NOTICE OF PUBLIC MEETING

Governmental Body: Van Meter Planning and Zoning Commission
Date of Meeting: Monday October 11th, 2021
Time/Location of Meeting: 5:30 PM – 910 Main Street

Agenda:

1. Call to Order/Roll Call
2. Approval of Agenda
3. Approval of Minutes – 9-13-2021
4. Discussion and Action Regarding Hudson Heights Plat 2
    a. Plat of Survey
    b. Annexation and Rezoning Request
    c. Preliminary Plat of Survey
5. Adjournment

Posted this 8th day of October 2021

Meeting Minutes

Governmental Body: Van Meter Planning and Zoning Commission
Date of Meeting: Monday, September 13th, 2021
Time/Location of Meeting: 5:30 PM – 310 Mill Street

Agenda:

1. Call to Order/Roll Call
   Akers called the meeting to order at 5:31 PM
   Roll was called: Harrison, Hulse (via phone), Akers, DeVore, Feldman present.
   Staff present included City Administrator Kyle Michel
2. Approval of Agenda
   Feldman moved, supported by Harrison, to approve the agenda as published. Motion carried unanimously.
3. Approval of Minutes – 8-2-2021 Meeting Minutes
   Hulse moved, supported by Feldman, to approve the minutes. Motion carried unanimously.
4. Discussion and Action: Grand Ridge Estates Townhomes Preliminary Plat and Site Plan
   Paul Clausen, CEC, was present to provide an overview of the preliminary plat and site plan submittal. City Administrator Michel indicated that City Engineer Veenstra's comments were included in the packet and responses from CEC appeared to satisfy all outstanding comments. Discussion ensued regarding unit ownership, covenants, and sidewalk/trail systems.
   Harrison moved, supported by DeVore, to recommend approval to Council as submitted. Motion carried unanimously.
5. Discussion and Action: 36093 Tabor Road Plat of Survey
   City Administrator Michel provided an overview of the plat of survey submitted on behalf of Wayne and Marcia Lacox. Michel provided an overview of City Engineer Veenstra's comments. Discussion ensued regarding compliance with the future land use map of the City and future development of the properties included in the plat of survey.
   Akers move, supported by Harrison, to recommend approval of the Plat of Survey to the City Council subject to the following conditions: Future development of the parcel is subject to the City's site plan ordinance and/or subdivision ordinance whether the property is developed as a single parcel or further divided, the City reserves the right to require compliance with the subdivision ordinance as a part of future site plan or subdivision submittal, and that future development shall occur in conformance with the future land use map or zoning map of the City as applicable at the time of development. Motion carried unanimously.
6. Adjournment
   Motion by Feldman, supported by Devore, to adjourn the meeting. Motion carried unanimously. The meeting was adjourned at 6:05 pm.

PLAT OF SURVEY

PARCEL 21-86 & 21-87 OF PARCEL 'C'

SW1/4 NE1/4 & NW1/4 SE1/4 SEC. 28-78-27

VAN METER, IOWA

INDEX LEGEND					
COUNTY: DALLAS					
	SECTION	TOWNSHIP	RANGE	¼ ¼	¼
PARCEL 'C':	28	78	27	SW¼	NE¼
PARCEL 'C':	28	78	27	NW¼	SE¼
CITY: CITY OF VAN METER					
PROPRIETOR (S): SUSAN K TERRY KNAPP REV. TRUST					
REQUESTED BY: JOHN LARSON					
PROFESSIONAL LAND SURVEYOR: JEFFREY A. GADDIS, PLS 18381					
COMPANY: CIVIL ENGINEERING CONSULTANTS, INC RETURN TO: ATTN: JEFFREY A. GADDIS, PLS 2400 86TH STREET, URBANDALE, IA 50322 PHONE: 515-276-4884					

LAND AREAS					
SECTION	1/4 1/4	1/4	GROSS (ACRES)	R.O.W. EASEMENT (ACRES)	NET (ACRES)
28	SW1/4	NE1/4	4.73		4.73
28	NW1/4	SE1/4	1.71		1.71
PARCEL 21-86	1/4 1/4	TOTALS	6.44		6.44
28	SW1/4	NE1/4	3.26		3.26
28	NW1/4	SE1/4	1.81		1.81
PARCEL 21-87	1/4 1/4	TOTALS	5.07		5.07
BOUNDARY	1/4 1/4	TOTALS	11.51		11.51

VICINITY SKETCH

NORTH

SCALE: 1"=1000'

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER
2	DIMENSION PLAN

PROPERTY OWNERS:
HUDSON HEIGHTS LLC
P.O.BOX 267
JOHNSTON IA 50131
CONTACT: JOHN LARSON

APPLICANT:
HUDSON HEIGHTS LLC
P.O.BOX 267
JOHNSTON IA 50131
CONTACT: JOHN LARSON

PARCEL ID:
1528251006
1528300009

PROPERTY ADDRESS:
VAN BUREN DRIVE, ARLINGTON AVENUE & PARK STREET
VAN METER, IA

PROFESSIONAL LAND SURVEYOR:
CIVIL ENGINEERING CONSULTANTS
ATTN: JEFFREY A. GADDIS, PLS #18381
2400 86TH STREET, SUITE #12
URBANDALE, IA 50322
PHONE: 515-276-4884 EXT 221
EMAIL: GADDIS@CECLAC.COM

PROJECT MANAGER:
CIVIL ENGINEERING CONSULTANTS
ATTN: PAUL CLAUSEN
2400 86TH STREET, SUITE #12
URBANDALE, IA 50322
515-276-4884
EMAIL: CLAUSEN@CECLAC.COM

BASIS OF BEARINGS:

THE NORTH LINE OF WEIGEL ADDITION PLAT NO. 2 WAS MEASURED AS HAVING A BEARING OF N84°43'02"W. THIS BEARING WAS DETERMINED FROM THE IOWA DEPARTMENT OF TRANSPORTATION REAL-TIME NETWORK CONVERTED TO IOWA STATE PLANE NAD1983(2011) SOUTH ZONE GRID NORTH.

