Drainage Reports

Abbreveated Water & Sewer Need Reports

Water Study

Wastewater Study

Stormwater Waiver Application

PRELIMINARY DRAINAGE REPORT

Hyatt Pima Renovation

7330 North Pima Road
Scottsdale, Arizona

Prepared for:

Zenith Asset Company, LLC
1855 Olympic Boulevard, Suite 300
Walnut Creek, CA 94596

Plan # _____
Case # 23-DR-2017
Q-S # _____
☑ Accepted
☐ Corrections
N. Baronas 8-8-17
Reviewed By Date

Prepared by:

Kimley-Horn and Associates
291010001
May 2017

Kimley»Horn

23-DR-2017
07/21/17

PRELIMINARY DRAINAGE REPORT

HYATT PIMA RENOVATION

7330 N. PIMA ROAD

SCOTTSDALE, ARIZONA

JUNE 2017

Prepared By:

Kimley»Horn

Contents

Figures

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INTRODUCTION

SITE LOCATION

This Preliminary Drainage report has been prepared for the proposed Hyatt Pima Renovation located at 7330 N. Pima Road in Scottsdale, Arizona (development). The development is bound to the west and south by private townhomes and private drive known as Inner Circle Drive, an existing private condominium complex to the north, and Pima Road to the east. The development is located within Section 1 of Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. Refer to **Figure 1** for the Vicinity Map.

PROJECT SIZE AND TYPE

The development is a proposed three-story, 100 room hotel renovation project, including parking lot and open space improvements. The development is approximately 7.93 gross acres with a net proposed disturbance of 3.56 acres.

PURPOSE AND OBJECTIVES

This report establishes drainage parameters and criteria for site planning and preliminary grading and drainage for Development Review. This report establishes a general hydrologic plan for the development of the site.

- Demonstrate compliance with the City's Design Standards & Polices Manual (DSPM).
- Quantify detention conditions onsite and identify proposed drainage and detention volumes.
- Demonstrate onsite drainage improvements proposed will meet the pre- versus post-redevelopment requirements for the City.

FIGURE 1
VICINITY MAP

Kimley»Horn

DESCRIPTION OF EXISTING DRAINAGE CONDITIONS AND CHARACTERISTICS

EXISTING ONSITE CONDITIONS

The development consists of existing condominiums, a Days Inn Hotel, private townhomes, a private access drive known as Inner Circle Drive, and a parking lot along the north and east end of the development. The existing condominiums and north parking lot drain to two existing drywells located in the parking lot to the north. Existing storm water from the hotel, townhomes, and the existing eastern parking lot/Inner Circle Drive drain to 4 separate detention basins throughout the property (Basins 1-4). Basin 4 is approximately 3 feet deep located near the east side of the property adjacent to Pima Road. Basin 4 contains a drywell in the bottom of the basin. Basins 1 and 3 near the south side of the property are equalized via a storm drain pipe under Inner Circle Drive. Basin 2 is a small depressed area that detains a small portion of the parking lot and Inner Circle Drive near the entrance to the property. Basins 1-4 equate for a total provided detention volume of 0.38 AC-FT. The provided stormwater storage volume in the existing condition is significantly lower than the 100-year, 2-hour storage volume for the site. The calculated 100-yr 2-hour stage volume is 0.90 AC-FT. Overflow from basins 1-4 ultimately routes through the easterly parking lot and ponds in the Inner Circle Road adjacent to Basin 1. Runoff overtops a high point in the drive entrance of Inner Circle Drive and discharges to Pima Road where it is collected by the City's storm drain in Pima Road.

A comparison of existing basin volumes provided and 100-year, 2-hour volumes are shown in **Table 1** below:

Table 1. Existing Condition Basin Comparison

Volume Required

Sub-Basin ID	Drainage Area (Ac)	100 Year Runoff Coefficient	100-YR, 2-HR Volume (Ac-ft)	Detention Basin
EX 01	2.79	0.89	0.45	Basin 1 & 3
EX 02	1.49	0.60	0.16	Basin 1 & 3
EX 03	0.55	0.92	0.09	Basin 1 & 3
EX 04	1.18	0.70	0.15	Basin 3
EX 05	0.28	0.79	0.04	Basin 4

Volume Provided

Detention Basin	100-YR, 2-HR Volume (Ac-ft)	Ex. Volume Provided (Ac-ft)	Volume Credit (Ac-ft)
Basin 1 & 3	0.71	0.22	0.49
Basin 2	0.15	0.12	0.03
Basin 4	0.04	0.04	0.00
Total Site	**0.90**	**0.38**	**0.52**

A volume credit, which represents the calculated 100-year, 2-hour volume for the development minus the provided volume, was calculated for the existing condition. A volume credit of 0.52 AC-FT is applied to the proposed redevelopment for a reduction in the required retention total. This credit was subtracted from the total 100-year, 2-hour volume calculated in the proposed condition for the site

Refer to **Figure 3** for the Existing Conditions Map. Existing basin volumes and runoff coefficient calculations are provided in **Appendix A.**

EXISTING OFFSITE DRAINAGE CONDITIONS

Offsite storm water is currently collected by two inlets located in the west curb of Pima Road along the project frontage. Both inlets collect into an existing 24-inch City storm drain located within the Pima Road right-of-way. Based on previous improvements for Pima Road and the elevations of the property, Pima Road street drainage is maintained within the right-of-way and does not contribute to the onsite detention on the property.

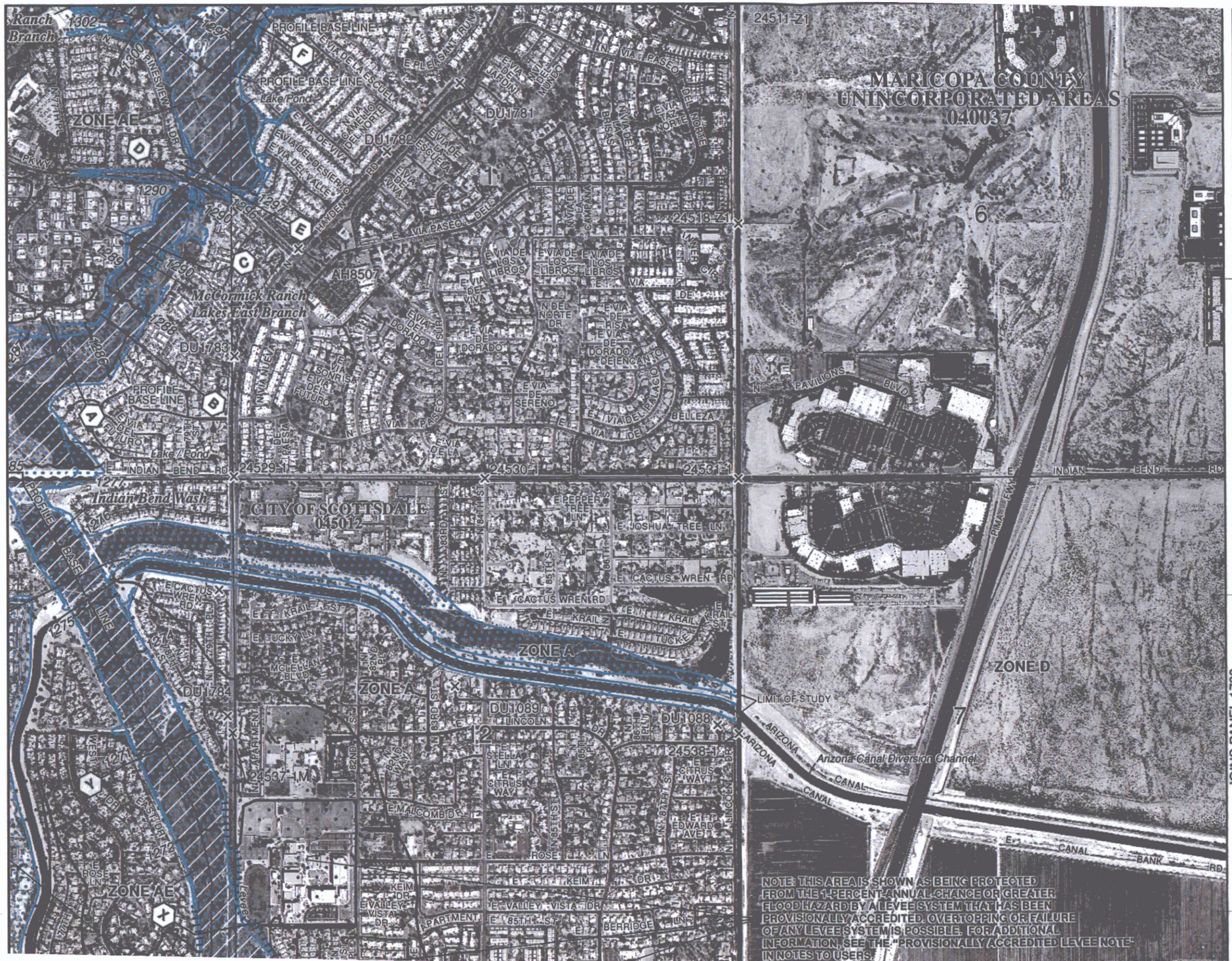
CONTEXT RELATIVE TO ADJACENT PROJECTS AND IMPROVEMENTS

Masonry block walls exist along the northern, western, and southern property lines and there are no drainage impacts to or from these adjacent properties. The existing condominiums on the property drain to the northerly parking lot and do not contribute to the improvement area proposed with this redevelopment. The townhomes and Inner Circle Drive drain to existing Basins 1 & 3 and will require improvements as part of the hotel and parking lot renovations associated with this project.

FLOOD HAZARD ZONES ON PROPERTY, FIRM MAPS

The development is located within one flood zone as shown on Flood Insurance Rate Map (FIRM) panel number 04013C1770L, dated October 16, 2013. Refer to **Figure 2** for the project FIRM map. The flood zones that pertain to the site are as follows:

> "Other Flood Areas" Zone X – "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood."



