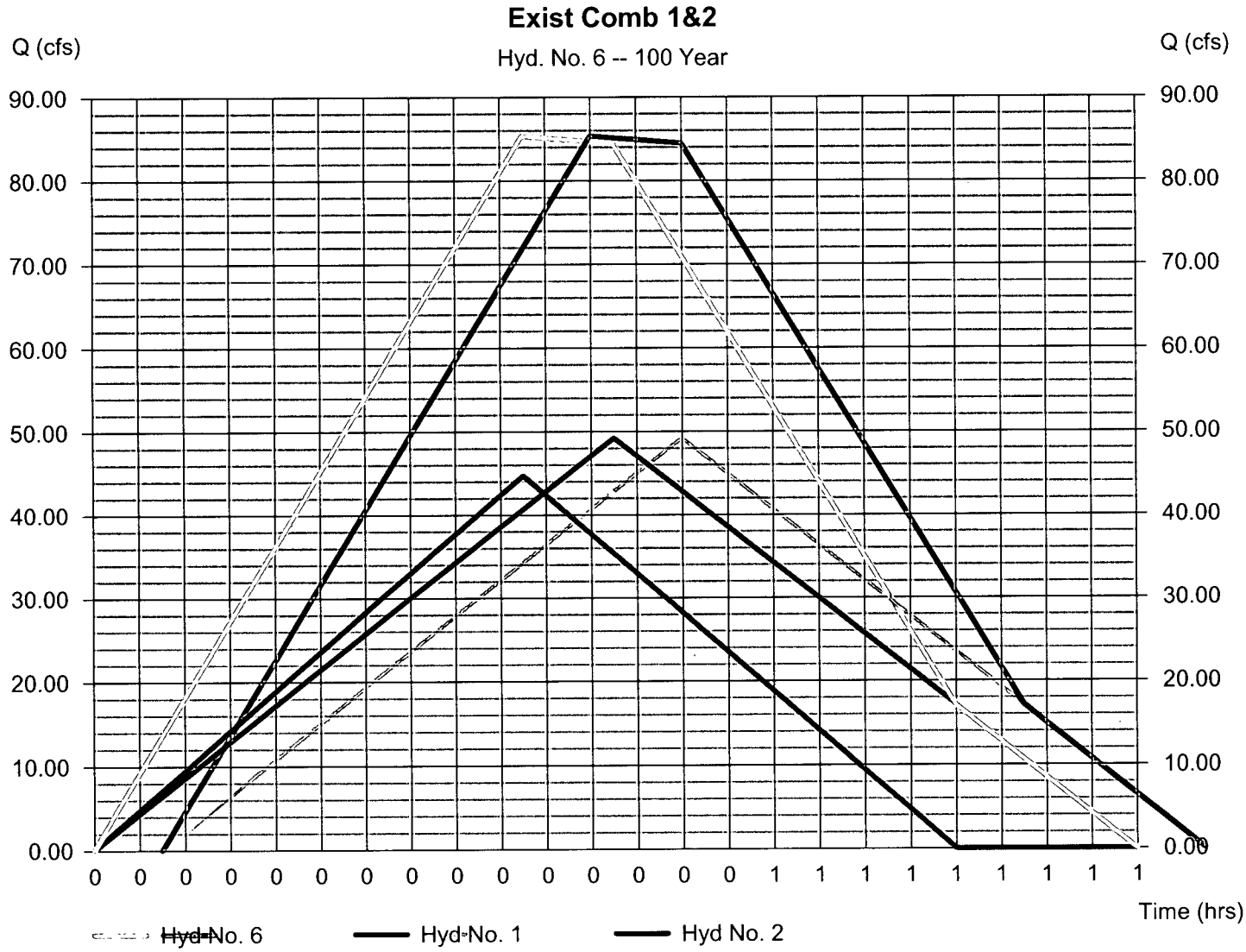
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 6

Exist Comb 1&2

Hydrograph type	= Combine	Peak discharge	= 85.34 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.32 hrs
Time interval	= 1 min	Hyd. volume	= 2.728 acft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 23.000 ac

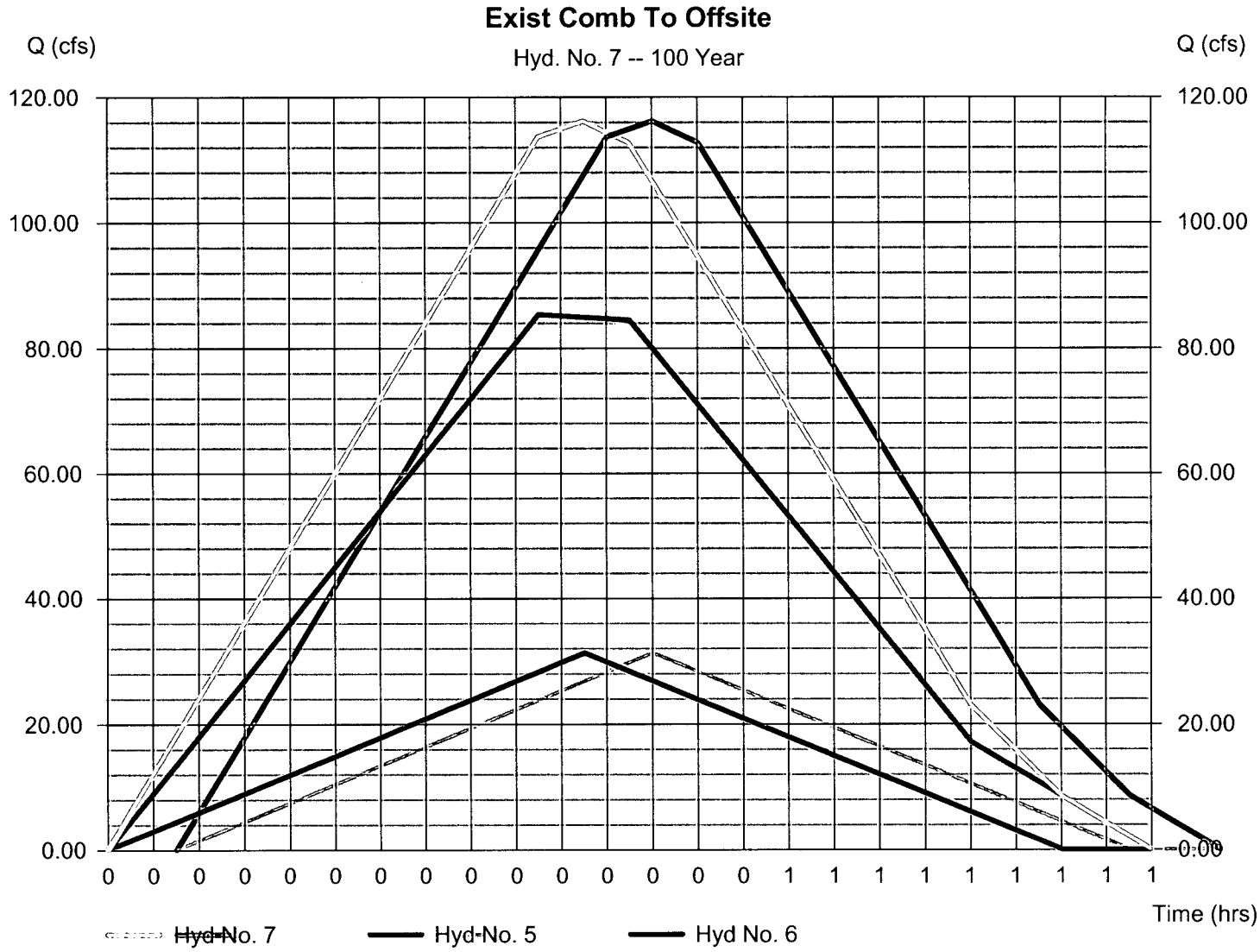


Hydrograph Report

Hyd. No. 7

Exist Comb To Offsite

Hydrograph type	= Combine	Peak discharge	= 116.20 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.35 hrs
Time interval	= 1 min	Hyd. volume	= 3.633 acft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 13.300 ac