NOTES:

1. THIS PARCEL MAY BE SUBJECT TO EASEMENTS OF RECORD. NO TITLE WORK WAS PROVIDED TO THIS LAND SURVEYOR.
2. THE UNADJUSTED ERROR OF CLOSURE IS NOT GREATER THAN 1:10000 FOR SUBDIVISION BOUNDARIES AND IS NOT GREATER THAN 1:5000 FOR INDIVIDUAL LOTS.
3. MONUMENTS TO BE SET WITHIN THIRTY DAYS OF THE PLAT OF SURVEY RECORDING DATE.

PARCEL NOTES:

1. NO DEVELOPMENT SHALL OCCUR ON ANY PARCEL WITHOUT THE FORMAL DEVELOPMENT APPLICATION PROCEDURES AS REQUIRED BY THE APPROPRIATE JURISDICTION.

ZONING

R-1 SINGLE FAMILY RESIDENTIAL DISTRICT
SETBACKS:
FRONT - 35'
SIDE - 8' MINIMUM
REAR - 35'

FLOOD ZONE

ZONE 'X'
FEMA FIRM FLOOD INSURANCE RATE MAP NUMBER
19049C0340F, REVISED 12-7-2018.

ORIGINAL PROPERTY DESCRIPTION

WARRANTY DEED BOOK 2018, PAGE 3770
PARCEL 'C' OF THE SURVEY OF THE SE1/4 OF THE SE¼, NE1/4 OF THE SW¼, SE1/4 OF THE NW¼, SW1/4 OF THE NE¼, AND THE NW1/4 OF THE SE1/4 OF SECTION 28, TOWNSHIP 78 NORTH, RANGE 27 WEST OF THE 5TH P.M., DALLAS COUNTY, IOWA AS SHOWN IN BOOK 2001 PAGE 8585, IN THE OFFICE OF THE RECORDER OF DALLAS COUNTY, IOWA EXCEPT VALLEY VIEW ACRES, AN OFFICIAL PLAT IN VAN METER, DALLAS COUNTY, IOWA.

LEGAL DESCRIPTION

PARCEL 21-86

A PARCEL OF LAND IN PARCEL 'C', AN OFFICIAL PARCEL RECORDED IN BOOK 2001, PAGE 8585 AT THE DALLAS COUNTY RECORDER'S AND PART OF THE SW1/4 NE1/4 AND NW1/4 SE1/4 OF SECTION 28, TOWNSHIP 78 NORTH, RANGE 27 WEST OF THE 5TH/ P.M., CITY OF VAN METER, DALLAS COUNTY, IOWA THAT IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NW CORNER OF LOT 1, VALLEY VIEW ACRES PLAT 1, AN OFFICIAL PLAT RECORDED IN BOOK 2008, PAGE 148 AT THE DALLAS COUNTY RECORDER'S OFFICE; THENCE S28°47'51"E, 146.64 FEET ALONG THE WEST LINE OF SAID VALLEY VIEW ACRES PLAT 1 TO THE SW CORNER OF SAID LOT 1, SAID SW CORNER ALSO BEING ON THE NORTH RIGHT-OF-WAY LINE OF VAN BUREN STREET AS IS IT PRESENTLY ESTABLISHED; THENCE S30°08'37"E, 195.04 FEET ALONG SAID WEST LINE OF SAID VALLEY VIEW ACRES PLAT 1 TO THE SW CORNER OF LOT 2 OF SAID VALLEY VIEW ACRES PLAT 1; THENCE S46°14'15"W, 88.40 FEET TO A POINT; THENCE S40°31'02"W, 58.10 FEET TO A POINT; THENCE S30°06'00"W, 58.10 FEET TO A POINT; THENCE S19°40'57"W, 58.10 FEET TO A POINT; THENCE S09°15'54"W, 58.10 FEET TO A POINT; THENCE S00°15'48"W, 65.67 FEET TO A POINT; THENCE S00°14'46"W, 210.00 FEET TO A POINT ON THE NORTH LINE OF PARKVIEW ESTATES PLAT 1, AN OFFICIAL PLAT RECORDED IN BOOK 187, PAGE 904 AT THE DALLAS COUNTY RECORDER'S OFFICE; THENCE N84°45'14"W, 360.00 FEET ALONG SAID NORTH LINE OF PARKVIEW ESTATES PLAT 1 TO A POINT; THENCE N00°14'46"E, 300.00 FEET TO A POINT; THENCE N10°13'37"E, 129.88 FEET TO A POINT; THENCE N18°48'02"E, 89.44 FEET TO A POINT; THENCE N26°20'31"E, 89.44 FEET TO A POINT; THENCE N33°53'00"E, 89.44 FEET TO A POINT; THENCE N41°25'29"E, 89.44 FEET TO A POINT; THENCE N48°57'54"E, 89.44 FEET TO A POINT; THENCE N61°54'13"E, 38.49 FEET TO A POINT ON THE NORTH LINE OF SAID PARCEL 'C'; THENCE N60°32'01"E, 54.52 FEET ALONG SAID NORTH LINE TO THE POINT OF BEGINNING AND CONTAINING 6.44 ACRES MORE OR LESS