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1770L

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1770 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

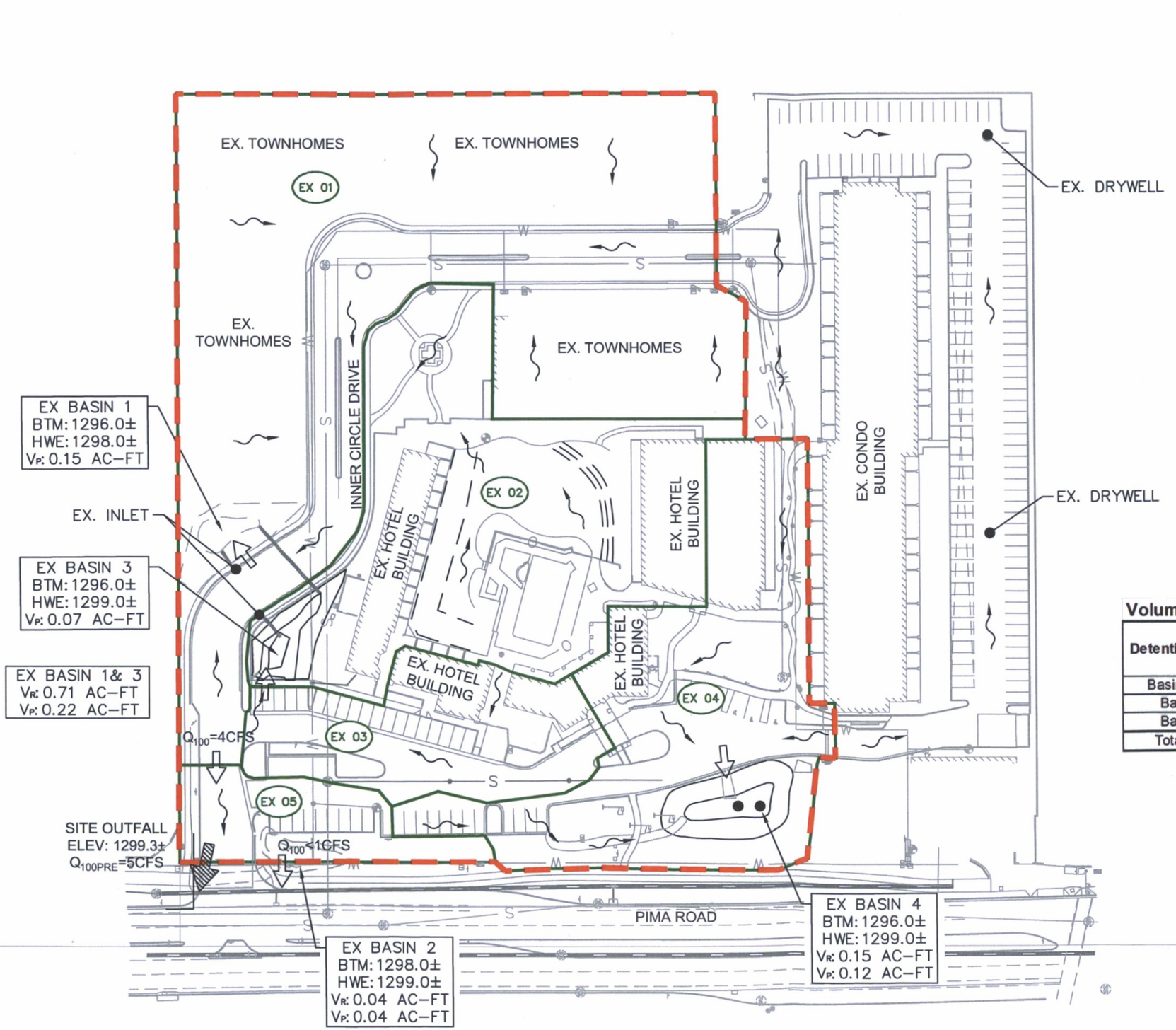
COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1770	L
PARADISE VALLEY, TOWN OF	040049	1770	L
SCOTTSDALE, CITY OF	045012	1770	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1770L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency



LEGEND

- LIMIT OF DRAINAGE ANALYSIS
- SUB BASIN BOUNDARY
- EX 01 — SUB BASIN ID
- PROPOSED STORM DRAIN
- FLOW DIRECTION
- DETENTION BASIN INLET

Volume Provided

Detention Basin	100-YR, 2-HR Volume (Ac-ft)	Ex. Volume Provided (Ac-ft)	Volume Credit (Ac-ft)
Basin 1 & 3	0.71	0.22	0.49
Basin 3	0.15	0.12	0.03
Basin 4	0.04	0.04	0.00
Total Site	0.90	0.38	0.52

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

NO. REVISION DA

Kimley»Horn

1855 West Baseline Road, Suite 200
Mesa, Arizona 85202 (480) 207-2866

SCALE (H): 1"=80'
SCALE (V): NONE
DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: JMB
DATE: APR 2017

HYATT PIMA RENOVATION
FIGURE 3
EXISTING CONDITIONS MAP
SCOTTSDALE, ARIZONA

PROJECT NO.

DRAWING NAME

PROPOSED DRAINAGE PLAN

PROPOSED ONSITE DRAINAGE PLAN

The development includes renovation of the existing Days Inn Hotel and reconfiguration of a new Hyatt Hotel on the property. This renovation also includes the reconfiguration of the parking lot areas and existing open space/detention basins on the property. In general, Inner Circle Drive will remain undisturbed and in its existing condition with the exception of new parking lot entrances in two locations. The northern parking lot area and condominiums are undisturbed with this project and will remain protected in place. The existing drainage patterns for the condominium area are maintained and are not modified with the proposed renovations for the project. Existing Basin 3, and 4 are removed with the proposed hotel renovations. Basin 1 and Basin 2 will remain in their existing condition and detain runoff from Inner Circle Drive. Refer to **Figure 4** for the Proposed Conditions Map & Preliminary Grading and Drainage Plan.

The project is subject to redevelopment and will utilize existing and proposed surface detention basins as well as an underground storage facility in the southeast corner of the eastern parking lot. The proposed hotel will consist of a three-story building with 100 rooms. Runoff will be conveyed via roof drains to the parking lot or open space areas surrounding the building. Parking lot runoff will be conveyed along proposed curb or valley gutters to openings or inlets into the various basins or storage facilities within the development. The basins will dissipate per City of Scottsdale and Maricopa County Environmental Services Department criteria by way of a bleed off system to the City's existing storm drain located in Pima Road. The underground storage tanks will also be drained to the City's existing storm drain. If elevations do not allow for dissipation of the storage facilities, drywells may be proposed. Three new surface detention basin, (Basins 3-5) and an underground storage facility (Basin 6) will be constructed with the proposed development.

A comparison of proposed basin volumes provided and 100-year, 2-hour volumes are shown in **Table 2** below:

Table 2. Proposed Condition Basin Comparison

Volume Required

Sub-Basin ID	Drainage Area (Ac)	100 Year Runoff Coefficient	100-YR, 2-HR Volume (Ac-ft)	Detention Basin
EX 01	2.19	0.88	0.35	Basin 1
PR 01	1.30	0.80	0.19	Basin 4
PR 02	0.35	0.89	0.06	Basin 3
PR 03	0.58	0.66	0.07	Basin 5
PR 04	1.51	0.91	0.25	Basin 6
EX 05	0.36	0.59	0.04	Basin 2

Volume Provided

Detention Basin	100-YR, 2-HR Volume (Ac-ft)	Volume Provided (Ac-ft)
Basin 1	0.35	0.15
Basin 4	0.19	0.19
Basin 3	0.06	0.06
Basin 5	0.07	0.04
Basin 6	0.25	0.12
Basin 2	0.04	0.04
Total Site	**0.96**	**0.60**

The total detention volume provided for the surface basins and underground storage tanks will meet or exceed the existing detention condition on the project. Additional runoff generated by increased impervious areas with the redevelopment improvements is also captured by the drainage facilities proposed.

PROPOSED OFFSITE DRAINAGE PLAN

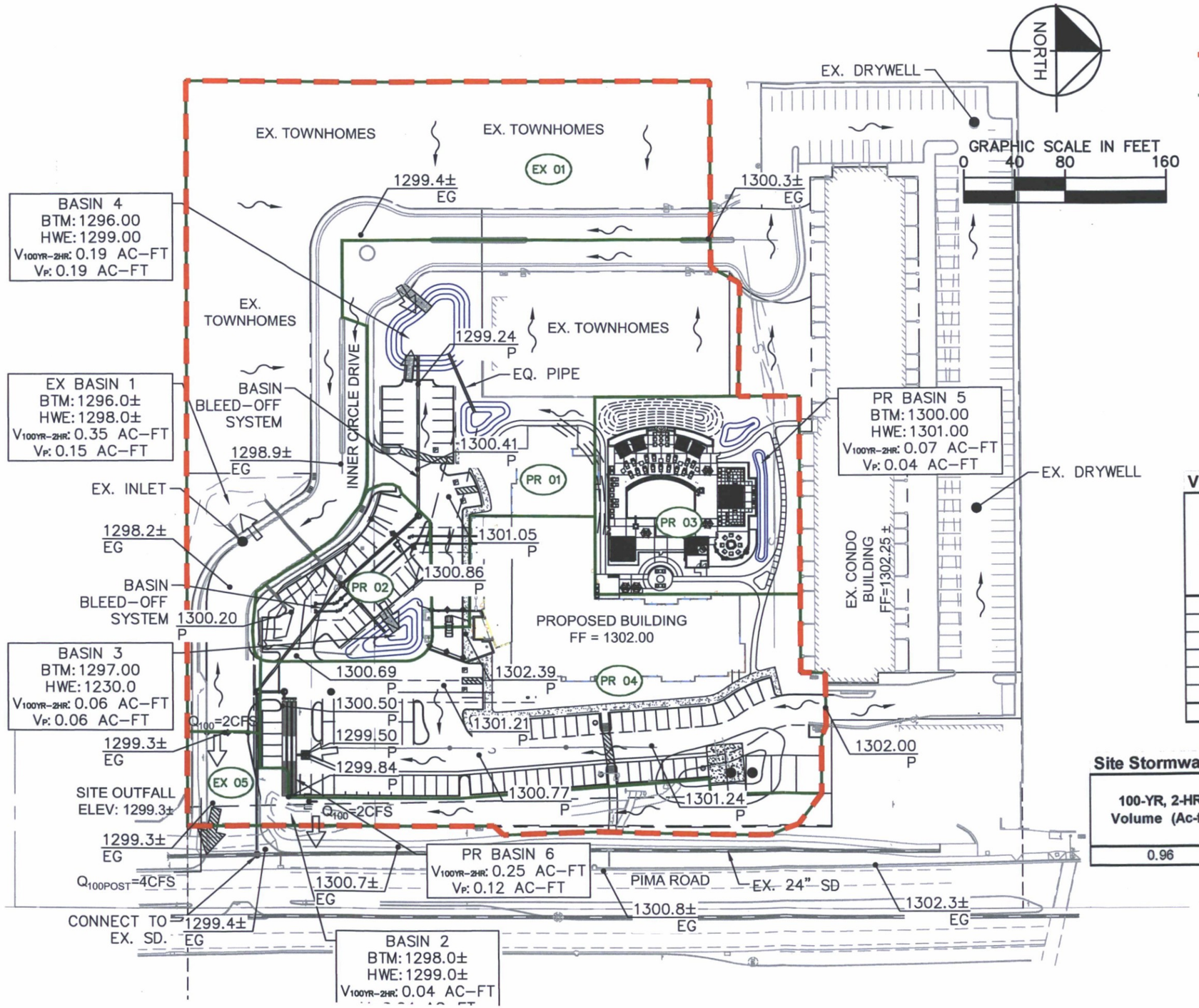
Offsite drainage will not impact this project. Storm water runoff within Pima Road is conveyed within the right-of-way to curb inlets along the project frontage and into the City's 24-inch storm drain system. Runoff generated from Pima Road does not discharge onto the property or contribute to the existing detention basins. The surrounding properties capture their storm water runoff and do not discharge onto the project.

PROJECT PHASING

The project will be constructed as a single phase.

LOWEST FINISH FLOORS

The proposed building finished floor elevation will have a minimum elevation of one foot above the adjacent basin high water elevation and be protected from flooding. The new landscaped areas and sidewalks will be designed to drain away from the building to the parking areas and proposed surface or underground detention facilities. See **Figure 4** for a the preliminary grading and drainage plan with building finished floor elevations proposed.



Volume Provided

Detention Basin	100-YR, 2-HR Volume (Ac-ft)	Volume Provided (Ac-ft)
Basin 1	0.35	0.15
Basin 4	0.19	0.19
Basin 3	0.06	0.06
Basin 5	0.07	0.04
Basin 6	0.25	0.12
Basin 2	0.04	0.04
Total Site	0.96	0.60

Site Stormwater Storage Summary

100-YR, 2-HR Volume (Ac-ft)	Ex. Condition Volume Credit (Ac-ft)	Volume Required (Ac-ft)	Volume Provided (Ac-ft)
0.96	0.52	0.44	0.60

REVISION NO.