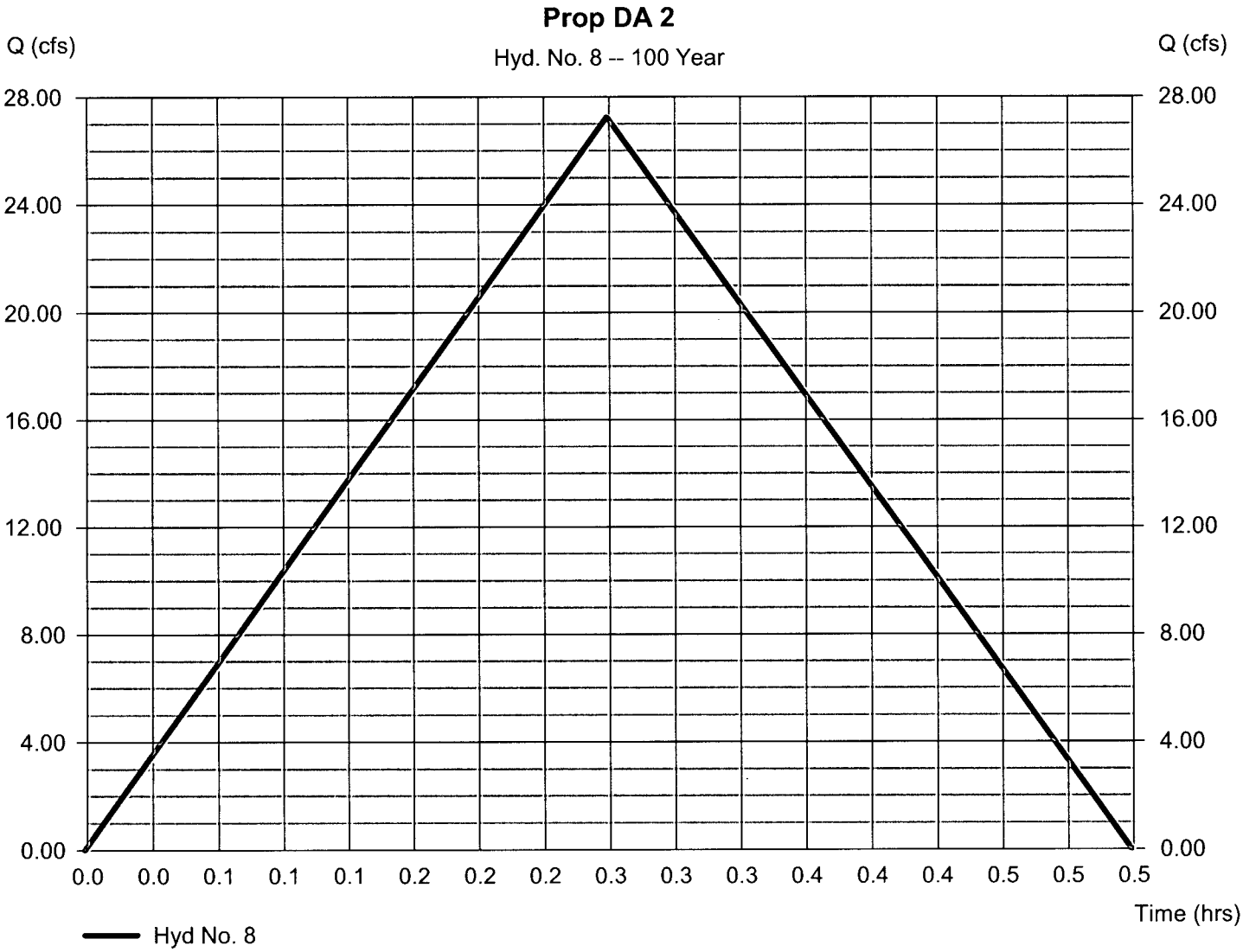


Hydrograph Report

Hyd. No. 8

Prop DA 2

Hydrograph type	= Rational	Peak discharge	= 27.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.27 hrs
Time interval	= 1 min	Hyd. volume	= 0.601 acft
Drainage area	= 5.800 ac	Runoff coeff.	= 0.66
Intensity	= 7.118 in/hr	Tc by TR55	= 16.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

Hyd. No. 9

Prop DA 3

Hydrograph type	= Rational	Peak discharge	= 16.85 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.348 acft
Drainage area	= 3.500 ac	Runoff coeff.	= 0.66
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

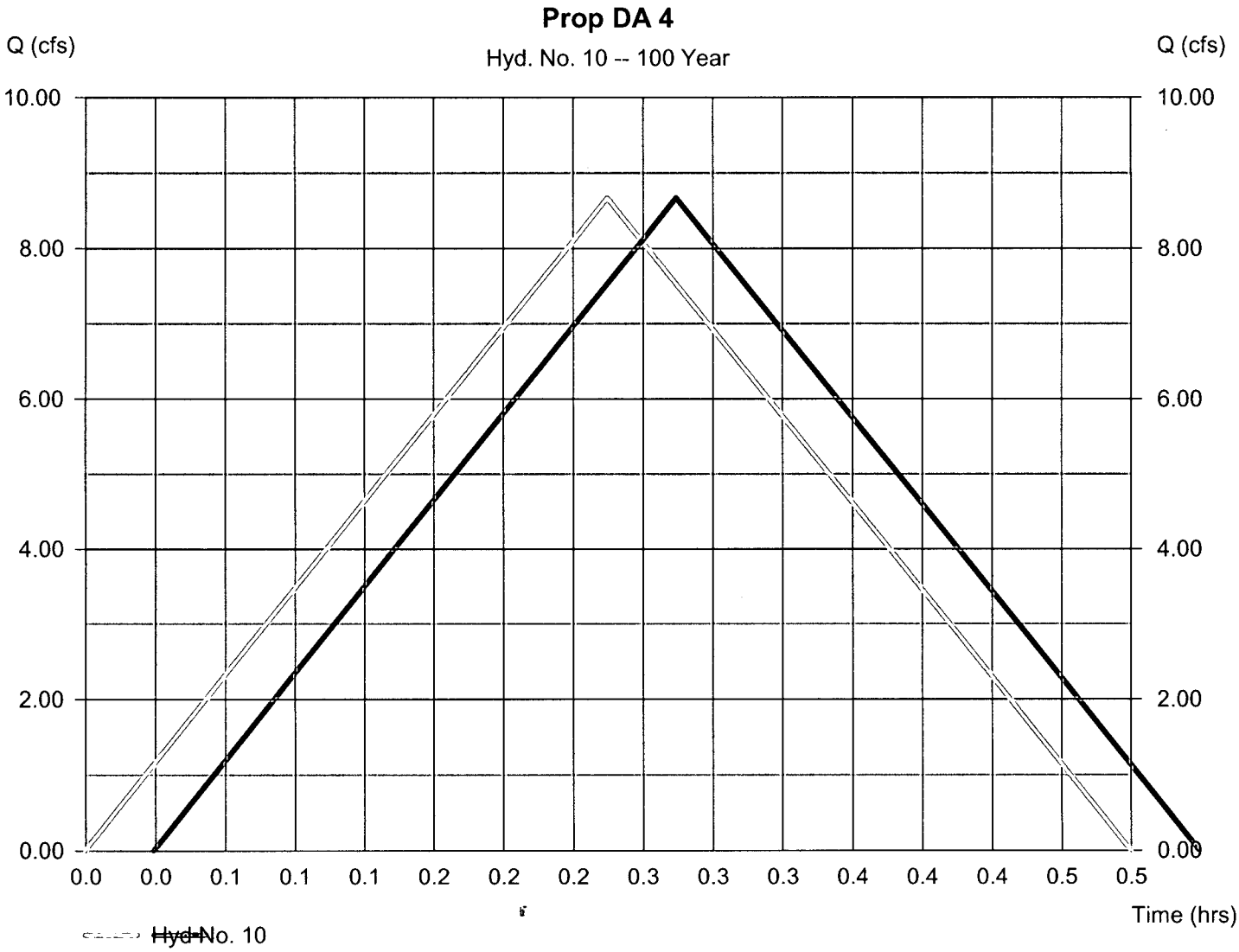
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 10

Prop DA 4

Hydrograph type	= Rational	Peak discharge	= 8.667 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.179 acft
Drainage area	= 1.800 ac	Runoff coeff.	= 0.66
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

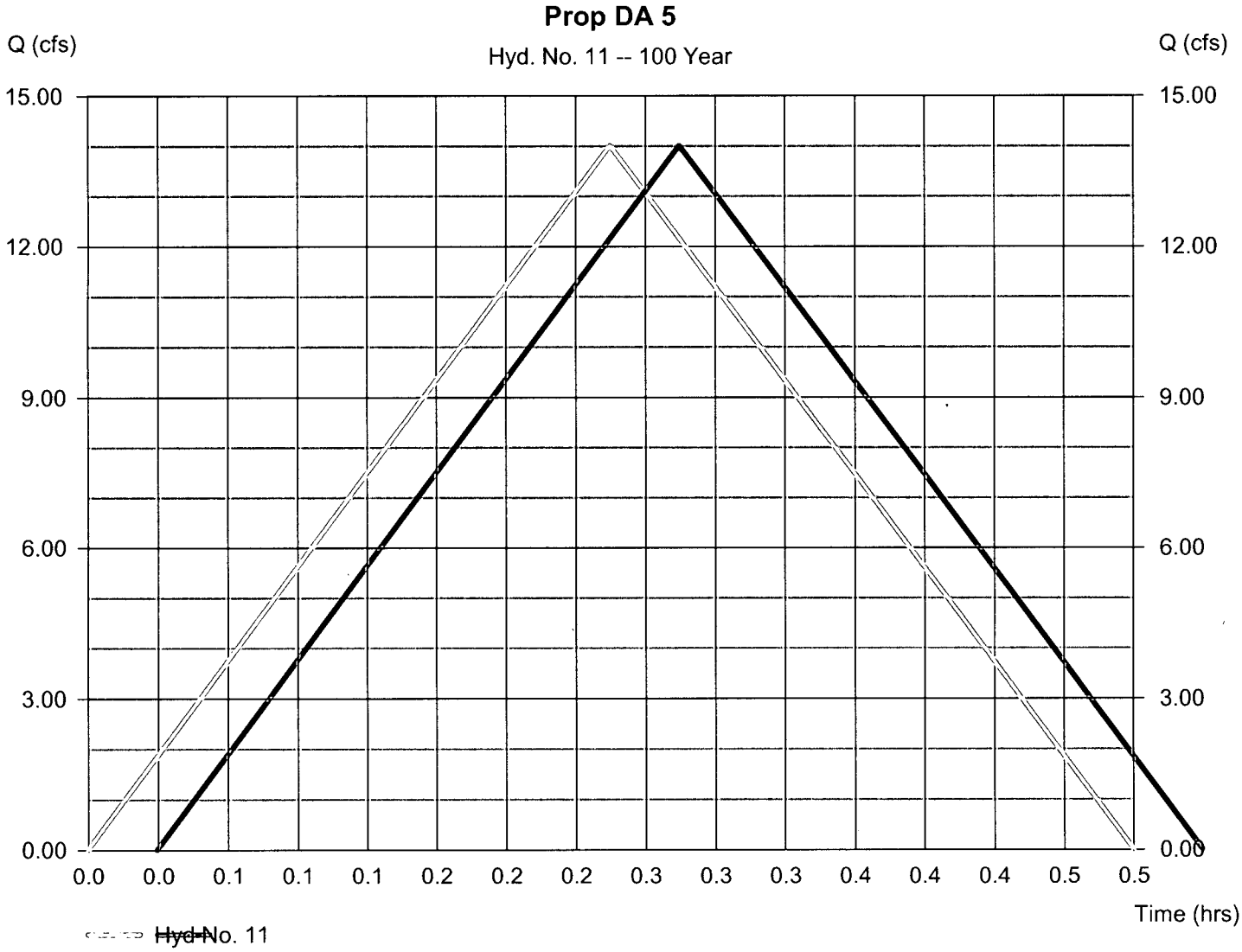


Hydrograph Report

Hyd. No. 11

Prop DA 5

Hydrograph type	= Rational	Peak discharge	= 14.01 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.289 acft
Drainage area	= 2.400 ac	Runoff coeff.	= 0.8
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