LEGAL DESCRIPTION

PARCEL 21-87

A PARCEL OF LAND IN PARCEL 'C', AN OFFICIAL PARCEL RECORDED IN BOOK 2001, PAGE 8585 AT THE DALLAS COUNTY RECORDER'S AND PART OF THE SW1/4 NE1/4 AND NW1/4 SE1/4 OF SECTION 28, TOWNSHIP 78 NORTH, RANGE 27 WEST OF THE 5TH/ P.M., CITY OF VAN METER, DALLAS COUNTY, IOWA THAT IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SE CORNER OF VAN BUREN HEIGHTS PLAT 4, AN OFFICIAL PLAT RECORDED IN BOOK 4, PAGE 375 AT THE DALLAS COUNTY RECORDER'S OFFICE, SAID SE CORNER ALSO BEING ON THE NORTH LINE OF WEIGEL ADDITION PLAT NO. 2, AN OFFICIAL PLAT RECORDED IN BOOK 5, PAGE 489 AT THE DALLAS COUNTY RECORDER'S OFFICE; THENCE N84°43'02"W, 235.05 FEET ALONG SAID NORTH LINE TO THE NW CORNER OF LOT 5 OF SAID WEIGEL ADDITION PLAT NO. 2; THENCE N84°45'14"W , 141.81 FEET ALONG A LINE THAT COINCIDES WITH SAID NORTH LINE OF WEIGEL ADDITION PLAT NO. 2 AND THE NORTH LINE OF PARKVIEW ESTATES PLAT 1, AN OFFICIAL PLAT RECORDED IN BOOK 187, PAGE 904 AT THE DALLAS COUNTY RECORDER'S OFFICE, TO A POINT; THENCE N00°14'46"E, 210.00 FEET TO A POINT; THENCE N00°15'48"E, 65.67 FEET TO A POINT; THENCE N09°15'54"E, 58.10 FEET TO A POINT; THENCE N19°40'57"E, 58.10 FEET TO A POINT; THENCE N30°06'00"E, 58.10 FEET TO A POINT; THENCE N40°31'02"E, 58.10 FEET TO A POINT; THENCE N46°14'15"E, 88.40 FEET TO THE SW CORNER OF LOT 2, VALLEY VIEW ACRES PLAT 1, AN OFFICIAL PLAT RECORDED IN BOOK 2008, PAGE 148 AT THE DALLAS COUNTY RECORDER'S OFFICE; THENCE N60°09'02"E, 184.70 FEET ALONG THE SOUTH LINE OF SAID LOT 2 TO THE SE CORNER OF SAID LOT 2, SAID SE CORNER ALSO BEING ON THE WEST LINE OF VAN BUREN HEIGHTS PLAT 2, AN OFFICIAL PLAT RECORDED IN BOOK 4, PAGE 15 AT THE DALLAS COUNTY RECORDER'S OFFICE AND THE EAST LINE OF SAID PARCEL 'C'; THENCE S29°55'47"E, 132.63 FEET ALONG SAID WEST LINE AND SAID EAST LINE OF PARCEL 'C' TO A POINT; THENCE S43°41'04"E, 227.03 FEET ALONG SAID WEST LINE AND SAID EAST LINE OF PARCEL 'C' TO A POINT ON THE NORTH LINE OF SAID VAN BUREN HEIGHTS PLAT 4; THENCE S65°34'06"W, 191.80 FEET ALONG SAID NORTH LINE OF VAN BUREN HEIGHTS PLAT 4 AND SAID EAST LINE OF PARCEL 'C' TO THE NW CORNER OF SAID VAN BUREN HEIGHTS PLAT 4; THENCE SOUTHEASTERLY ALONG A NON-TANGENT CURVE THE TO RIGHT HAVING A RADIUS OF 266.42 FEET AND A CHORD BEARING S07°14'47"E, AN ARC LENGTH OF 69.83 FEET ALONG THE WEST LINE OF SAID VAN BUREN HEIGHTS PLAT 4 AND SAID EAST LINE OF PARCEL 'C' TO THE SW CORNER OF LOT 8 OF SAID VAN BUREN HEIGHTS PLAT 4, SAID SW CORNER ALSO BEING ON THE NORTH RIGHT-OF-WAY LINE OF ARLINGTON AVENUE AS IT IS PRESENTLY ESTABLISHED; THENCE S00°34'47"W, 209.38 FEET ALONG SAID WEST LINE OF VAN BUREN HEIGHTS PLAT 4 AND SAID EAST LINE OF PARCEL 'C' TO THE POINT OF BEGINNING AND CONTAINING 5.07 ACRES MORE OR LESS.

BOUNDARY CLOSURE REPORT

NORTH: 555708.3347' EAST: 1514048.2360'

SEGMENT #1 : LINE
COURSE: N84°43'02"W LENGTH: 235.05'
NORTH: 555709.4447' EAST: 1513813.1888'

SEGMENT #2 : LINE
COURSE: N84°45'14"W LENGTH: 501.81'
NORTH: 555711.6502' EAST: 1513311.3834'

SEGMENT #3 : LINE
COURSE: N00°14'46"E LENGTH: 300.00'
NORTH: 556011.6475' EAST: 1513312.6721'

SEGMENT #4 : LINE
COURSE: N10°13'37"E LENGTH: 129.88'
NORTH: 556134.4640' EAST: 1513335.7320'

SEGMENT #5 : LINE
COURSE: N18°48'02"E LENGTH: 89.44'
NORTH: 556224.1320' EAST: 1513364.5562'

SEGMENT #6 : LINE
COURSE: N26°20'31"E LENGTH: 89.44'
NORTH: 556304.2847' EAST: 1513404.2432'