Kimley»Horn

1001 West Southern Avenue, Suite 131
Mesa, Arizona 85210 (480) 207-2866

SCALE (H): 1"=80'
SCALE (V): NONE
DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: JMB
DATE: JUNE 2017

HYATT PIMA HOTEL RENOVATION
FIGURE 4 - PROPOSED CONDITIONS MAP
SCOTTSDALE, ARIZONA

PROJECT NO.

DRAWING NAME

1 OF 1

SPECIAL CONDITIONS

IDENTIFICATION OF MAJOR DRAINAGE COURSES

There are no major drainage courses within this project.

404 PERMIT/JURISDICTIONAL WASHES

There are no existing washes within the project limits that would meet the definition of a jurisdictional wash, therefore, no 404 permit will be required.

EROSION SETBACK/SLOPE STABILITY ANALYSIS

There are no conditions onsite warranting an erosion setback or slope stability analysis.

DATA ANALYSIS METHODS

STORMWATER STORAGE

As previously discussed in the *Proposed Drainage Plan* section above, the storm water storage provided will meet or exceed the existing detention volume on the property and will also capture the additional runoff generated from an increase in the total impervious area proposed. Surface detention basins have been designed to be a maximum of 3 feet deep. A composite C value has been calculated for the project for both the existing and proposed conditions as 0.78 and 0.84, respectively. A comparison of existing basin volumes on the property versus the 100-year, 2-hour volume were calculated to identify a required retention for the proposed redevelopment. A volume credit of 0.52 acres was calculated, reducing the required detention total for the project to 0.44 acres. Please refer to Appendix A for detailed runoff coefficient and volume calculations.

The required detention volume for the project was calculated as follows:

$$\mathbf{V_r = C_w(P/12)A - VOLUME\ CREDIT}$$

Where:

Vr= Volume required (ac-ft)
Cw=Weighted Runoff Coefficient
P = 100-year, 2-hour rainfall depth (2.19 inches)
A = Drainage Area
VOLUME CREDIT = Ex. condition 100-yr, 2-hr storage – existing volume provided

Date of Acceptance: Tuesday 23rd August 2022

Flood Control District of Maricopa County Drainage Area Water and Drainage Master Plan, 2023

Accepted Engineering Management Agency Base Insurance Rate Area and Drainage Quotes Quote, dated

October 10, 2023

Flood Control District of Maricopa County Drainage [illegible] - Hydrology updated August 12

NOTE:

Date of Acceptable Topography Consent Section Above

Appendix A -Drainage Detention Calculations

HYATT PIMA RENOVATION
EXISTING CONDITION
COMPOSITE C VALUE

Sub-Basin	Land Use	100-Year C Value	Area (Acres)	AxC	Composite C Value
EX 01	Building/Concrete/Ashpault	0.95	0.72	0.68	0.89
	Turf	0.30	0.00	0.00	
	Desert Landscape	0.45	0.15	0.07	
	Townhomes	0.90	1.92	1.73	
EX 02	Building/Concrete/Ashpault	0.95	0.66	0.63	0.60
	Turf	0.30	0.69	0.21	
	Desert Landscape	0.45	0.14	0.06	
	Townhomes	0.90	0.00	0.00	
EX 03	Building/Concrete/Ashpault	0.95	0.52	0.49	0.92
	Turf	0.30	0.00	0.00	
	Desert Landscape	0.45	0.03	0.01	
	Townhomes	0.90	0.00	0.00	
EX 04	Building/Concrete/Ashpault	0.95	0.65	0.62	0.70
	Turf	0.30	0.17	0.05	
	Desert Landscape	0.45	0.36	0.16	
	Townhomes	0.90	0.00	0.00	
EX 05	Building/Concrete/Ashpault	0.95	0.19	0.18	0.79
	Turf	0.30	0.00	0.00	
	Desert Landscape	0.45	0.09	0.04	
	Townhomes	0.90	0.00	0.00	
		Total	**6.29**	**4.94**	**0.78**

Table 1:
HYATT PIMA RENOVATION
EXISTING CONDITION
BASIN SUMMARY TABLES

100-year, 2-hour Precipitation = 2.19 inches

Volume Required

Sub-Basin ID	Drainage Area (Ac)	100 Year Runoff Coefficient	100-YR, 2-HR Volume (Ac-ft)	Detention Basin
EX 01	2.79	0.89	0.45	Basin 1 & 3
EX 02	1.49	0.60	0.16	Basin 1 & 3
EX 03	0.55	0.92	0.09	Basin 1 & 3
EX 04	1.18	0.70	0.15	Basin 3
EX 05	0.28	0.79	0.04	Basin 4

Volume Provided

Detention Basin	100-YR, 2-HR Volume (Ac-ft)	Ex. Volume Provided (Ac-ft)	Volume Credit (Ac-ft)
Basin 1 & 3	0.71	0.22	0.49
Basin 3	0.15	0.12	0.03
Basin 4	0.04	0.04	0.00
Total Site	0.90	0.38	0.52

Table 2:
HYATT PIMA RENOVATION
PROPOSED CONDITION
BASIN SUMMARY TABLES

100-year, 2-hour Precipitation = 2.19 inches

Volume Required

Sub-Basin ID	Drainage Area (Ac)	100 Year Runoff Coefficient	100-YR, 2-HR Volume (Ac-ft)	Detention Basin
EX 01	2.19	0.88	0.35	Basin 1
PR 01	1.30	0.80	0.19	Basin 4
PR 02	0.35	0.89	0.06	Basin 3
PR 03	0.58	0.66	0.07	Basin 5
PR 04	1.51	0.91	0.25	Basin 6
EX 05	0.36	0.59	0.04	Basin 2

Volume Provided

Detention Basin	100-YR, 2-HR Volume (Ac-ft)	Volume Provided (Ac-ft)
Basin 1	0.35	0.15
Basin 4	0.19	0.19
Basin 3	0.06	0.06
Basin 5	0.07	0.04
Basin 6	0.25	0.12
Basin 2	0.04	0.04
Total Site	0.96	0.60

Site Stormwater Storage Summary

100-YR, 2-HR Volume (Ac-ft)	Ex. Condition Volume Credit (Ac-ft)	Volume Required (Ac-ft)	Volume Provided (Ac-ft)
0.96	0.52	0.44	0.60

Table 3:
HYATT PIMA RENOVATION
FIRST FLUSH
BASIN SUMMARY TABLES

FIRST FLUSH Precipitation = 0.50 inches

Volume Required

Sub-Basin ID	Drainage Area (Ac)	Runoff Coefficient	FIRST FLUSH Volume (Ac-ft)	Volume Provided (Ac-ft)	Detention Basin
EX 01	2.19	1.00	0.09	0.15	Basin 1
PR 01	1.30	1.00	0.05	0.19	Basin 4
PR 02	0.35	1.00	0.01	0.06	Basin 3
PR 03	0.58	1.00	0.02	0.04	Basin 5
PR 04	1.51	1.00	0.06	0.12	Basin 6
EX 05	0.36	1.00	0.02	0.04	Basin 2

Pond No. 5 - 6

Pond Data

UG Chambers -Invert elev. = 1292.50 ft, Rise x Span = 5.00 x 5.00 ft, Barrel Len = 90.00 ft, No. Barrels = 3, Slope = 0.00%, Headers = No
Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1299.60 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1292.50	n/a	0	0
0.50	1293.00	n/a	276	276
1.00	1293.50	n/a	479	755
1.50	1294.00	n/a	583	1,339
2.00	1294.50	n/a	642	1,981
2.50	1295.00	n/a	671	2,652
3.00	1295.50	n/a	671	3,323
3.50	1296.00	n/a	642	3,965
4.00	1296.50	n/a	583	4,548
4.50	1297.00	n/a	479	5,027
5.00	1297.50	n/a	276	5,302
7.10	1299.60	213	149	5,452
7.30	1299.80	1,114	121	5,573
7.50	1300.00	5,533	609	6,181
7.70	1300.20	4,208	971	7,152
7.90	1300.40	6,489	1,061	8,213

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	= 70.00	0.00	0.00	0.00
Crest El. (ft)	= 1300.20	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1292.50	---	---	---	---	0.00	---	---	---	---	---	0.000
0.50	276	1293.00	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	755	1293.50	---	---	---	---	0.00	---	---	---	---	---	0.000
1.50	1,339	1294.00	---	---	---	---	0.00	---	---	---	---	---	0.000
2.00	1,981	1294.50	---	---	---	---	0.00	---	---	---	---	---	0.000
2.50	2,652	1295.00	---	---	---	---	0.00	---	---	---	---	---	0.000
3.00	3,323	1295.50	---	---	---	---	0.00	---	---	---	---	---	0.000
3.50	3,965	1296.00	---	---	---	---	0.00	---	---	---	---	---	0.000
4.00	4,548	1296.50	---	---	---	---	0.00	---	---	---	---	---	0.000
4.50	5,027	1297.00	---	---	---	---	0.00	---	---	---	---	---	0.000
5.00	5,302	1297.50	---	---	---	---	0.00	---	---	---	---	---	0.000
7.10	5,452	1299.60	---	---	---	---	0.00	---	---	---	---	---	0.000
7.30	5,573	1299.80	---	---	---	---	0.00	---	---	---	---	---	0.000
7.50	6,181	1300.00	---	---	---	---	0.00	---	---	---	---	---	0.000
7.70	7,152	1300.20	---	---	---	---	0.00	---	---	---	---	---	0.000
7.90	8,213	1300.40	---	---	---	---	20.86	---	---	---	---	---	20.86