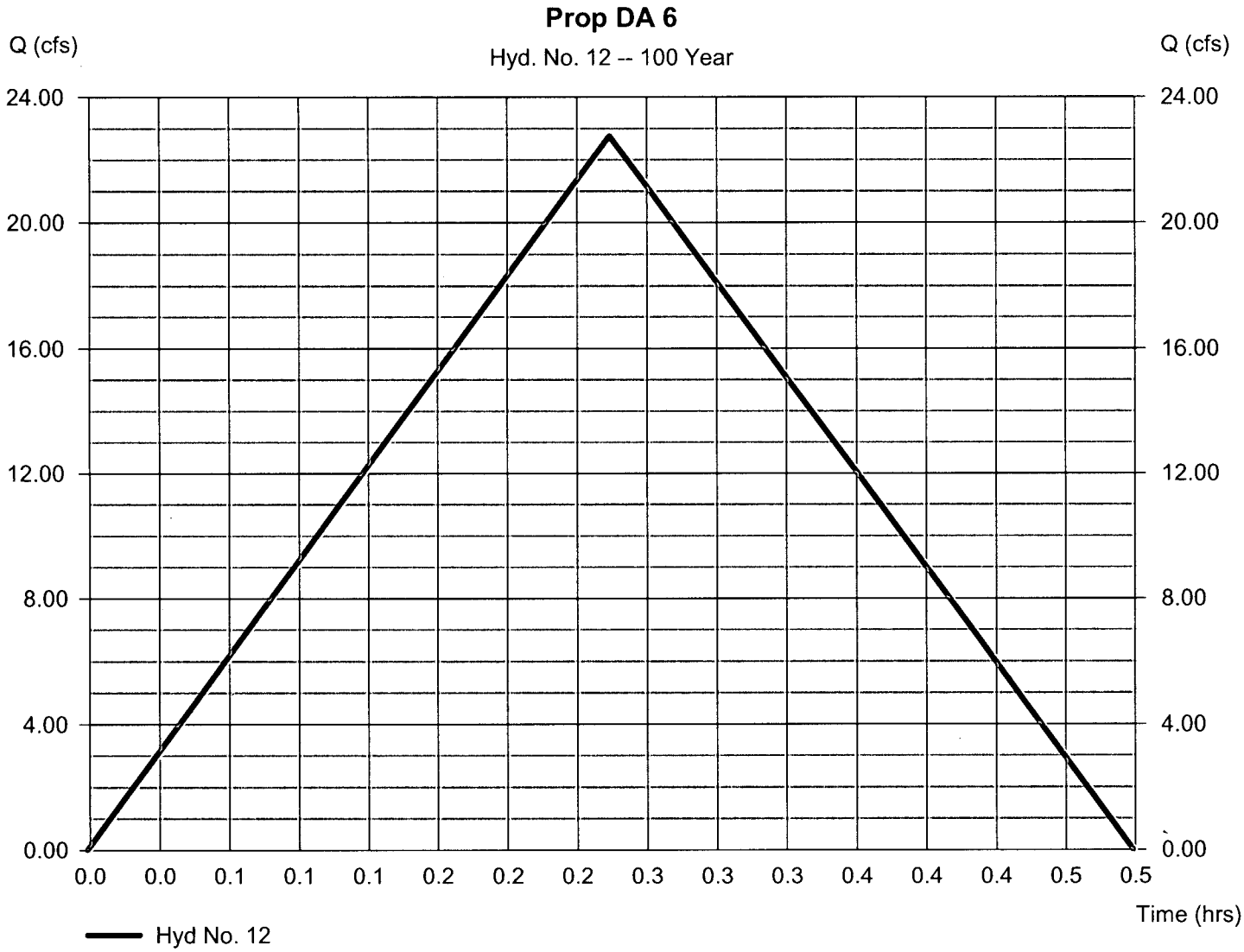


Hydrograph Report

Hyd. No. 12

Prop DA 6

Hydrograph type	= Rational	Peak discharge	= 22.76 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.470 acft
Drainage area	= 3.900 ac	Runoff coeff.	= 0.8
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



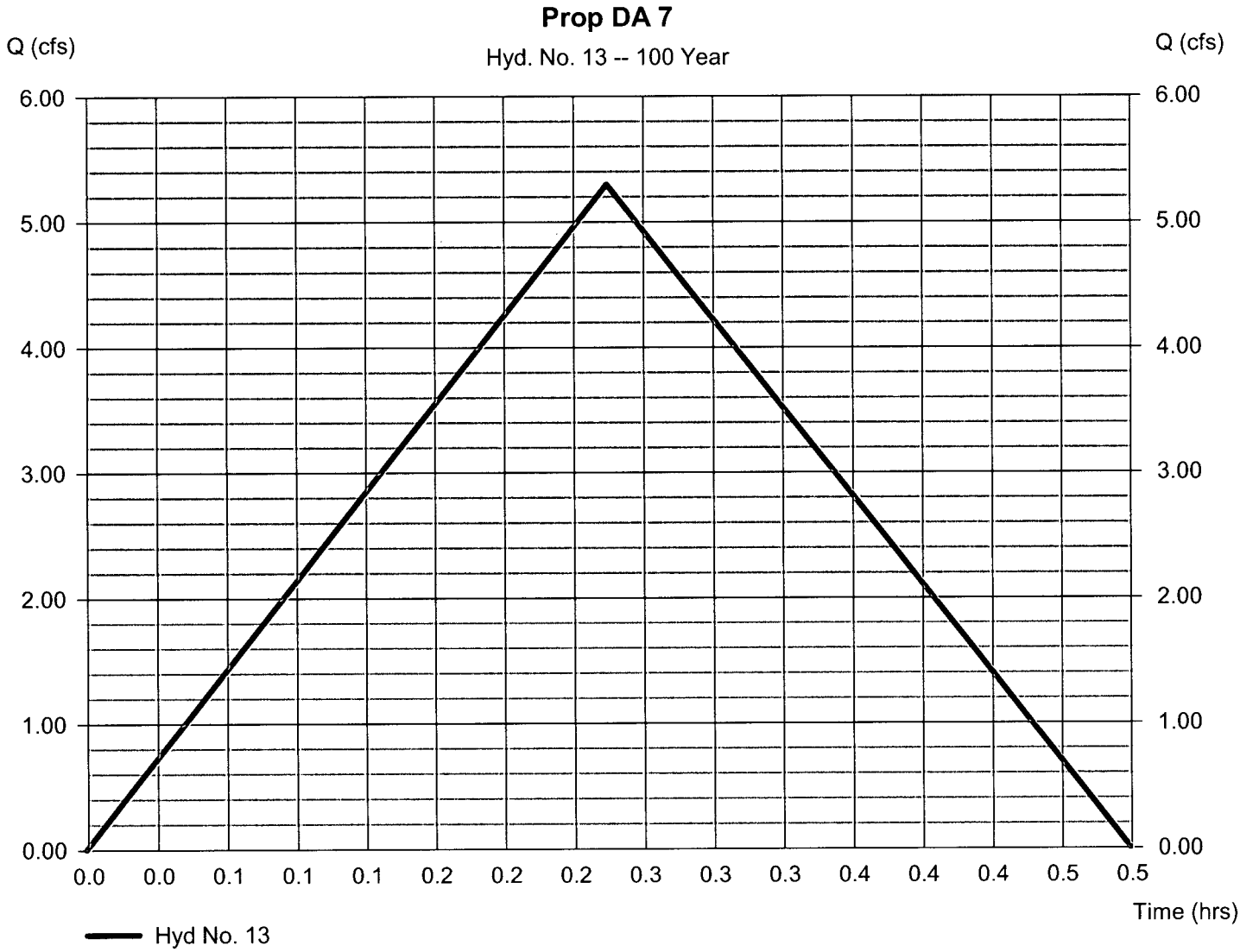
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 13

Prop DA 7

Hydrograph type	= Rational	Peak discharge	= 5.296 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 0.109 acft
Drainage area	= 1.100 ac	Runoff coeff.	= 0.66
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1