SEGMENT #7 : LINE
COURSE: N33°53'00"E LENGTH: 89.44'
NORTH: 556378.5355' EAST: 1513454.1063'

SEGMENT #8 : LINE
COURSE: N41°25'29"E LENGTH: 89.44'
NORTH: 556444.5.9449' EAST: 1513513.2830'

SEGMENT #9 : LINE
COURSE: N48°57'54"E LENGTH: 89.44'
NORTH: 556504.3174' EAST: 1513580.7498'

SEGMENT #10 : LINE
COURSE: N61°54'13"E LENGTH: 38.48'
NORTH: 556522.4445' EAST: 1513614.7040'

SEGMENT #11 : LINE
COURSE: N60°32'01"E LENGTH: 54.52'
NORTH: 556541.2636' EAST: 1513662.1715'

SEGMENT #12 : LINE
COURSE: S29°47'51"E LENGTH: 146.64'
NORTH: 556422.0113' EAST: 1513735.0422'

SEGMENT #13 : LINE
COURSE: S30°08'37"E LENGTH: 195.09'
NORTH: 556253.3034' EAST: 1513833.0104'

SEGMENT #14 : LINE
COURSE: N60°09'02"E LENGTH: 184.70'
NORTH: 556345.2328' EAST: 1513993.2074'

SEGMENT #15 : LINE
COURSE: S29°55'47"E LENGTH: 132.63'
NORTH: 556230.2406' EAST: 1514054.3815'

SEGMENT #16 : LINE
COURSE: S43°41'04"E LENGTH: 227.03'
NORTH: 556066.1128' EAST: 1514216.1819'

SEGMENT #17 : LINE
COURSE: S65°34'06"W LENGTH: 191.80'
NORTH: 555986.7628' EAST: 1514041.5626'

SEGMENT #18 : CURVE
LENGTH: 69.83' RADIUS: 266.42'
DELTA: 015°01'04" TANGENT: 35.12'
CHORD: 69.63' COURSE: S07°14'47"E
COURSE IN: S75°14'41"W COURSE OUT: S89°44'15"E
RP NORTH: 555918.9281' EAST: 1513783.9285'
END NORTH: 555911.7090' EAST: 1514050.3455'

SEGMENT #19 : LINE
COURSE: S00°34'47"W LENGTH: 209.38'
NORTH: 555708.3347' EAST: 1514048.2270'

PERIMETER: 3064.04' AREA: 501415.28 SQ. FT.
ERROR CLOSURE: 0.0102 COURSE: N60°34'47"W
ERROR NORTH: 0.00503 EAST: -0.00842

PRECISION 1: 300371.45

PARCEL 21-86 CLOSURE REPORT

NORTH: 556544.2586' EAST: 1513662.1750'

SEGMENT #1 : LINE
COURSE: S29°47'51"E LENGTH: 146.64'
NORTH: 556422.0063' EAST: 1513735.0457'

SEGMENT #2 : LINE
COURSE: S30°08'37"E LENGTH: 195.09'
NORTH: 556253.2985' EAST: 1513833.0134'

SEGMENT #3 : LINE
COURSE: S46°14'15"W LENGTH: 88.40'
NORTH: 556162.2477' EAST: 1513764.0814'

SEGMENT #4 : LINE
COURSE: S40°31'02"W LENGTH: 58.10'
NORTH: 556148.0795' EAST: 1513731.3352'

SEGMENT #5 : LINE
COURSE: S30°06'00"W LENGTH: 58.10'
NORTH: 556091.8142' EAST: 1513702.1914'

SEGMENT #6 : LINE
COURSE: S19°40'57"W LENGTH: 58.10'
NORTH: 556043.1088' EAST: 1513682.6284'

SEGMENT #7 : LINE
COURSE: S09°15'54"W LENGTH: 58.10'
NORTH: 555985.1667' EAST: 1513673.2147'

SEGMENT #8 : LINE
COURSE: S00°15'48"W LENGTH: 65.67'
NORTH: 555920.1042' EAST: 1513672.2852'

SEGMENT #9 : LINE
COURSE: S00°14'46"W LENGTH: 210.00'
NORTH: 555710.1061' EAST: 1513671.3832'

SEGMENT #10 : LINE
COURSE: S84°45'14"W LENGTH: 360.00'
NORTH: 555711.6525' EAST: 1513311.3865'

SEGMENT #11 : LINE
COURSE: N00°14'46"E LENGTH: 300.00'
NORTH: 556011.6447' EAST: 1513312.6751'

SEGMENT #12 : LINE
COURSE: N10°13'37"E LENGTH: 129.88'
NORTH: 556134.4662' EAST: 1513335.7350'

SEGMENT #13 : LINE
COURSE: N18°48'02"E LENGTH: 89.44'
NORTH: 556224.1342' EAST: 1513364.5543'

SEGMENT #14 : LINE
COURSE: N26°20'31"E LENGTH: 89.44'
NORTH: 556304.2864' EAST: 1513404.2463'

SEGMENT #15 : LINE
COURSE: N33°53'00"E LENGTH: 89.44'
NORTH: 556378.5371' EAST: 1513454.1044'

SEGMENT #16 : LINE
COURSE: N41°25'29"E LENGTH: 89.44'
NORTH: 556445.6021' EAST: 1513513.2861'

SEGMENT #17 : LINE
COURSE: N48°57'54"E LENGTH: 89.44'
NORTH: 556504.3147' EAST: 1513580.7529'

SEGMENT #18 : LINE
COURSE: N61°54'13"E LENGTH: 38.49'
NORTH: 556522.4468' EAST: 1513614.7071'