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

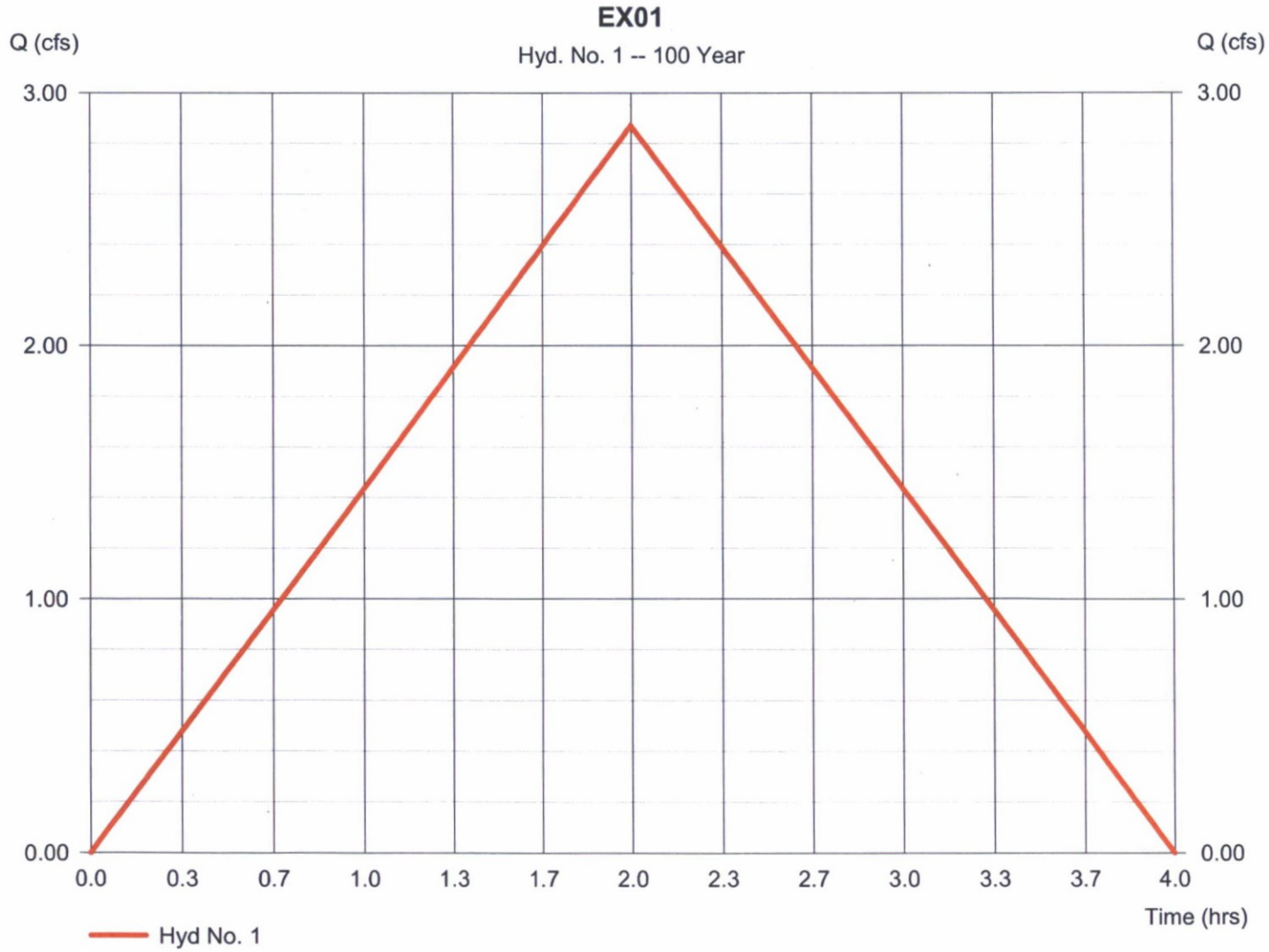
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	2.870	1	120	20,663	----	----	----	EX01
2	Rational	1.041	1	120	7,497	----	----	----	EX02
3	Rational	0.589	1	120	4,243	----	----	----	EX03
4	Rational	0.955	1	120	6,873	----	----	----	EX04
5	Rational	0.256	1	120	1,841	----	----	----	EX05
6	Combine	4.500	1	120	32,403	1, 2, 3,	----	----	Basin1&3

Hydrograph Report

Hyd. No. 1

EX01

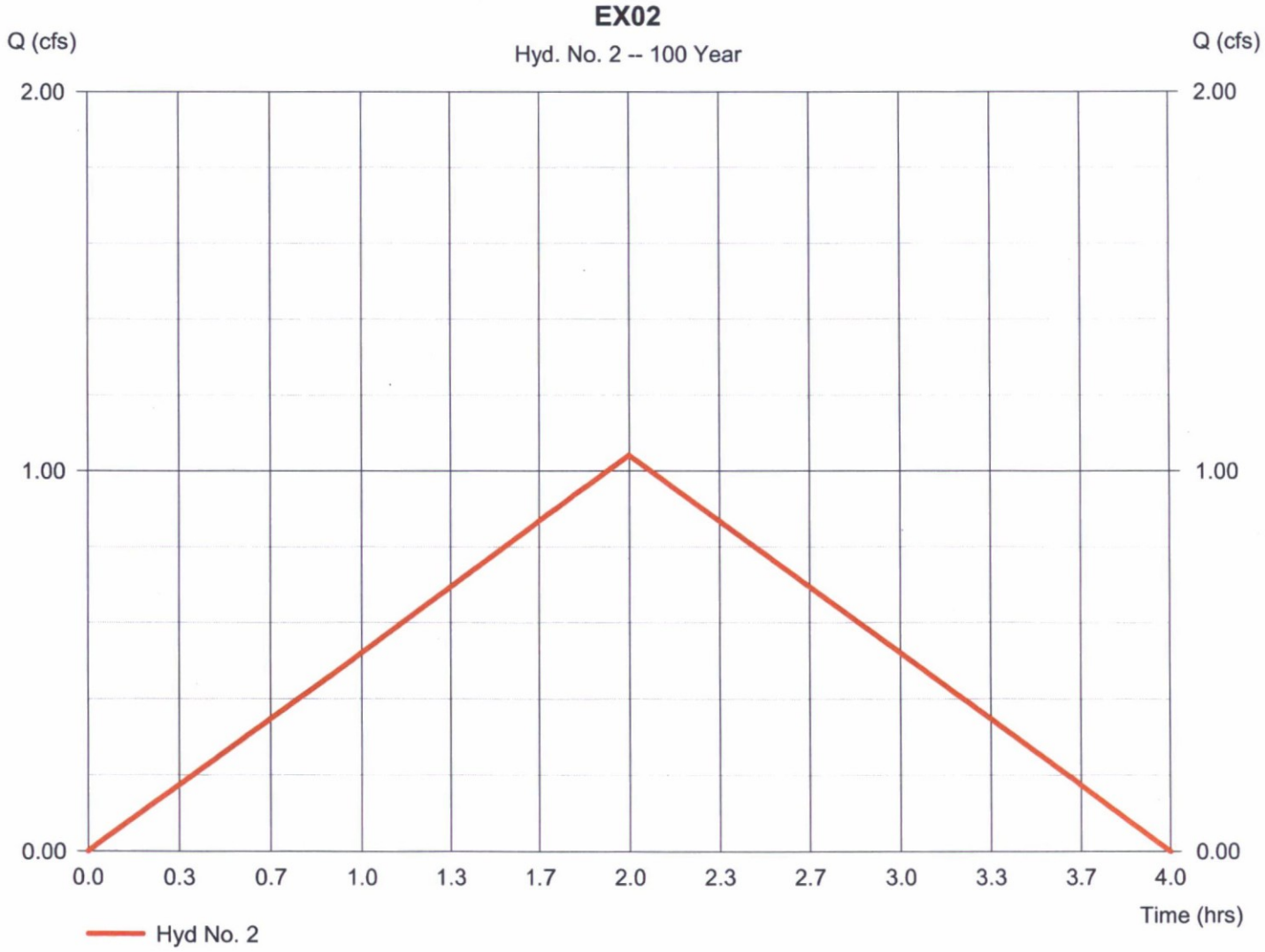
Hydrograph type	= Rational	Peak discharge	= 2.870 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 20,663 cuft
Drainage area	= 2.790 ac	Runoff coeff.	= 0.89
Intensity	= 1.156 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1



Hyd. No. 2

EX02

Hydrograph type	= Rational	Peak discharge	= 1.041 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 7,497 cuft
Drainage area	= 1.490 ac	Runoff coeff.	= 0.6
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

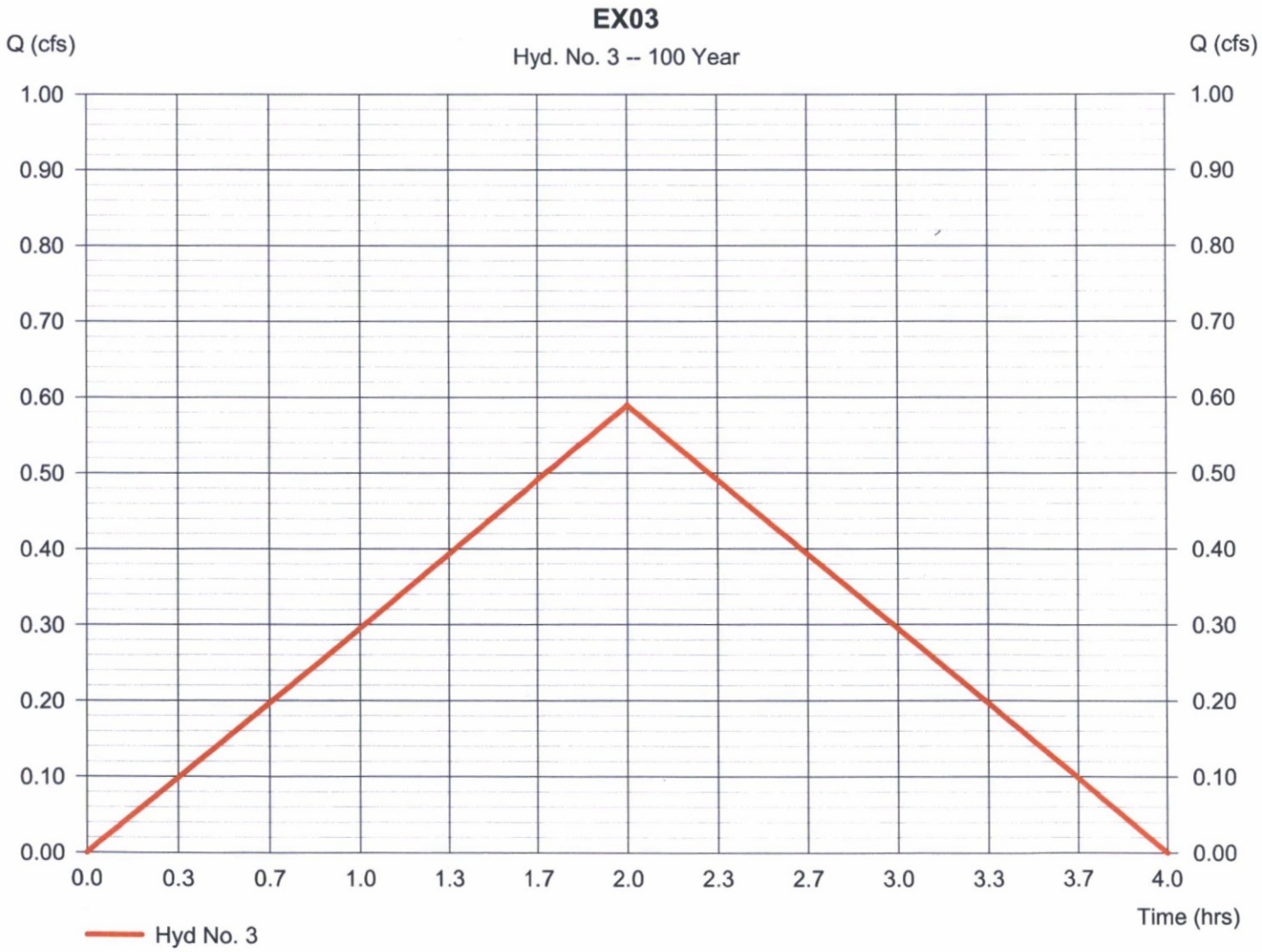


Hydrograph Report

Hyd. No. 3

EX03

Hydrograph type	= Rational	Peak discharge	= 0.589 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 4,243 cuft
Drainage area	= 0.550 ac	Runoff coeff.	= 0.92
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