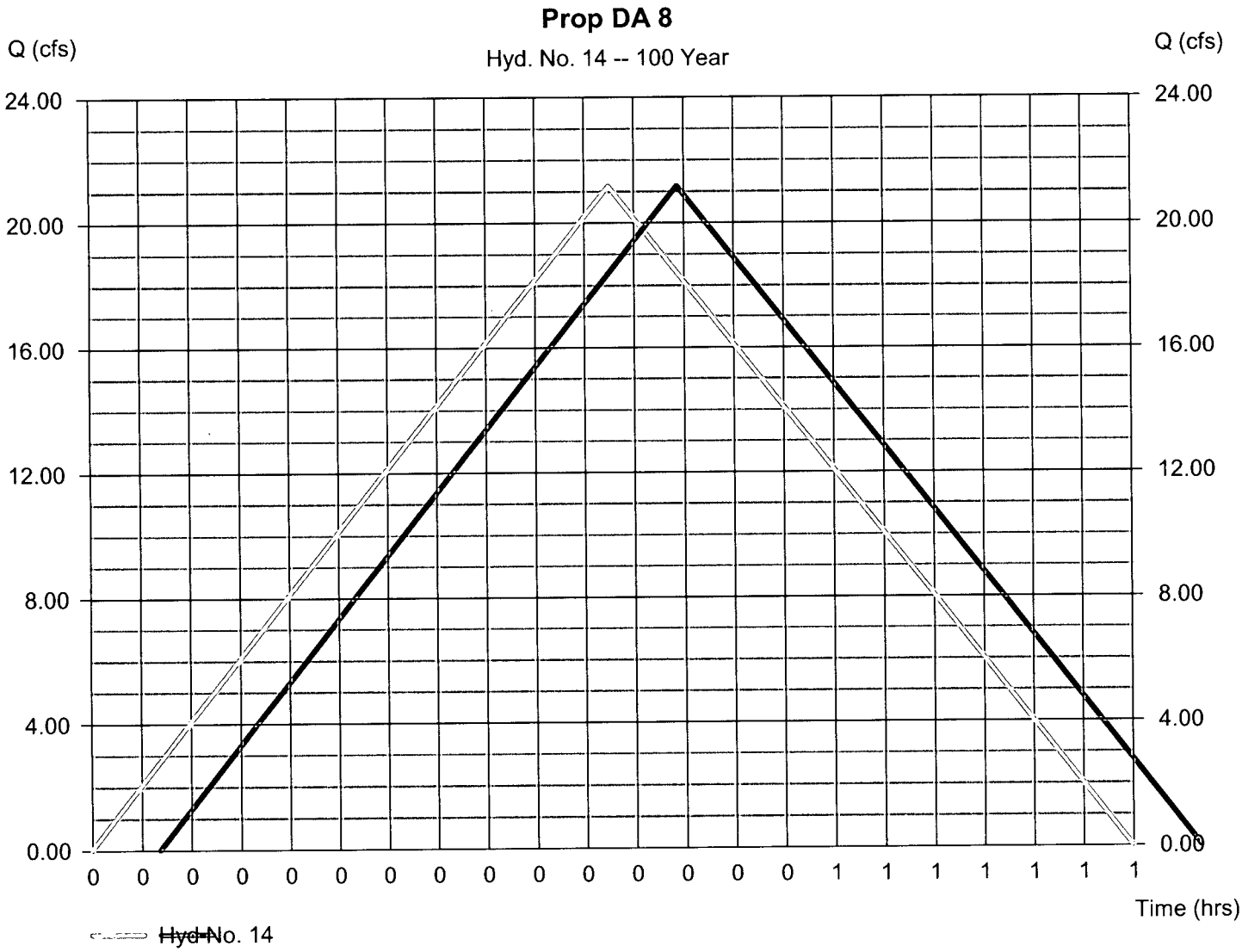


Hydrograph Report

Hyd. No. 14

Prop DA 8

Hydrograph type	= Rational	Peak discharge	= 21.17 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.35 hrs
Time interval	= 1 min	Hyd. volume	= 0.612 acft
Drainage area	= 9.000 ac	Runoff coeff.	= 0.37
Intensity	= 6.358 in/hr	Tc by TR55	= 21.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



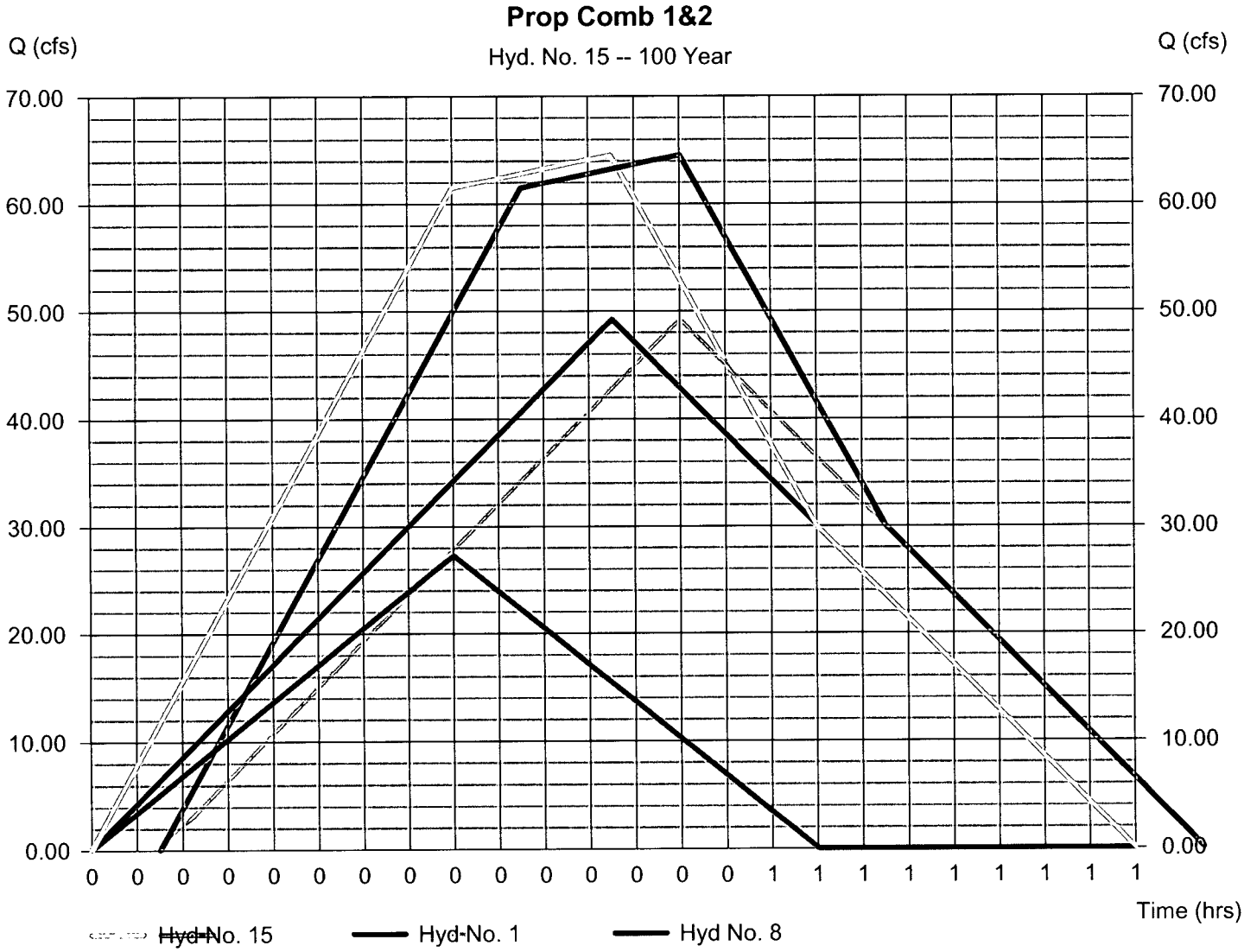
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 15

Prop Comb 1&2

Hydrograph type	= Combine	Peak discharge	= 64.53 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 2.159 acft
Inflow hyds.	= 1, 8	Contrib. drain. area	= 18.600 ac



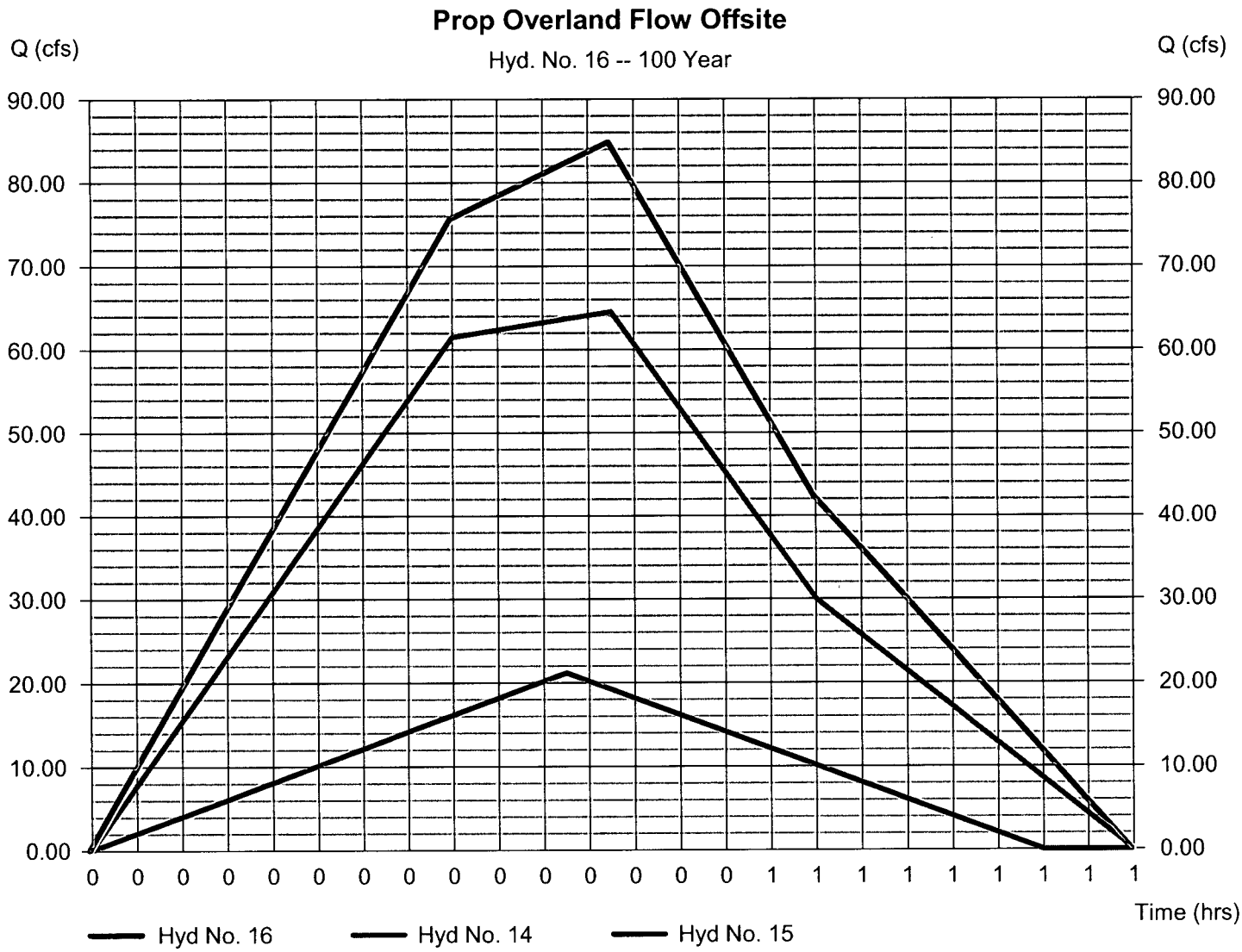
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 16