SEGMENT #19 : LINE
COURSE: N60°32'01"E LENGTH: 54.52'
NORTH: 556544.2654' EAST: 1513662.1746'

PERIMETER: 2268.29' AREA: 280611.05 SQ. FT.
ERROR CLOSURE: 0.0072 COURSE: N03°12'03"W
ERROR NORTH: 0.00720 EAST: -0.00040

PRECISION 1: 315040.28

PARCEL 21-87 CLOSURE REPORT

NORTH: 555708.3347' EAST: 1514048.2360'

SEGMENT #1 : LINE
COURSE: N84°43'02"W LENGTH: 235.05'
NORTH: 555709.4447' EAST: 1513813.1888'

SEGMENT #2 : LINE
COURSE: N84°45'14"W LENGTH: 141.81'
NORTH: 555710.1034' EAST: 1513671.3801'

SEGMENT #3 : LINE
COURSE: N00°14'46"E LENGTH: 210.00'
NORTH: 555920.1019' EAST: 1513672.2822'

SEGMENT #4 : LINE
COURSE: N00°15'48"E LENGTH: 65.67'
NORTH: 555985.1645' EAST: 1513673.2716'

SEGMENT #5 : LINE
COURSE: N09°15'54"E LENGTH: 58.10'
NORTH: 556043.1065' EAST: 1513682.6258'

SEGMENT #6 : LINE
COURSE: N19°40'57"E LENGTH: 58.10'
NORTH: 556091.8141' EAST: 1513702.1943'

SEGMENT #7 : LINE
COURSE: N30°06'00"E LENGTH: 58.10'
NORTH: 556148.0712' EAST: 1513731.3321'

SEGMENT #8 : LINE
COURSE: N40°31'02"E LENGTH: 58.10'
NORTH: 556192.2455' EAST: 1513769.0783'

SEGMENT #9 : LINE
COURSE: N46°14'15"E LENGTH: 88.40'
NORTH: 556253.2962' EAST: 1513833.0108'

SEGMENT #10 : LINE
COURSE: N60°09'02"E LENGTH: 184.70'
NORTH: 556345.2256' EAST: 1513943.2078'

SEGMENT #11 : LINE
COURSE: S29°55'47"E LENGTH: 132.63'
NORTH: 556230.2834' EAST: 1514054.3814'

SEGMENT #12 : LINE
COURSE: S43°41'04"E LENGTH: 227.03'
NORTH: 556066.1056' EAST: 1514216.1883'

SEGMENT #13 : LINE
COURSE: S65°34'06"W LENGTH: 191.80'
NORTH: 555986.7756' EAST: 1514041.5630'

SEGMENT #14 : CURVE
LENGTH: 69.83' RADIUS: 266.42'
DELTA: 015°01'04" TANGENT: 35.12'
CHORD: 69.63' COURSE: S07°14'47"E
COURSE IN: S75°14'41"W COURSE OUT: S89°44'15"E
RP NORTH: 555918.9204' EAST: 1513783.9284'
END NORTH: 555911.7018' EAST: 1514050.3454'

SEGMENT #15 : LINE
COURSE: S00°34'47"W LENGTH: 209.38'
NORTH: 555708.3325' EAST: 1514048.2274'

PERIMETER: 1988.69' AREA: 220804.24 SQ. FT.
ERROR CLOSURE: 0.0088 COURSE: S75°42'17"W
ERROR NORTH: -0.00217 EAST: -0.00852

PRECISION 1: 225465.91

LEGEND

- ▲ FOUND SECTION CORNERS
- △ SET SECTION CORNER (5/8" I.R. W/BLUE CAP #18381 UNLESS OTHERWISE NOTED)
- FOUND RIGHT-OF-WAY RAIL
- ● FOUND CORNERS
- ■ FOUND ½" I.R. W/YELLOW CAP #7056
- ⊙ SET PROPERTY CORNER (5/8" I.R. W/BLUE CAP #18381 UNLESS OTHERWISE NOTED)
- PARCEL BOUNDARY LINES
- PROPOSED PARCEL LINES
- EXISTING PROPERTY LINES
- SECTION LINES
- EASEMENT LINES
- CENTERLINE STREET
- D. DEEDED BEARING & DISTANCE
- P. PREVIOUSLY RECORDED BEARING & DISTANCE
- M. MEASURED BEARING & DISTANCE
- I.R. IRON ROD
- I.P. IRON PIPE
- BK. XXX, PG. XXX COUNTY RECORDER'S INDEXING BOOK & PAGE
- R.O.W. RIGHT-OF-WAY
- P.O.B POINT OF BEGINNING
- P.U.E. PUBLIC UTILITY EASEMENT
- 777 ADDRESS
- EXISTING WOVEN WIRE FENCE
- EXISTING PIPE FENCE
- EXISTING PRIVACY FENCE

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com

CERTIFICATION

PRELIMINARY

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA.