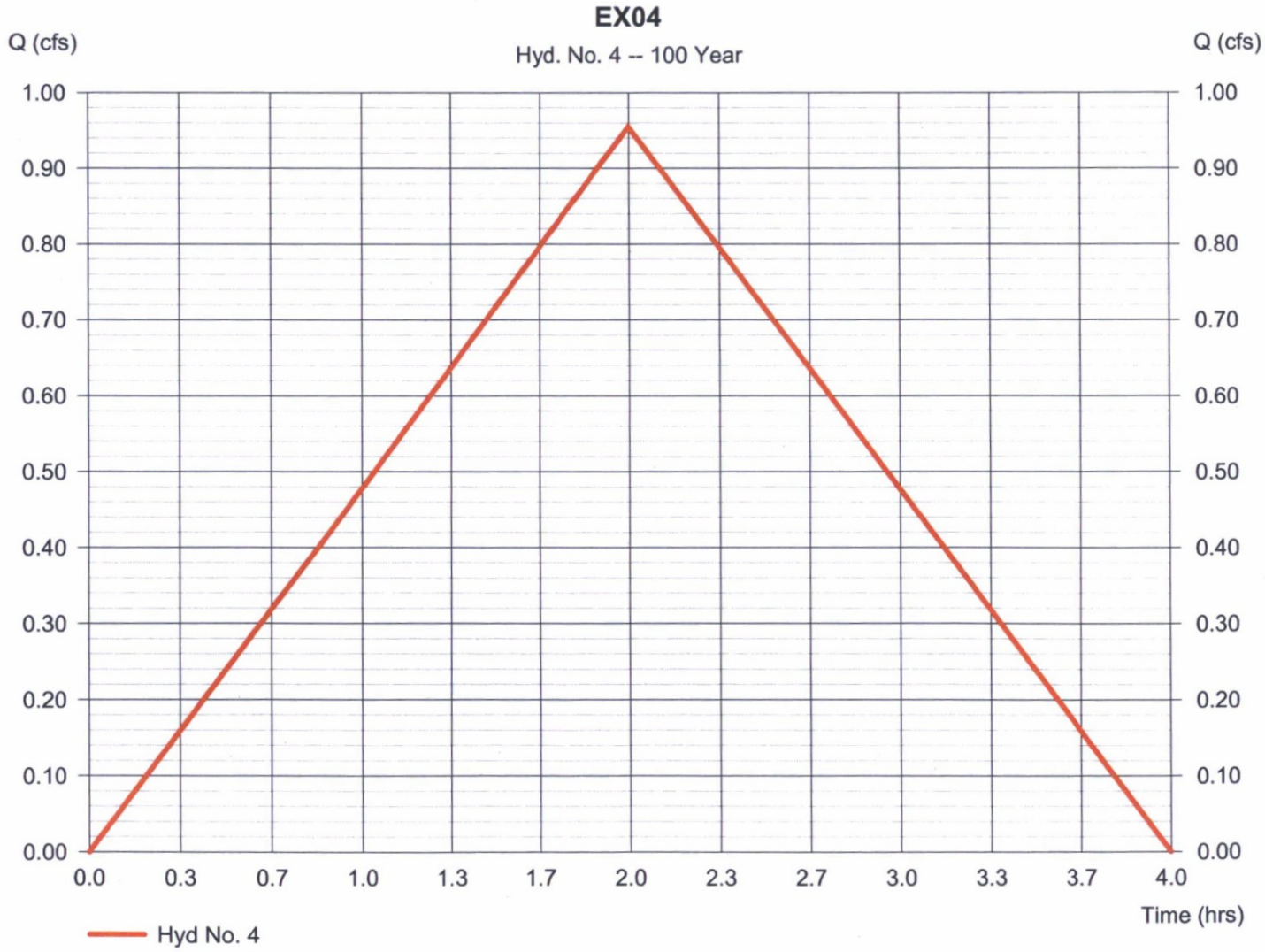


Hydrograph Report

Hyd. No. 4

EX04

Hydrograph type	= Rational	Peak discharge	= 0.955 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 6,873 cuft
Drainage area	= 1.180 ac	Runoff coeff.	= 0.7
Intensity	= 1.156 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

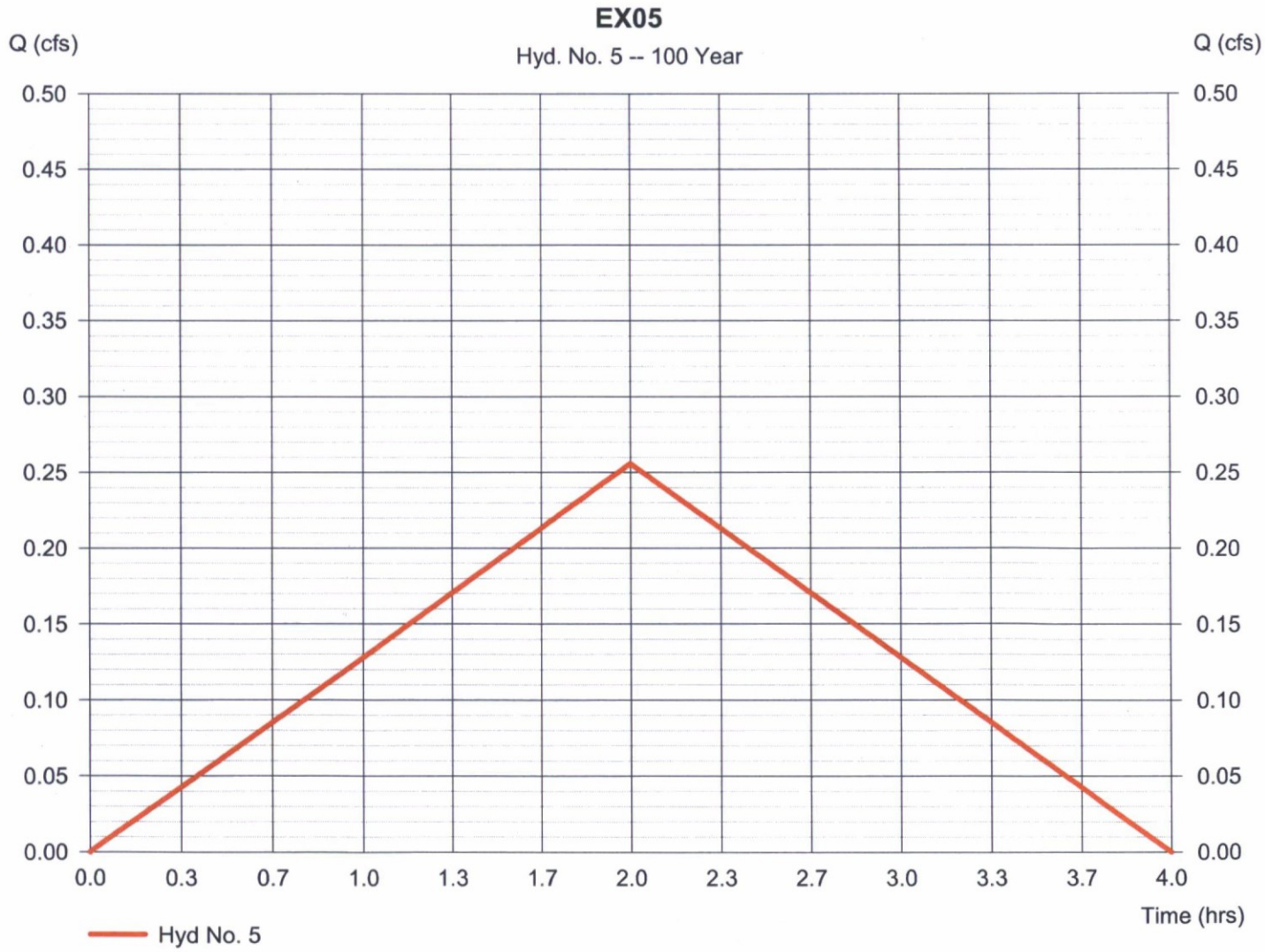


Hydrograph Report

Hyd. No. 5

EX05

Hydrograph type	= Rational	Peak discharge	= 0.256 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 1,841 cuft
Drainage area	= 0.280 ac	Runoff coeff.	= 0.79
Intensity	= 1.156 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

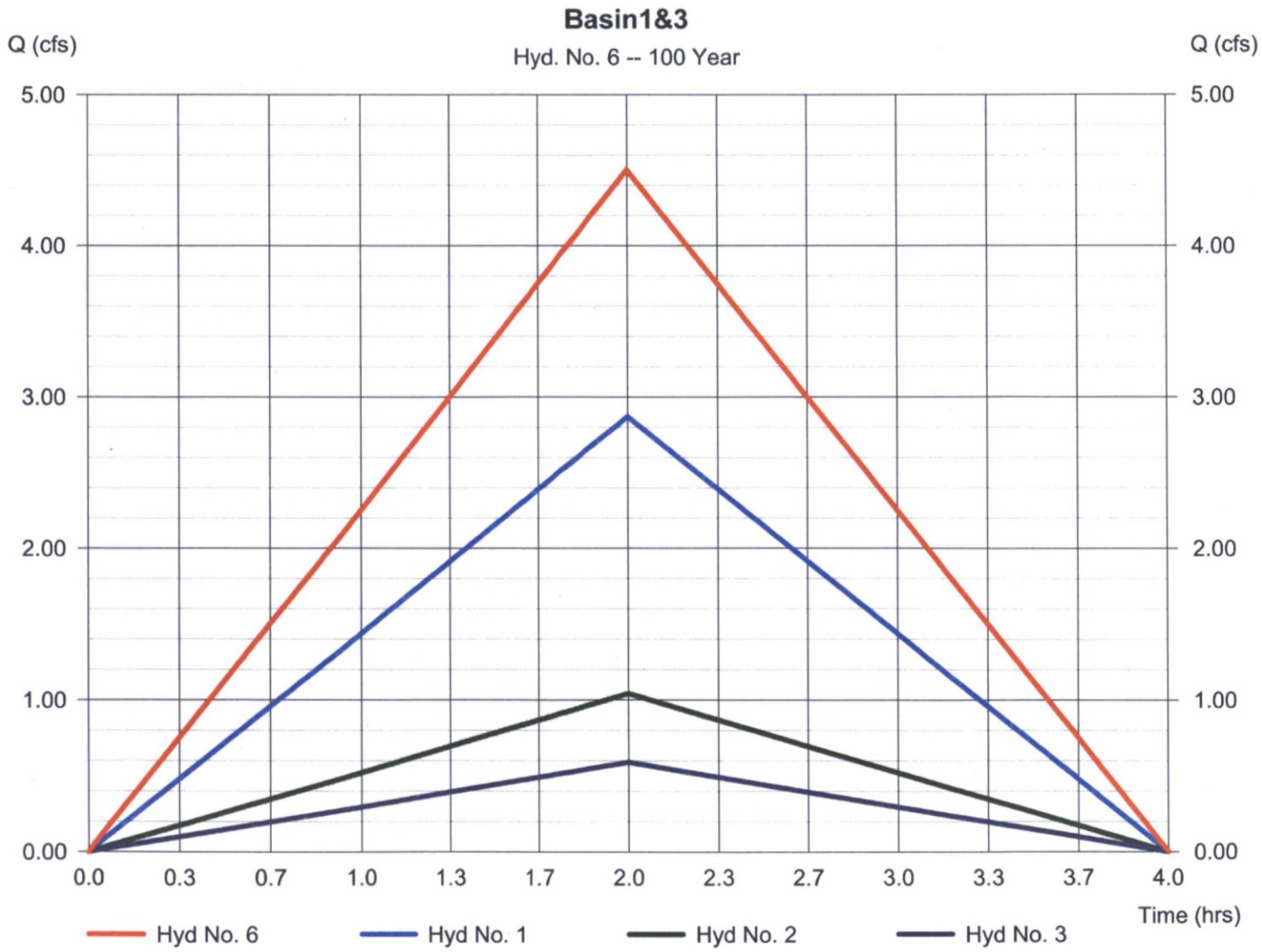


Hydrograph Report

Hyd. No. 6

Basin1&3

Hydrograph type	= Combine	Peak discharge	= 4.500 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 32,403 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 4.830 ac