Prop Overland Flow Offsite

Hydrograph type	= Combine	Peak discharge	= 84.85 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 2.803 acft
Inflow hyds.	= 14, 15	Contrib. drain. area	= 9.000 ac



Hydrograph Report

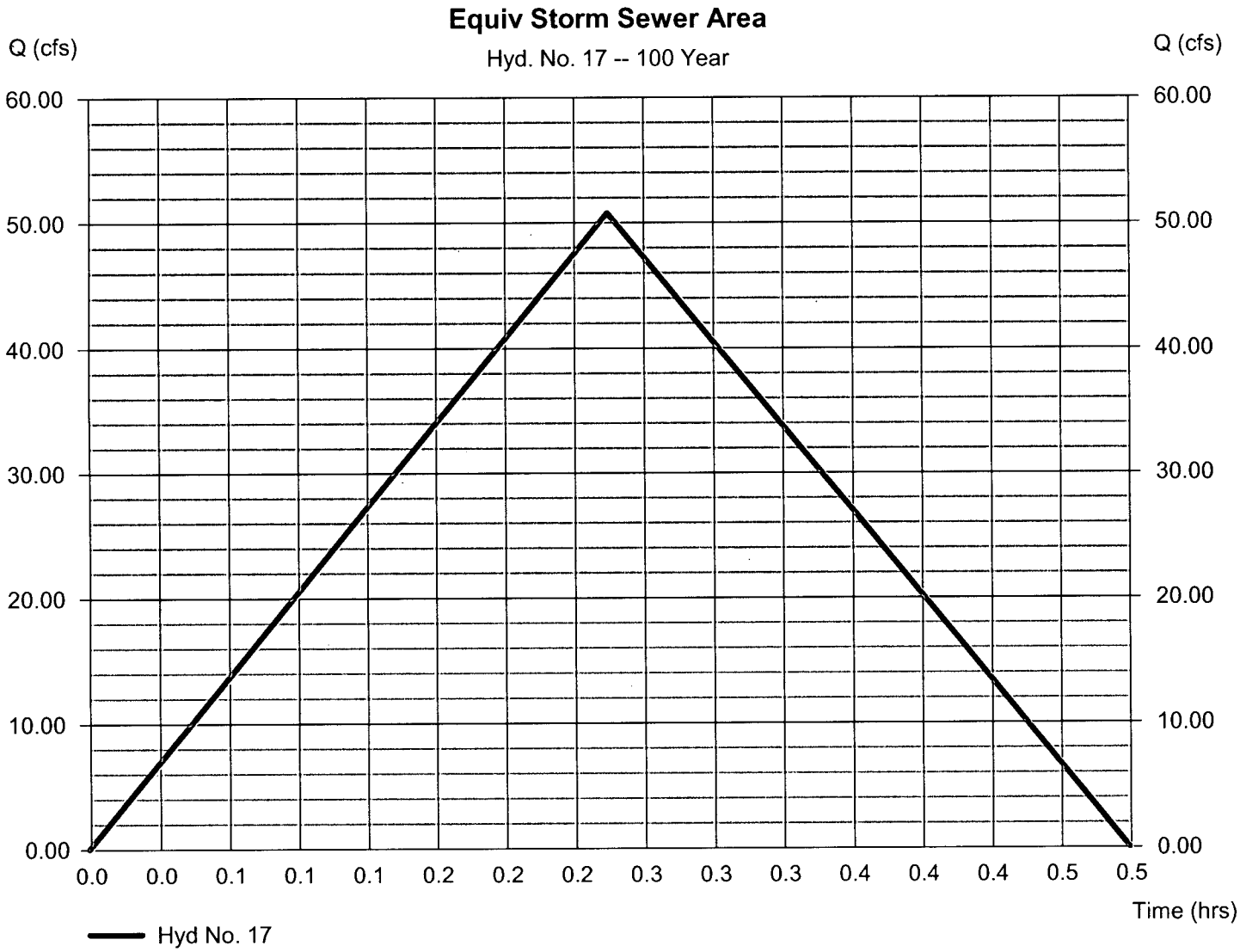
Hydraflow Hydrographs by Intelisolve v9.02

Friday, Jun 8, 2007

Hyd. No. 17

Equiv Storm Sewer Area

Hydrograph type	= Rational	Peak discharge	= 50.78 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.25 hrs
Time interval	= 1 min	Hyd. volume	= 1.049 acft
Drainage area	= 8.700 ac	Runoff coeff.	= 0.8
Intensity	= 7.295 in/hr	Tc by User	= 15.00 min
IDF Curve	= wich15min.IDF	Asc/Rec limb fact	= 1/1



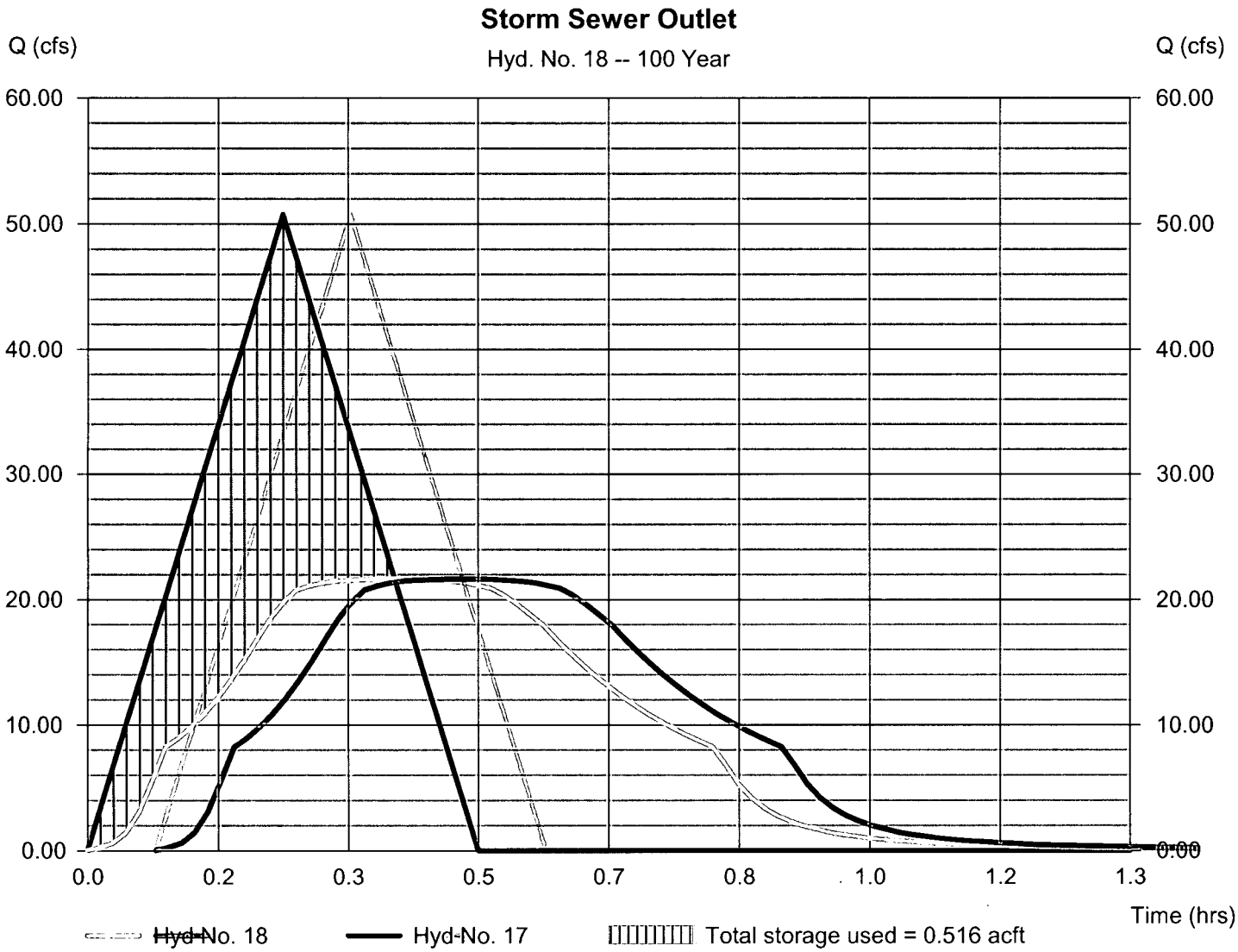
Hydrograph Report

Hyd. No. 18

Storm Sewer Outlet

Hydrograph type	= Reservoir	Peak discharge	= 21.64 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.40 hrs
Time interval	= 1 min	Hyd. volume	= 1.049 acft
Inflow hyd. No.	= 17 - Equiv Storm Sewer Area	Max. Elevation	= 151.18 ft
Reservoir name	= Prop Storm Sewer Equiv	Max. Storage	= 0.516 acft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.02 Friday, Jun 8, 2007

Pond No. 1 - Prop Storm Sewer Equiv

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 148.85 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	148.85	08	0.000	0.000
0.15	149.00	121	0.000	0.000
1.15	150.00	6,805	0.060	0.060
2.15	151.00	23,000	0.324	0.384
3.15	152.00	42,000	0.735	1.119

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	0.00	0.00	0.00
Span (in)	= 30.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 148.85	0.00	0.00	0.00
Length (ft)	= 800.00	0.00	0.00	0.00
Slope (%)	= 0.30	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