September 8, 2021

JEFFREY A. GADDIS, IOWA LICENSE NO. 18381 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2022

_____
_____

Civil Engineering Consultants, Inc.
2400 86th Street . Unit 12 . Des Moines, Iowa 50322
515.276.4884 . Fax: 515.276.7084 . mail@ceclac.com

PUBLISH DATE: September 8, 2021
DATE OF SURVEY: AUG. 23, 2021
DESIGNED BY: JAG
DRAWN BY: LJH

PRELIMINARY

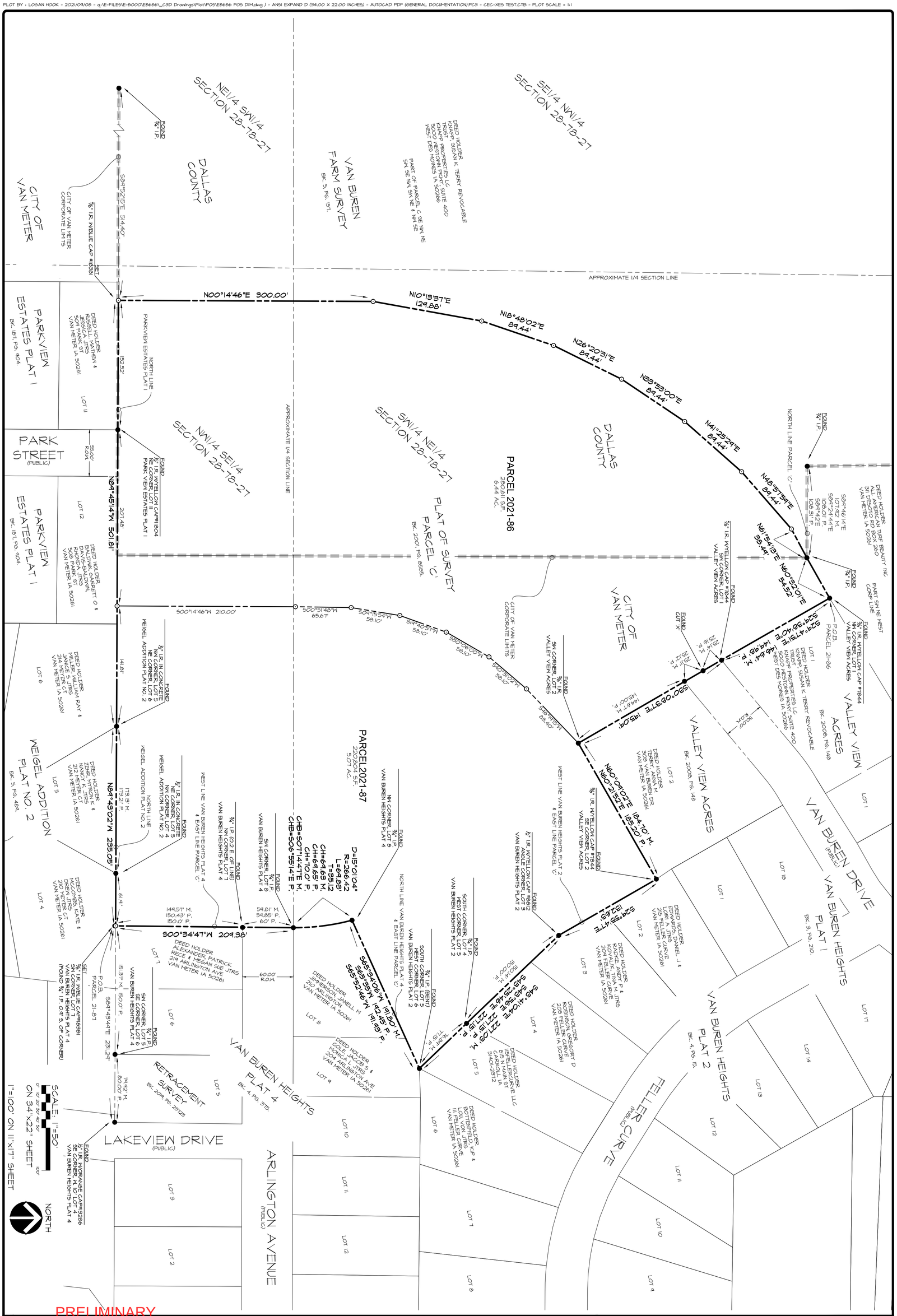
PARCEL 21-86 & 21-87 OF PARCEL 'C'
SW1/4 NE1/4 & NW1/4 SE1/4 SEC. 28-78-27, VAN METER, IOWA

COVER

SHEET 1 OF 2

E6686

PLOT BY : LOGAN HOOK - 2021/09/08 - q:\E-FILES\E-8000\E8686_C3D Drawings\Plat\POS\E8686 POS DIM.dwg) - ANSI EXPAND D (34.00 X 22.00 INCHES) - AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 - CEC-XES TEST.CTB - PLOT SCALE = 1:1



PRELIMINARY

PARCEL 21-86 & 21-87 OF PARCEL 'C'

SW1/4 NE1/4 & NW1/4 SE1/4 SEC. 28-78-27 , VAN METER, IOWA

DIMENSION PLAN

SHEET 2 OF 2

E8686

PUBLISH DATE: September 8, 2021

DATE OF SURVEY: AUG. 23, 2021
DESIGNED BY: JAG
DRAWN BY: LJH

CEC
Civil Engineering Consultants, Inc.
2400 86th Street . Unit 12 . Des Moines, Iowa 50322
515.276.4884 . Fax: 515.276.7084 . mail@ceclac.com

CEC
Civil Engineering Consultants, Inc.

September 27, 2021

ATTN: Kyle Michel
City Administrator
310 Miller Street
P.O. Box 160
Van Meter, IA 50261

RE: **Hudson Heights Plat 2 – Annexation Request**

Dear Kyle,

On behalf of Susan K Terry Knapp Revocable Trust, we are submitting this letter of requesting the annexation of a portion of the Dallas County Parcel ID 1528300009 located in Section 28, Township 78N, Range 27W of the 5th P.M., City of Van Meter, Dallas County, Iowa as generally depicted on the attached schematic. The property is located south of Desoto Road and west of Hazel Street.

Please review this information at your earliest convenience. Would you please place us on the earliest Planning and Zoning Commission and City Council Agenda? Do not hesitate to contact us if you have any questions or concerns.