Pond No. 1 - 1&3

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1295.20 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1295.20	209	0	0
0.20	1295.40	302	51	51
0.40	1295.60	419	72	123
0.60	1295.80	374	79	202
0.80	1296.00	243	61	263
1.00	1296.20	230	47	310
1.20	1296.40	240	47	357
1.40	1296.60	248	49	406
1.60	1296.80	264	51	457
1.80	1297.00	291	55	513
2.00	1297.20	319	61	574
2.20	1297.40	349	67	641
2.80	1298.00	2,073	654	1,295
3.00	1298.20	4,263	621	1,916
3.20	1298.40	3,856	811	2,727
3.40	1298.60	3,781	764	3,491
3.60	1298.80	5,862	957	4,447
3.80	1299.00	4,974	1,082	5,530
4.30	1299.50	6,161	2,778	8,308

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	= 30.00	0.00	0.00	0.00
Crest El. (ft)	= 1299.20	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1295.20	---	---	---	---	0.00	---	---	---	---	---	0.000
0.20	51	1295.40	---	---	---	---	0.00	---	---	---	---	---	0.000
0.40	123	1295.60	---	---	---	---	0.00	---	---	---	---	---	0.000
0.60	202	1295.80	---	---	---	---	0.00	---	---	---	---	---	0.000
0.80	263	1296.00	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	310	1296.20	---	---	---	---	0.00	---	---	---	---	---	0.000
1.20	357	1296.40	---	---	---	---	0.00	---	---	---	---	---	0.000
1.40	406	1296.60	---	---	---	---	0.00	---	---	---	---	---	0.000
1.60	457	1296.80	---	---	---	---	0.00	---	---	---	---	---	0.000
1.80	513	1297.00	---	---	---	---	0.00	---	---	---	---	---	0.000
2.00	574	1297.20	---	---	---	---	0.00	---	---	---	---	---	0.000
2.20	641	1297.40	---	---	---	---	0.00	---	---	---	---	---	0.000
2.80	1,295	1298.00	---	---	---	---	0.00	---	---	---	---	---	0.000
3.00	1,916	1298.20	---	---	---	---	0.00	---	---	---	---	---	0.000
3.20	2,727	1298.40	---	---	---	---	0.00	---	---	---	---	---	0.000
3.40	3,491	1298.60	---	---	---	---	0.00	---	---	---	---	---	0.000
3.60	4,447	1298.80	---	---	---	---	0.00	---	---	---	---	---	0.000
3.80	5,530	1299.00	---	---	---	---	0.00	---	---	---	---	---	0.000
4.30	8,308	1299.50	---	---	---	---	16.42	---	---	---	---	---	16.42

Pond No. 2 - 2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1299.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1299.00	23	0	0
0.20	1299.20	113	12	12
0.40	1299.40	271	37	50
0.60	1299.60	586	84	133
0.80	1299.80	1,165	172	305
1.00	1300.00	1,691	284	589

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	= 50.00	0.00	0.00	0.00
Crest El. (ft)	= 1299.80	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1299.00	---	---	---	---	0.00	---	---	---	---	---	0.000
0.20	12	1299.20	---	---	---	---	0.00	---	---	---	---	---	0.000
0.40	50	1299.40	---	---	---	---	0.00	---	---	---	---	---	0.000
0.60	133	1299.60	---	---	---	---	0.00	---	---	---	---	---	0.000
0.80	305	1299.80	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	589	1300.00	---	---	---	---	14.89	---	---	---	---	---	14.89

Pond No. 3 - 4

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1297.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1297.00	1,519	0	0
1.00	1298.00	2,145	1,823	1,823
2.00	1299.00	2,849	2,488	4,311
3.00	1300.00	3,632	3,232	7,543
3.20	1300.20	3,811	744	8,287
3.40	1300.40	4,012	782	9,070

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	= 75.00	0.00	0.00	0.00
Crest El. (ft)	= 1300.00	0.00	0.00	0.00
Weir Coeff.	= 2.60	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1297.00	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	1,823	1298.00	---	---	---	---	0.00	---	---	---	---	---	0.000
2.00	4,311	1299.00	---	---	---	---	0.00	---	---	---	---	---	0.000
3.00	7,543	1300.00	---	---	---	---	0.00	---	---	---	---	---	0.000
3.20	8,287	1300.20	---	---	---	---	17.43	---	---	---	---	---	17.43
3.40	9,070	1300.40	---	---	---	---	49.34	---	---	---	---	---	49.34

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

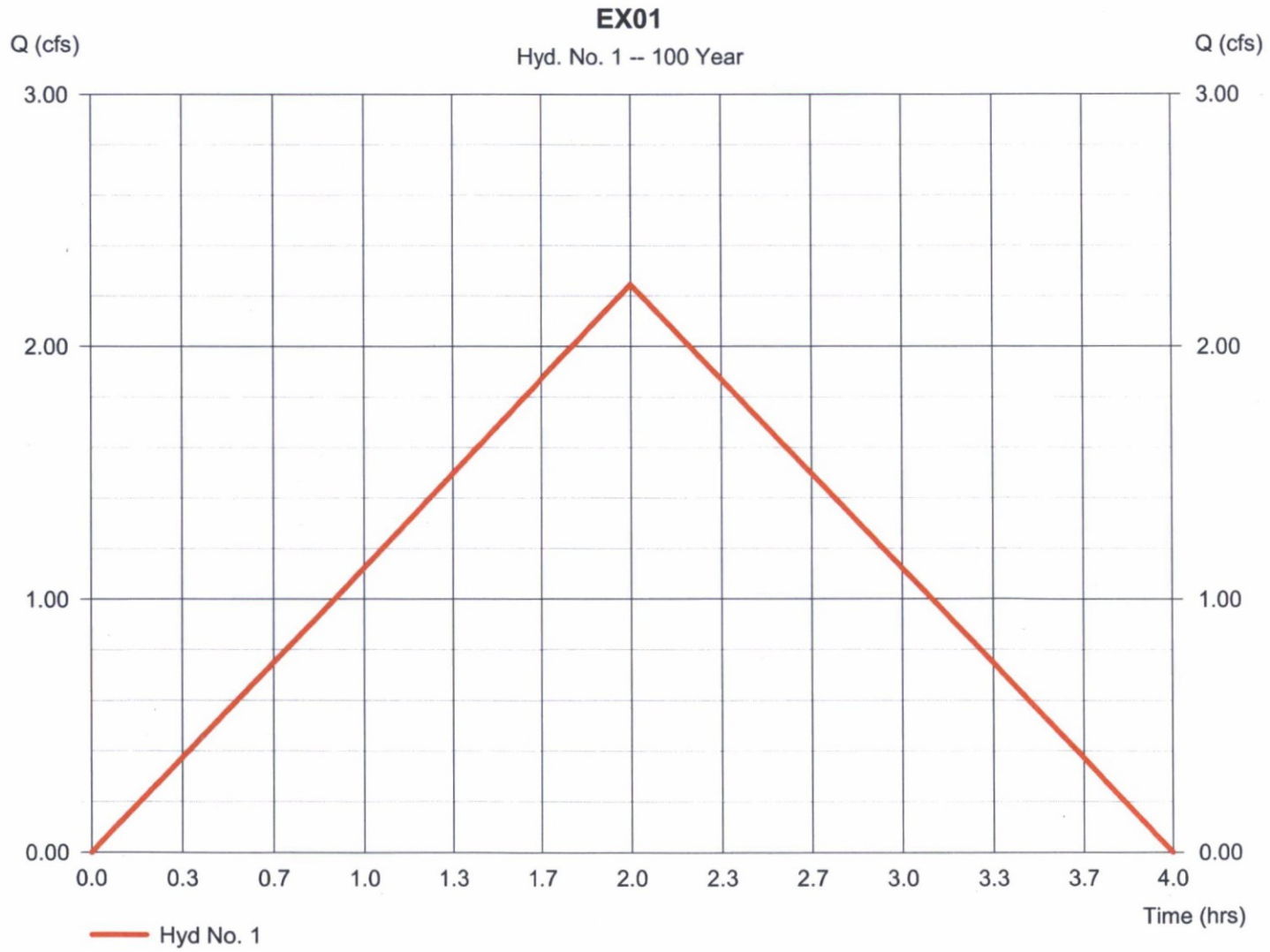
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	2.245	1	120	16,161	----	----	----	EX01
2	Rational	1.211	1	120	8,721	----	----	----	PR01
3	Rational	0.363	1	120	2,612	----	----	----	PR02
4	Rational	0.446	1	120	3,210	----	----	----	PR03
5	Rational	0.247	1	120	1,781	----	----	----	EX05
6	Rational	1.600	1	120	11,523	----	----	----	PR04

Hydrograph Report

Hyd. No. 1

EX01

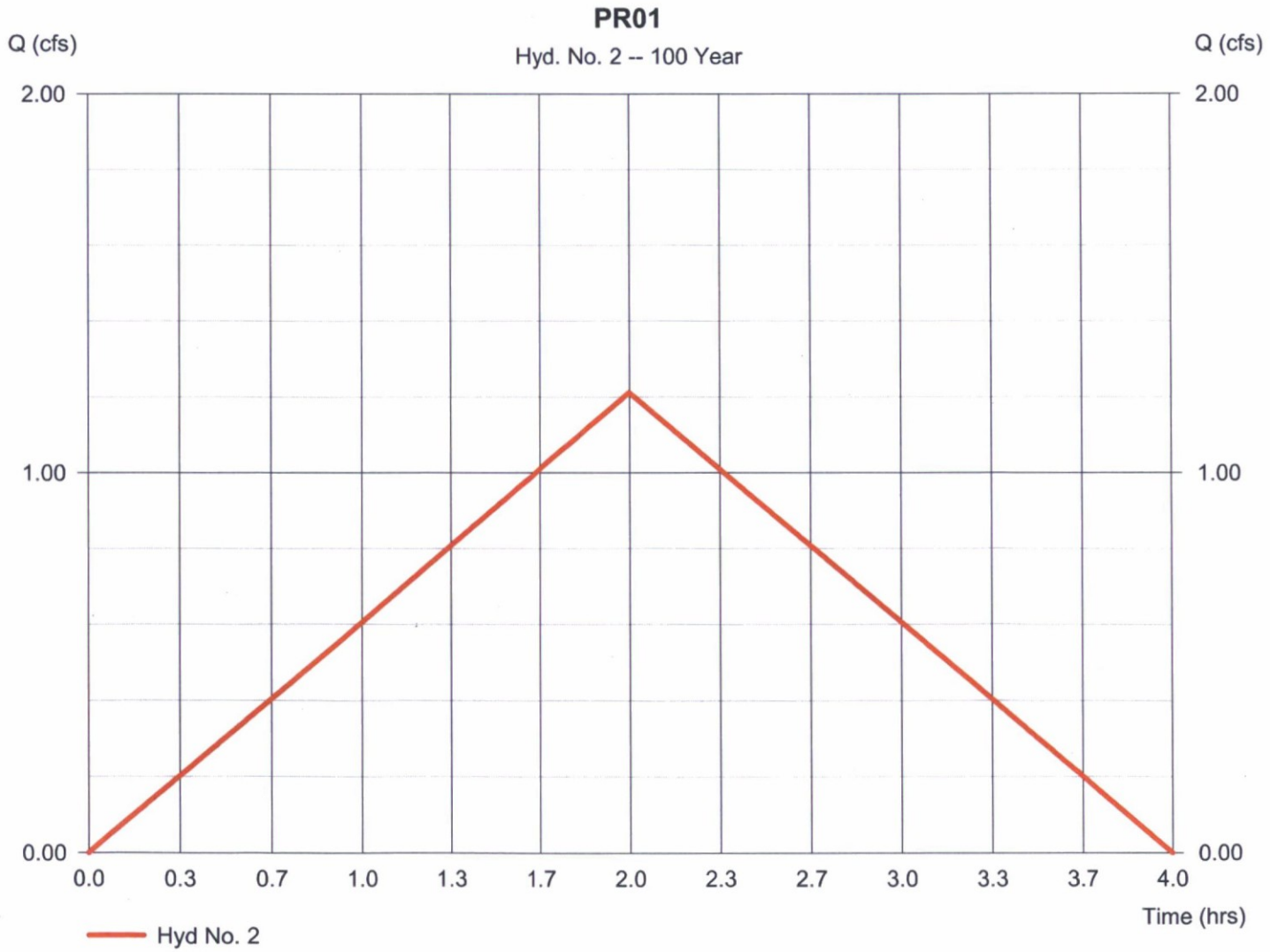
Hydrograph type	= Rational	Peak discharge	= 2.245 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 16,161 cuft
Drainage area	= 2.190 ac	Runoff coeff.	= 0.88
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1