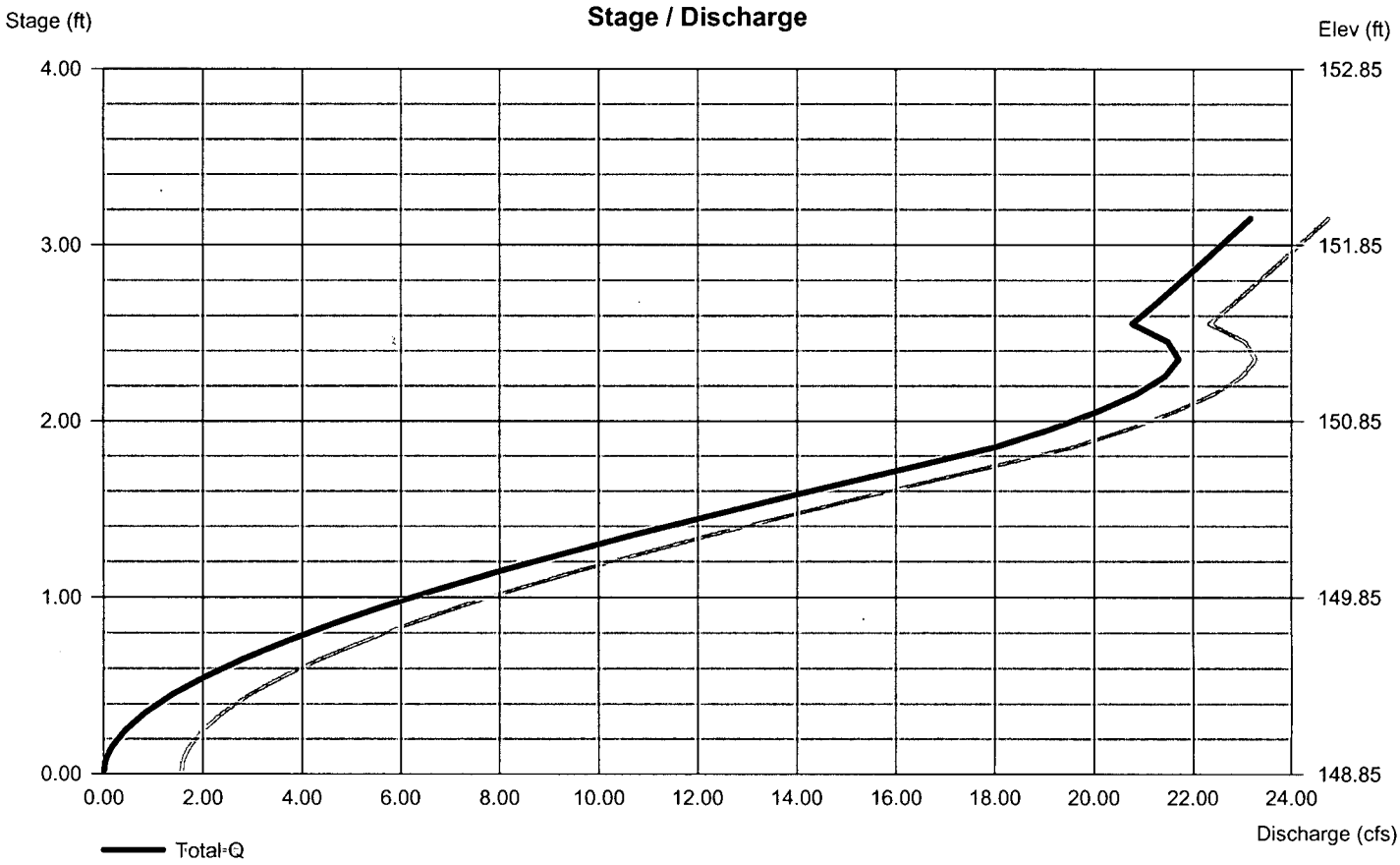
Weir Structures

	[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.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 0.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet and outlet control. Weir risers are checked for orifice conditions.



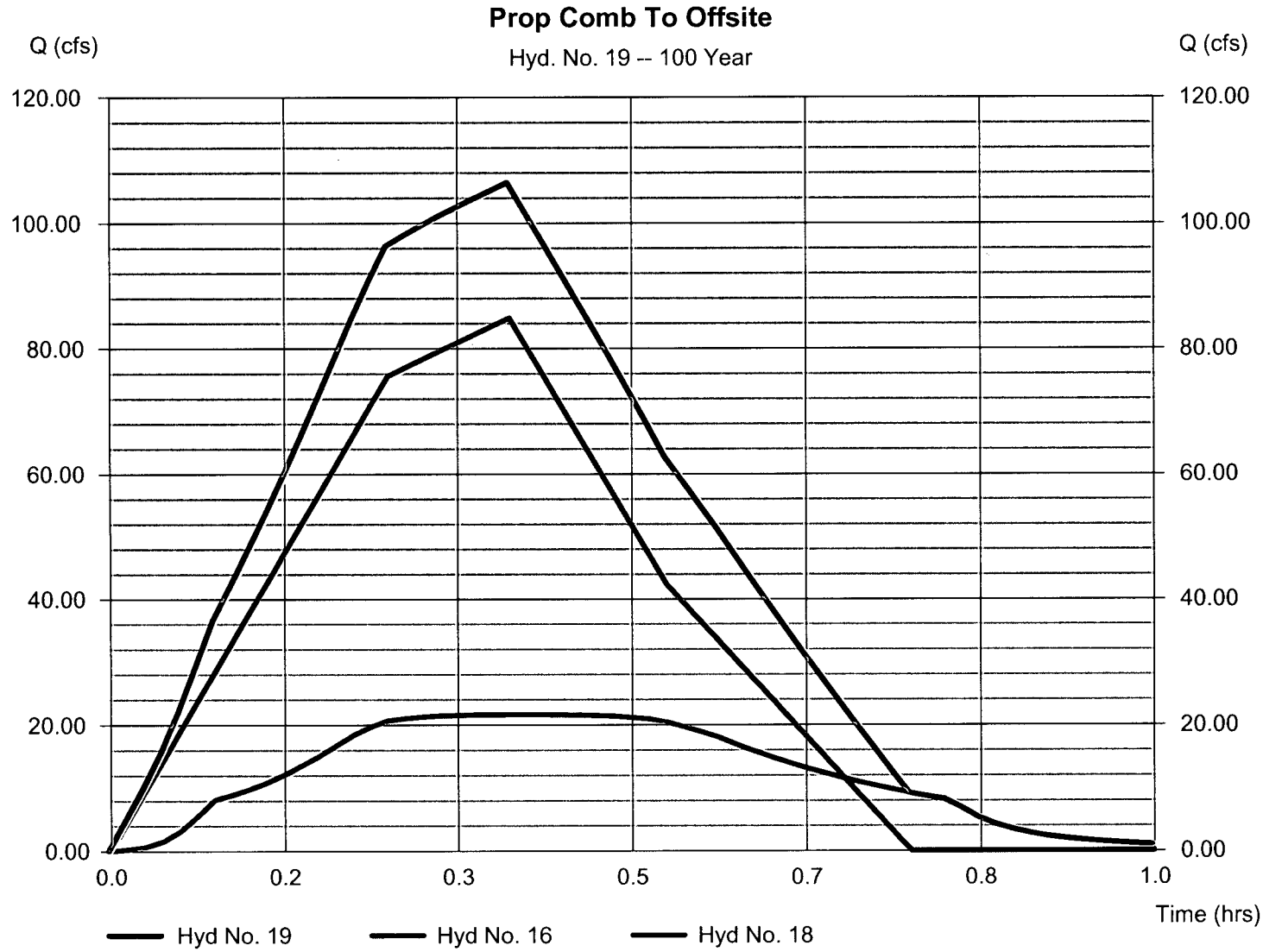
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.02 — Friday, Jun 8, 2007

Hyd. No. 19

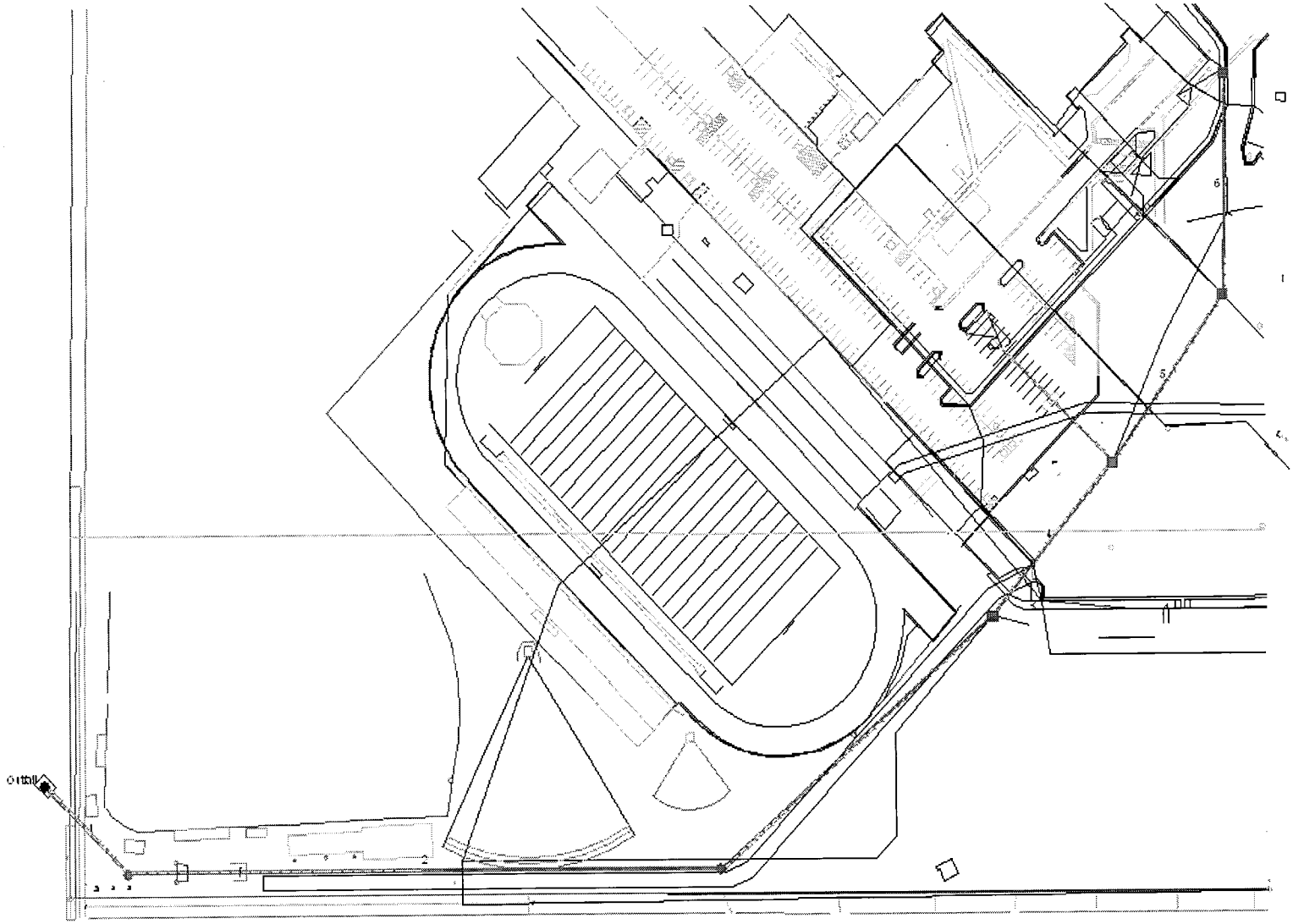
Prop Comb To Offsite

Hydrograph type	= Combine	Peak discharge	= 106.48 cfs
Storm frequency	= 100 yrs	Time to peak	= 0.38 hrs
Time interval	= 1 min	Hyd. volume	= 3.852 acft
Inflow hyds.	= 16, 18	Contrib. drain. area	= 0.000 ac