Sincerely,
Civil Engineering Consultants, Inc.

Paul Clausen, P.E.
CC: Susan Knapp, Stuart Ruddy, Tom Wittman, Bob Veenstra, and John Larson

WAUKEE

US INTERSTATE 80

US INTERSTATE 80

VETERANS MEMORIAL DRIVE

2 MILE LIMIT

RIOSCO CO

DESOTO

AREA OF VAN METER ANNEXATION SEE SHEET 2

2 MILE LIMIT

R AVENUE

R22 / UTE AVENUE

2 MILE LIMIT

F-90 / 360th STREET

HWY 169 / GUTHRIE STREET

F-90 / 360th STREET

2 MILE LIMIT

2 MILE LIMIT

VAN METER

WEST DES MOINES

SCALE: 1"=1500'

0' 500' 1000' 1500' 3000'

NORTH

1"=1500' PRINTED ON 22"x34" SHEET
1"=3000' PRINTED ON 11"x17" SHEET

Civil Engineering Consultants, Inc.
2400 86th Street, Unit 12 . Des Moines, Iowa 50322
515.276.4884 . mail@ceclac.com

DATE: Sep. 24, 2021
DATE OF SURVEY: ###
DESIGNED BY: ###
DRAWN BY: ###

HUDSON HEIGHTS ANNEXATION

VAN METER, IOWA

CITY OF VAN METER, IOWA CORPORATE LIMIT OVERVIEW

SHEET 01 OF 02

E8686

352nd PLACE / DESOTO ROAD

AREA OF
VAN METER
ANNEXATION

ANNEX AREA
± 12.3 AC.

± 78'
± 272'
± 255'
± 318'
± 110'
± 251'
± 819'
± 481'
± 602'

VAN METER
CORP. LIMITS

VAN BUREN DRIVE
FELLER CURVE
HAZEL STREET
PINE COURT
2 MILE LIMIT
FROM WAUKEE
CORP. LIMITS
ARLINGTON AVENUE
LAKEVIEW DRIVE
MEYER COURT
PARK STREET
R AVENUE

SCALE: 1"=100'
0' 100' 200'
NORTH

1"=100' PRINTED ON 22"x34" SHEET
1"=200' PRINTED ON 11"x17" SHEET

Civil Engineering Consultants, Inc.
2400 86th Street, Unit 12 . Des Moines, Iowa 50322
515.276.4884 . mail@ceclac.com

CEC

DATE: Sep. 24, 2021
DATE OF SURVEY: ###
DESIGNED BY: ###
DRAWN BY: ###

HUDSON HEIGHTS ANNEXATION

VAN METER, IOWA

CITY OF VAN METER, PROPOSED ANNEXATION AREA

SHEET 02 OF 02

E8686

Q:\E-FILES\E-8000\E8686\...CD Drawings\Exhibits\E8686 CITY ANNEX EXHIBIT.dwg, 9/24/2021 2:41:16 PM, mehlt, 1:1

CEC
Civil Engineering Consultants, Inc.

September 27, 2021

ATTN: Kyle Michel
City Administrator
310 Miller Street
P.O. Box 160
Van Meter, IA 50261

RE: **Hudson Heights Plat 2 – Rezoning Request**

Dear Kyle,

On behalf of Susan K Terry Knapp Revocable Trust, we are submitting this letter of request for rezoning Parcel 2021-86 and Parcel 2021-87, official parcels located in the City of Van Meter, Dallas County, Iowa. The property is located south of Desoto Road and west of Hazel Street.

The property is currently zoned A – Agricultural. We are proposing to rezone the property to R-2 – Two-Family Residence District. We have created a preliminary plat for this area including: single family lots, street lots; adjacent lot information; utilities and grading for your review.

Please review this information at your earliest convenience. Would you please place us on the earliest Planning and Zoning Commission and City Council Agenda? Do not hesitate to contact us if you have any questions or concerns.

Sincerely,
Civil Engineering Consultants, Inc.

Paul Clausen, P.E.
CC: Susan Knapp, Tom Wittman, Bob Veenstra, and John Larson

PRELIMINARY PLAT

HUDSON HEIGHTS PLAT 2
VAN METER, IOWA

UTILITIES
VAN METER PUBLIC WORKS
ADDRESS: 310 MILL STREET,
VAN METER, IOWA 50261
PHONE: (515) 996-2644

SANITARY SEWER - CITY OF VAN METER
STORM SEWER - CITY OF VAN METER
WATER - CITY OF VAN METER

ELECTRIC AND NATURAL GAS UTILITY
MIDAMERICAN ENERGY CORPORATION
666 GRAND AVENUE
DES MOINES, IA 50309
CONTACT: MATT REINHARDT
PHONE: 515-515-252-6413
EMAIL: M.REINHARDT@MIDAMERICAN.COM

TELEPHONE
CENTURY LINK
4201 KINGMAN BLVD, 2nd FLOOR
DES MOINES, IA 50311
CONTACT: CINDY CARTER
PHONE: 515-554-3316

BUILDING DEPARTMENT
CITY OF VAN METER
ADDRESS: 310 MILL STREET,
VAN METER, IOWA 50261
PHONE: (515) 996-2644

HEALTH DEPARTMENT
DALLAS COUNTY
PUBLIC HEALTH DEPARTMENT
ADDRESS: 25747 N AVENUE,
ADEL, IA 50003
PHONE: (515) 993-3750

FIRE DEPARTMENT
505 GRANT ST.
VAN METER, IA 50261
DIRECTOR DAGGETT: 515-202-4154
STATION PHONE NUMBER -515-993-4567

FRANCHISE UTILITIES
1. CONTRACT FOR STREET LIGHTING SHALL BE EXECUTED WITH FINAL PLAT.
2. CONTRACT FOR ELECTRIC DISTRIBUTION SYSTEM SHALL BE EXECUTED WITH FINAL PLAT.
3. NATURAL GAS, TELEPHONE, CABLE OR OTHER UTILITIES SHALL BE INSTALLED AFTER COMPLETION OF PLAT IMPROVEMENTS.