Hyd. No. 2

PR01

Hydrograph type	= Rational	Peak discharge	= 1.211 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 8,721 cuft
Drainage area	= 1.300 ac	Runoff coeff.	= 0.8
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

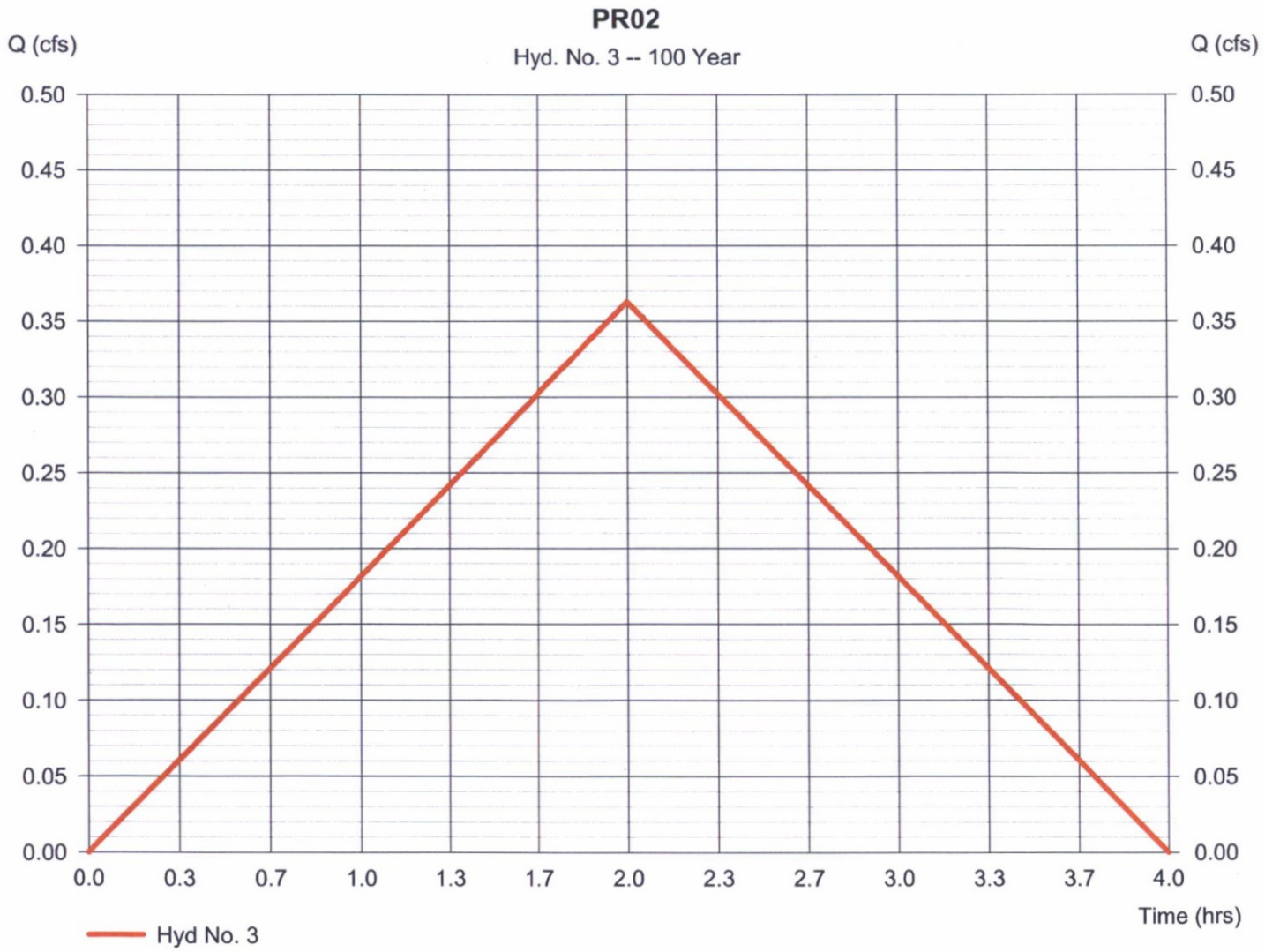


Hydrograph Report

Hyd. No. 3

PR02

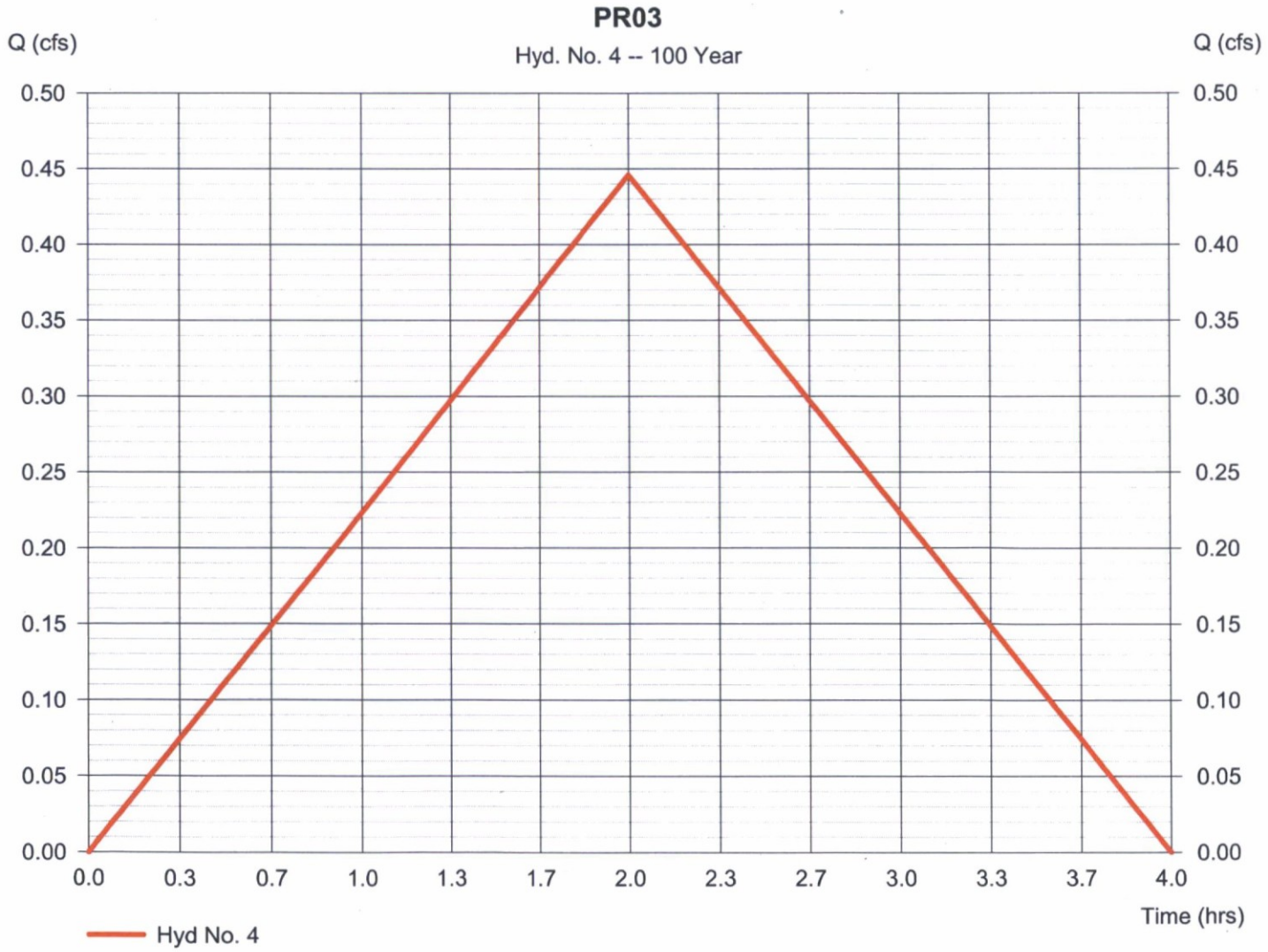
Hydrograph type	= Rational	Peak discharge	= 0.363 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 2,612 cuft
Drainage area	= 0.350 ac	Runoff coeff.	= 0.89
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1



Hyd. No. 4

PR03

Hydrograph type	= Rational	Peak discharge	= 0.446 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 3,210 cuft
Drainage area	= 0.580 ac	Runoff coeff.	= 0.66
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