Hydraflow Plan View

5 YR



Project File: BC_rational.stm	No. Lines: 6	06-08-2007

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1		32.08	30 c	121.3	138.90	139.26	0.297	141.40*	142.14*	n/a	142.24 i	End
2		32.08	30 c	628.2	139.26	141.15	0.301	142.24*	146.08*	0.46	146.54	1
3		32.08	30 c	376.8	141.15	142.28	0.300	146.54*	148.85*	0.33	149.18	2
4		28.48	30 c	195.0	142.28	142.86	0.297	149.32*	150.26*	0.26	150.52	3
5		14.29	24 c	198.8	142.86	143.46	0.302	150.73*	151.52*	0.30	151.82	4
6		5.55	15 c	216.0	144.71	145.96	0.579	151.83*	153.42*	0.32	153.74	5

Project File: BC_rational.stm | Number of lines: 6 | Run Date: 06-08-2007

NOTES: c = cir; e = ellip; b = box; Return period = 5 Yrs. ; *Surcharged (HGL above crown). ; i - Inlet control.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1		0.00	0.00	0.00	0.00	MH	6.0	6.00	2.00	4.00	2.00	Sag	2.00	0.080	0.050	0.013	0.00	0.00	0.00	0.00	0.00	Off
2		0.00	0.00	0.00	0.00	MH	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	0.00	0.00	0.00	0.00	0.00	1
3		3.60	0.00	3.60	0.00	DrGrt	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	0.22	10.62	0.22	10.62	0.00	2
4		14.19	0.00	14.19	0.00	DrGrt	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	1.12	46.65	1.12	46.65	0.00	3
5		8.73	0.00	8.73	0.00	DrGrt	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	0.42	18.91	0.42	18.91	0.00	4
6		5.55	0.00	5.55	0.00	Curb	6.0	6.00	2.00	4.00	2.00	Sag	2.00	0.080	0.050	0.013	0.46	7.93	0.56	7.93	2.00	5

Project File: BC_rational.stm | Number of lines: 6 | Run Date: 06-08-2007

NOTES: Inlet N-Values = 0.016 ; Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75; Return period = 5 Yrs. ; * Indicates Known Q added

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	EGL Jnct (ft)	Energy Loss (ft)
1	4.91	4.91	n/a	0.20	0.50	0.90	22.34	1.89	....	....	....	44.3	2.50	2.50	Outfall	0.00	15651.67	142.06	142.81 i	142.24	0.173
2	4.91	4.91	1	0.20	0.50	0.90	22.49	1.89	....	....	....	-44.4	2.50	2.50	1	0.00	16279.91	142.90	146.75	147.21	3.846
3	4.91	4.91	2	0.20	0.50	0.90	22.46	1.89	0.050	0.050	....	-39.9	2.50	2.50	2	1.20	16568.50	147.21	149.51	149.85	2.306
4	4.91	4.91	3	0.20	0.50	0.90	22.37	1.78	0.050	0.050	....	-9.5	2.50	2.50	3	3.90	16695.20	149.85	150.79	151.05	0.941
5	3.14	3.14	4	0.20	0.50	0.90	12.42	1.34	0.050	0.050	....	-4.9	2.00	2.00	4	2.40	16811.08	151.05	151.84	152.14	0.794
6	1.23	1.23	5	0.20	0.50	0.90	4.91	0.94	0.080	0.050	6.00	-34.8	1.25	1.25	5	1.85	16814.29	152.14	153.74	154.06	1.599

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)	Inlet ID	
32.08	n/a	n/a	....	....	....	143.50	144.70	....	....	....	....	141.40	142.14	142.24 i	....	....	0.00	0.00	....	....		
32.08	0.612	0.612	....	....	....	144.70	148.10	....	....	....	....	142.24	146.08	146.54	....	....	0.00	0.00	....	....		
32.08	0.612	0.612	2.50	4.00	2.00	148.10	150.20	0.22	Sag	10.62	2.00	146.54	148.85	149.18	....	....	0.79	3.60	0.22	100		
28.48	0.482	0.483	2.50	4.00	2.00	150.20	148.85	1.12	Sag	46.65	2.00	149.32	150.26	150.52	....	....	3.12	14.19	1.12	100		
14.29	0.399	0.399	2.50	4.00	2.00	148.85	150.00	0.42	Sag	18.91	2.00	150.73	151.52	151.82	....	....	1.92	8.73	0.42	100		
5.55	0.740	0.740	....	....	....	150.00	151.75	0.46	Sag	7.93	2.00	151.83	153.42	153.74	....	....	1.22	5.55	0.56	100		

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Inlet Loc	Inlet Spread (ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP ($)	Cost CMP ($)	($)	Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)
Sag	....	0.0	4.03	0.00	138.90	139.26	....	....	0.00	0.00	0.74	MH	0.00	6,906	6,215			121.33	30	0.30
Sag	....	0.0	4.19	0.00	139.26	141.15	....	....	0.00	0.00	0.69	MH	0.00	38,472	34,625			628.24	30	0.30
Sag	10.62	15.0	4.30	4.55	141.15	142.28	....	....	0.00	0.00	0.50	Dp-Grate	0.00	24,236	21,812			376.76	30	0.30
Sag	46.65	15.0	4.36	4.55	142.28	142.86	....	....	0.00	0.00	0.50	Dp-Grate	0.00	12,598	11,338			195.00	30	0.30
Sag	18.91	15.0	4.45	4.55	142.86	143.46	....	....	0.00	0.00	0.94	Dp-Grate	0.00	12,022	10,820			198.82	24	0.30
Sag	7.93	15.0	4.55	4.55	144.71	145.96	....	....	0.00	0.00	1.00	Curb	0.00	8,770	7,893			216.00	15	0.58

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: Intensity = 52.62 / (Inlet time + 11.20) ^ 0.75 -- Return period = 5 Yrs. ; i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA	Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)
Cir	....	....	0.013	n/a	7773.68	0.31	....	....	....	30	0.00	30	0.00	0.00	0.00	19.6	....	9.35	7.05	28.39	6.54	6.54	0.66
Cir	....	....	0.013	0.46	7775.22	1.60	....	....	....	30	0.00	30	0.00	0.00	0.00	18.0	....	9.35	7.05	29.55	6.54	6.54	0.66
Cir	....	....	0.013	0.33	8017.41	0.96	0.00	3.60	0.00	30	0.66	30	0.00	0.00	0.00	17.1	....	9.35	7.05	30.30	6.54	6.54	0.66
Cir	....	....	0.013	0.26	8165.65	0.56	0.00	14.19	0.00	30	0.80	30	0.00	0.00	0.00	16.5	....	8.15	6.26	27.30	5.80	5.80	0.52
Cir	....	....	0.013	0.30	8327.21	0.73	0.00	8.73	0.00	24	0.80	24	0.00	0.00	0.00	15.8	....	4.25	3.14	13.97	4.55	4.55	0.32
Cir	2.00	....	0.013	0.32	8543.19	0.80	0.00	5.55	0.00	15	0.66	15	0.00	0.00	0.00	15.0	6.0	1.85	1.22	5.55	4.53	4.53	0.32

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

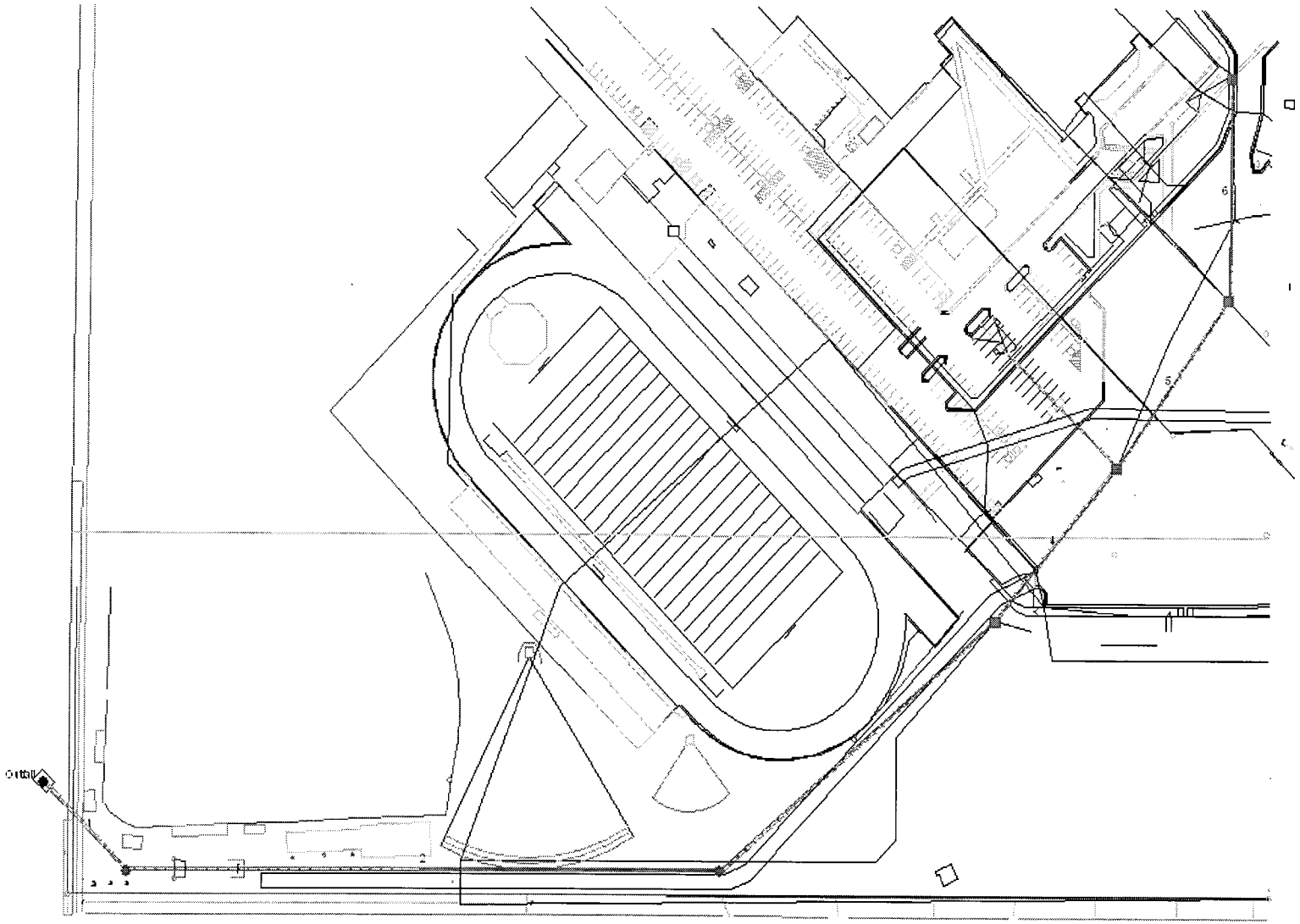
Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
0.66	6.54	2.10	2.94	595.47
0.66	6.54	2.94	4.45	3083.26
0.66	6.54	4.45	5.42	1849.05
0.52	5.80	5.42	3.49	957.02
0.32	4.55	3.99	4.54	624.50
0.32	4.53	4.04	4.54	265.02

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

Hydraflow Plan View

100 YR



Project File: BC_rational.stm	No. Lines: 6	06-08-2007

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1		51.95	30 c	121.3	138.90	139.26	0.297	141.40*	143.35*	n/a	145.04 i	End
2		51.95	30 c	628.2	139.26	141.15	0.301	145.04*	155.12*	1.20	156.32	1
3		51.95	30 c	376.8	141.15	142.28	0.300	156.32*	162.37*	0.87	163.24	2
4		46.11	30 c	195.0	142.28	142.86	0.297	163.61*	166.07*	0.69	166.76	3
5		23.13	24 c	198.8	142.86	143.46	0.302	167.29*	169.37*	0.79	170.16	4
6		8.99	15 c	216.0	144.71	145.96	0.579	170.17*	174.36*	0.83	175.20	5

Project File: BC_rational.stm | Number of lines: 6 | Run Date: 06-08-2007

NOTES: c = cir; e = ellip; b = box; Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; i - Inlet control.

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1		0.00	0.00	0.00	0.00	MH	6.0	6.00	2.00	4.00	2.00	Sag	2.00	0.080	0.050	0.013	0.00	0.00	0.00	0.00	0.00	Off
2		0.00	0.00	0.00	0.00	MH	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	0.00	0.00	0.00	0.00	0.00	1
3		5.83	0.00	5.83	0.00	DrGrt	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	0.30	13.88	0.30	13.88	0.00	2
4		22.98	0.00	22.98	0.00	DrGrt	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	2.93	119.04	2.93	119.04	0.00	3
5		14.14	0.00	14.14	0.00	DrGrt	6.0	6.00	2.50	4.00	2.00	Sag	2.00	0.050	0.050	0.013	1.11	46.32	1.11	46.32	0.00	4
6		8.99	0.00	8.99	0.00	Curb	6.0	6.00	2.00	4.00	2.00	Sag	2.00	0.080	0.050	0.013	0.61	10.96	0.71	10.96	2.00	5

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NOTES: Inlet N-Values = 0.016 ; Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	EGL Jnct (ft)	Energy Loss (ft)
1	4.91	4.91	n/a	0.20	0.50	0.90	22.34	2.33	....	....	....	44.3	2.50	2.50	Outfall	0.00	15651.67	143.14	145.09 i	145.04	1.898
2	4.91	4.91	1	0.20	0.50	0.90	22.49	2.33	....	....	....	-44.4	2.50	2.50	1	0.00	16279.91	146.78	156.86	158.06	10.081
3	4.91	4.91	2	0.20	0.50	0.90	22.46	2.33	0.050	0.050	....	-39.9	2.50	2.50	2	1.20	16568.50	158.06	164.11	164.98	6.046
4	4.91	4.91	3	0.20	0.50	0.90	22.37	2.25	0.050	0.050	....	-9.5	2.50	2.50	3	3.90	16695.20	164.98	167.45	168.13	2.466
5	3.14	3.14	4	0.20	0.50	0.90	12.42	1.71	0.050	0.050	....	-4.9	2.00	2.00	4	2.40	16811.08	168.13	170.21	171.01	2.080
6	1.23	1.23	5	0.20	0.50	0.90	4.91	1.16	0.080	0.050	6.00	-34.8	1.25	1.25	5	1.85	16814.29	171.01	175.20	176.03	4.190

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)	Inlet Depth (ft)	Inlet Eff (%)	Inlet ID
51.95	n/a	n/a	....	....	....	143.50	144.70	....	....	....	....	141.40	143.35	145.04 i	....	....	0.00	0.00	....	....	
51.95	1.605	1.605	....	....	....	144.70	148.10	....	....	....	....	145.04	155.12	156.32	....	....	0.00	0.00	....	....	
51.95	1.605	1.605	2.50	4.00	2.00	148.10	150.20	0.30	Sag	13.88	2.00	156.32	162.37	163.24	....	....	0.79	5.83	0.30	100	
46.11	1.265	1.265	2.50	4.00	2.00	150.20	148.85	2.93	Sag	119.04	2.00	163.61	166.07	166.76	....	....	3.12	22.98	2.93	100	
23.13	1.046	1.047	2.50	4.00	2.00	148.85	150.00	1.11	Sag	46.32	2.00	167.29	169.37	170.16	....	....	1.92	14.14	1.11	100	
8.99	1.940	1.940	....	....	....	150.00	151.75	0.61	Sag	10.96	2.00	170.17	174.36	175.20	....	....	1.22	8.99	0.71	100	

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Inlet Loc	Inlet Spread (ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP ($)	Cost CMP ($)	($)	Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	
Sag	....	0.0	6.86	0.00	138.90	139.26	....	....	0.00	0.00	0.74	MH	0.00	6,906	6,215			121.33	30	0.30	
Sag	....	0.0	7.02	0.00	139.26	141.15	....	....	0.00	0.00	0.69	MH	0.00	38,472	34,625			628.24	30	0.30	
Sag	13.88	15.0	7.13	7.37	141.15	142.28	....	....	0.00	0.00	0.50	Dp-Grate	0.00	24,236	21,812			376.76	30	0.30	
Sag	119.04	15.0	7.19	7.37	142.28	142.86	....	....	0.00	0.00	0.50	Dp-Grate	0.00	12,598	11,338			195.00	30	0.30	
Sag	46.32	15.0	7.27	7.37	142.86	143.46	....	....	0.00	0.00	0.94	Dp-Grate	0.00	12,022	10,820			198.82	24	0.30	
Sag	10.96	15.0	7.37	7.37	144.71	145.96	....	....	0.00	0.00	1.00	Curb	0.00	8,770	7,893			216.00	15	0.58	

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NOTES: Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66 -- Return period = 100 Yrs. ; i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA	Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)
Cir	....	....	0.013	n/a	7773.68	0.19	....	....	....	30	0.00	30	0.00	0.00	0.00	17.9	....	9.35	7.05	48.35	10.58	10.58	1.74
Cir	....	....	0.013	1.20	7775.22	0.99	....	....	....	30	0.00	30	0.00	0.00	0.00	16.9	....	9.35	7.05	49.52	10.58	10.58	1.74
Cir	....	....	0.013	0.87	8017.41	0.59	0.00	5.83	0.00	30	0.66	30	0.00	0.00	0.00	16.3	....	9.35	7.05	50.25	10.58	10.58	1.74
Cir	....	....	0.013	0.69	8165.65	0.35	0.00	22.98	0.00	30	0.80	30	0.00	0.00	0.00	15.9	....	8.15	6.26	45.00	9.39	9.40	1.37
Cir	....	....	0.013	0.79	8327.21	0.45	0.00	14.14	0.00	24	0.80	24	0.00	0.00	0.00	15.5	....	4.25	3.14	22.84	7.36	7.37	0.84
Cir	2.00	....	0.013	0.83	8543.19	0.49	0.00	8.99	0.00	15	0.66	15	0.00	0.00	0.00	15.0	6.0	1.85	1.22	8.99	7.33	7.33	0.84

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NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.

MyReport

Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
1.74	10.58	2.10	2.94	595.47
1.74	10.58	2.94	4.45	3083.26
1.74	10.58	4.45	5.42	1849.05
1.37	9.39	5.42	3.49	957.02
0.84	7.36	3.99	4.54	624.50
0.83	7.33	4.04	4.54	265.02

Project File: BC_rational.stm | Number of lines: 6 | Date: 06-08-2007

NOTES: i Inlet control; ** Critical depth ; System flows limited to inlet captured flows.