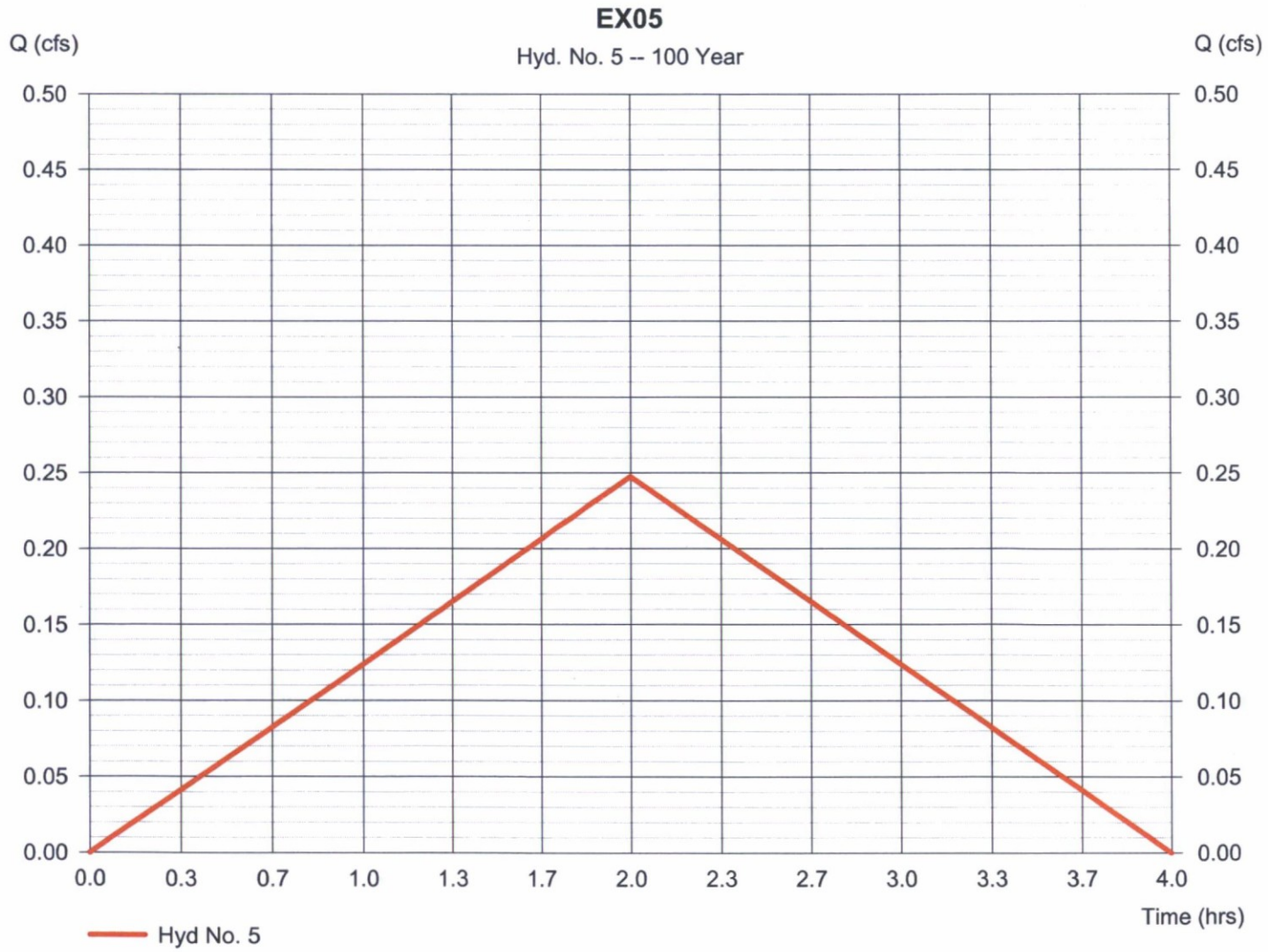


Hydrograph Report

Hyd. No. 5

EX05

Hydrograph type	= Rational	Peak discharge	= 0.247 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 1,781 cuft
Drainage area	= 0.360 ac	Runoff coeff.	= 0.59
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1

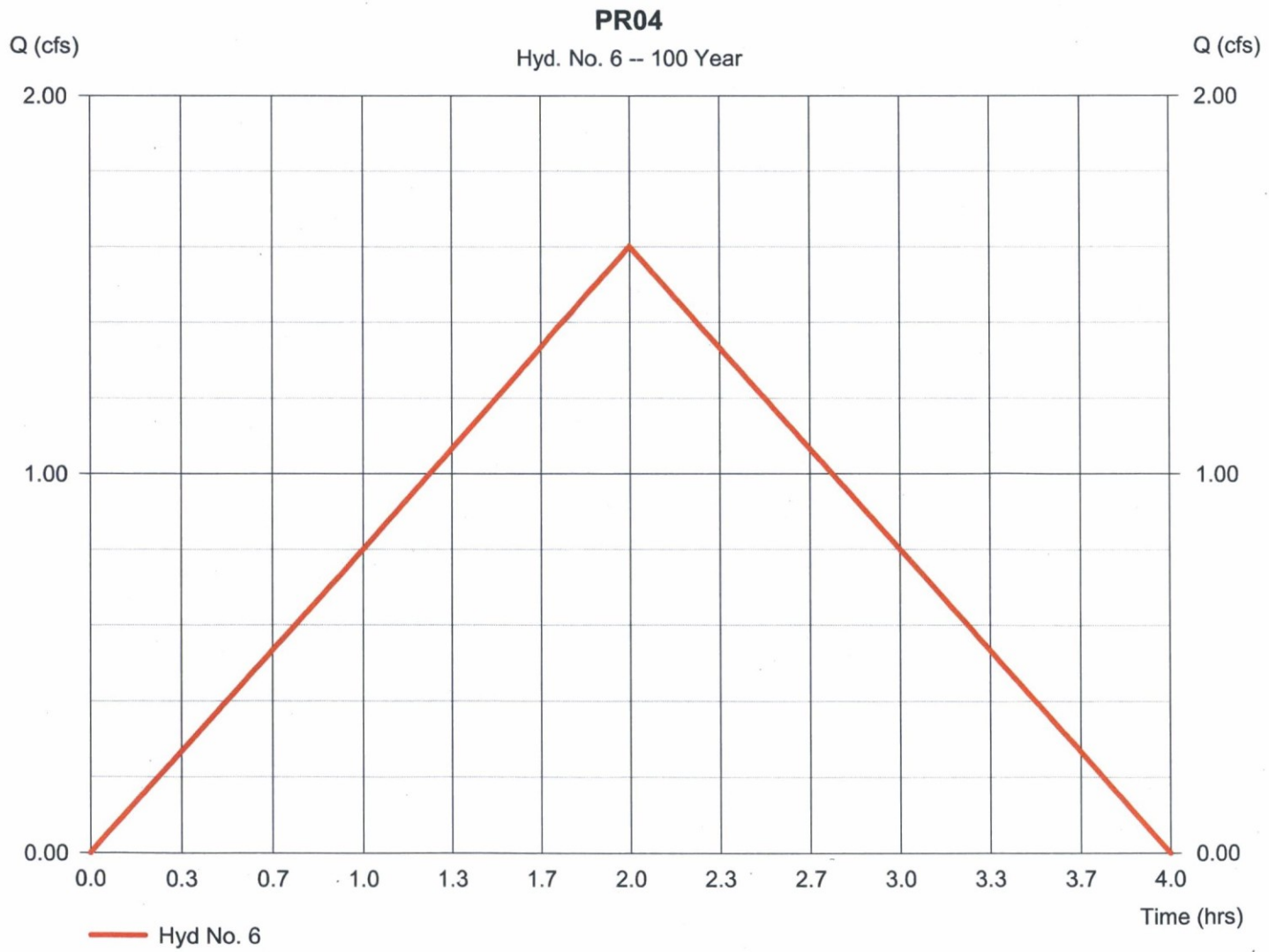


Hydrograph Report

Hyd. No. 6

PR04

Hydrograph type	= Rational	Peak discharge	= 1.600 cfs
Storm frequency	= 100 yrs	Time to peak	= 2.00 hrs
Time interval	= 1 min	Hyd. volume	= 11,523 cuft
Drainage area	= 1.510 ac	Runoff coeff.	= 0.91
Intensity	= 1.165 in/hr	Tc by User	= 120.00 min
IDF Curve	= daysinn.IDF	Asc/Rec limb fact	= 1/1



Pond No. 1 - 1

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1295.20 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1295.20	56	0	0
0.20	1295.40	171	22	22
0.40	1295.60	298	46	68
0.60	1295.80	283	58	126
0.80	1296.00	168	45	171
1.00	1296.20	153	32	203
1.20	1296.40	160	31	234
1.40	1296.60	165	32	267
1.60	1296.80	178	34	301
1.80	1297.00	201	38	339
2.00	1297.20	226	43	381
2.20	1297.40	252	48	429
2.80	1298.00	1,944	579	1,008
3.00	1298.20	2,568	450	1,458
3.20	1298.40	2,091	465	1,923
3.40	1298.60	1,858	395	2,318
3.60	1298.80	4,301	599	2,917
3.80	1299.00	2,884	714	3,630
4.50	1299.70	5,183	2,784	6,414

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	= 30.00	0.00	0.00	0.00
Crest El. (ft)	= 1299.20	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1295.20	---	---	---	---	0.00	---	---	---	---	---	0.000
0.20	22	1295.40	---	---	---	---	0.00	---	---	---	---	---	0.000
0.40	68	1295.60	---	---	---	---	0.00	---	---	---	---	---	0.000
0.60	126	1295.80	---	---	---	---	0.00	---	---	---	---	---	0.000
0.80	171	1296.00	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	203	1296.20	---	---	---	---	0.00	---	---	---	---	---	0.000
1.20	234	1296.40	---	---	---	---	0.00	---	---	---	---	---	0.000
1.40	267	1296.60	---	---	---	---	0.00	---	---	---	---	---	0.000
1.60	301	1296.80	---	---	---	---	0.00	---	---	---	---	---	0.000
1.80	339	1297.00	---	---	---	---	0.00	---	---	---	---	---	0.000
2.00	381	1297.20	---	---	---	---	0.00	---	---	---	---	---	0.000
2.20	429	1297.40	---	---	---	---	0.00	---	---	---	---	---	0.000
2.80	1,008	1298.00	---	---	---	---	0.00	---	---	---	---	---	0.000
3.00	1,458	1298.20	---	---	---	---	0.00	---	---	---	---	---	0.000
3.20	1,923	1298.40	---	---	---	---	0.00	---	---	---	---	---	0.000
3.40	2,318	1298.60	---	---	---	---	0.00	---	---	---	---	---	0.000
3.60	2,917	1298.80	---	---	---	---	0.00	---	---	---	---	---	0.000
3.80	3,630	1299.00	---	---	---	---	0.00	---	---	---	---	---	0.000
4.50	6,414	1299.70	---	---	---	---	35.32	---	---	---	---	---	35.32

Pond No. 2 - 2

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1299.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1299.00	23	0	0
0.20	1299.20	113	12	12
0.40	1299.40	271	37	50
0.60	1299.60	586	84	133
0.80	1299.80	1,165	172	305
1.00	1300.00	1,691	284	589

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	= 50.00	0.00	0.00	0.00
Crest El. (ft)	= 1299.80	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1299.00	---	---	---	---	0.00	---	---	---	---	---	0.000
0.20	12	1299.20	---	---	---	---	0.00	---	---	---	---	---	0.000
0.40	50	1299.40	---	---	---	---	0.00	---	---	---	---	---	0.000
0.60	133	1299.60	---	---	---	---	0.00	---	---	---	---	---	0.000
0.80	305	1299.80	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	589	1300.00	---	---	---	---	14.89	---	---	---	---	---	14.89

Pond No. 3 - 4

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1296.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1296.00	1,441	0	0
1.00	1297.00	2,226	1,819	1,819
2.00	1298.00	3,284	2,738	4,557
3.00	1299.00	4,537	3,893	8,450

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 1298.75	0.00	0.00	0.00
Weir Coeff.	= 3.30	3.33	3.33	3.33
Weir Type	= Broad	---	---	---
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1296.00	---	---	---	---	0.00	---	---	---	---	---	0.000
1.00	1,819	1297.00	---	---	---	---	0.00	---	---	---	---	---	0.000
2.00	4,557	1298.00	---	---	---	---	0.00	---	---	---	---	---	0.000
3.00	8,450	1299.00	---	---	---	---	0.00	---	---	---	---	---	0.000

Pond No. 4 - 3

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 1297.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1297.00	119	0	0
1.00	1298.00	433	260	260
2.00	1299.00	912	658	917
3.00	1300.00	1,640	1,258	2,176

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	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)	Inactive	0.00	0.00	0.00
Crest El. (ft)	= 1299.75	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Broad	—	—	—
Multi-Stage	= No	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).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1297.00	—	—	—	—	0.00	—	—	—	—	—	0.000
1.00	260	1298.00	—	—	—	—	0.00	—	—	—	—	—	0.000
2.00	917	1299.00	—	—	—	—	0.00	—	—	—	—	—	0.000
3.00	2,176	1300.00	—	—	—	—	0.00	—	—	—	—	—	0.000

Appendix B -Preliminary Grading and Drainage Plan