Sheet List Table	
Sheet Number	Sheet Title
01	COVER SHEET
02	DIMENSION SHEET
03	UTILITY SHEET
04	GRADING SHEET

SUBMITTAL TABLE	
SUBMITTAL DATE	SUBMITTAL NOTES
2021-09-28	INITIAL SUBMITTAL
--	

VICINITY SKETCH

NORTH
SCALE: 1"=1000'

NOTES:
1. PARCEL MAY BE SUBJECT TO EASEMENTS, LICENSES, OR AGREEMENTS OF RECORD. NO TITLE WORK WAS PERFORMED BY SURVEYOR.
2. ALLOWABLE ERROR OF CLOSURE FOR BOUNDARY IS 1:10,000 AND ALLOWABLE ERROR OF CLOSURE FOR EACH LOT IS 1:5,000.
3. MONUMENTS TO BE SET WITHIN ONE YEAR OF FINAL PLAT'S RECORDING DATE.
4. LOTS 'A', 'B' & 'C' ARE TO BE DEDICATED TO CITY OF VAN METER.
5. SOME LOTS ACCEPT DRAINAGE FROM ADJACENT PROPERTY. BUILDING ON THESE LOTS MUST TAKE INTO ACCOUNT UPSTREAM DRAINAGE.
6. ALL UTILITIES INDICATED ON PLAT ARE PUBLIC UNLESS OTHERWISE NOTED.
7. WATER SERVICES TO BE 1-INCH PVC AND SHALL BE BORED WHEN FEASIBLE, STOP BOXES TO BE FORD BALL VALVE TYPE CURB STOPS.
8. AN HOA SHALL BE ESTABLISHED AND RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER DETENTION BASIN.

PARKLAND DEDICATION:
CALCULATION FOR PARKLAND DEDICATION IS PER CHAPTER 173 - DEDICATION OF PARKLAND WITHIN ORDINANCE 2021-02:
26 LOTS * 2.8 PEOPLE PER LOT * 0.005 AC = 0.364 ACRES OR 15,856 S.F.
MINIMUM DEDICATION REQUIRED FOR ANY DEVELOPMENT: 20,000 SF.

PROPERTY OWNER / DEVELOPER / APPLICANT:
HUDSON HEIGHTS LLC
P.O. BOX 267
JOHNSTON IA 50131
CONTACT: JOHN LARSON

PROJECT MANAGER:
PAUL CLAUSEN, PE
CIVIL ENGINEERING CONSULTANTS
2400 86TH STREET, #12
DES MOINES, IOWA 50322
PH. 515-276-4884 EXT. #217
EMAIL: CLAUSEN@CECLAC.COM

PROFESSIONAL LAND SURVEYOR:
CIVIL ENGINEERING CONSULTANTS, INC.
PH: JEFFERY A. GADDIS, PLS
2400 86TH STREET, SUITE 12
URBANDALE, IA 50322
PH. 515-276-4884 EXT. 221
EMAIL: GADDIS@CECLAC.COM

MUNICIPALITY PLANNER:
KYLE MICHEL
CITY ADMINISTRATOR
CITY OF VAN METER, IOWA
PHONE: (515) 996-2644
EMAIL: KMICHEL@VANMETERIA.GOV

LEGAL DESCRIPTION
PARCEL 21-86 & PARCEL 21-87, OFFICIAL PARCELS RECORDED IN BOOK XXXX, PAGE XXXXX, CITY OF VAN METER, DALLAS COUNTY, IOWA.

SAID PARCELS CONTAIN 11.51 ACRES MORE OR LESS.

TOTAL LAND AREA:
501,415 SQ. FT
11.51 AC.

EXISTING ZONING:
A AGRICULTURAL

PROPOSED ZONING:
R-2 SINGLE FAMILY RESIDENTIAL DISTRICT
SETBACKS:
FRONT - 35'
SIDE - 8' MINIMUM
REAR - 30'

FLOOD ZONE
ZONE 'X' & ZONE 'A'
FEMA FIRM FLOOD INSURANCE RATE MAP NUMBER 19049C0340F, REVISED 12-7-2018.

NOTES
1. IMPROVEMENTS SHALL BE CONSTRUCTED USING 2021 S.U.D.A.S. SPECIFICATIONS

CONSTRUCTION SCHEDULE
GRADING ACTIVITIES - AUGUST, 2021
UTILITY PLACEMENT - OCTOBER, 2021
PAVING - APRIL, 2022
PUNCH LIST ITEMS - MAY, 2022

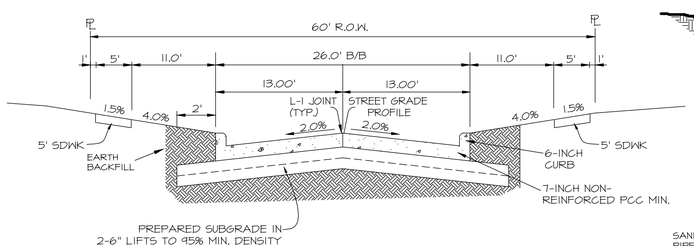
GENERAL LEGEND

PROPOSED

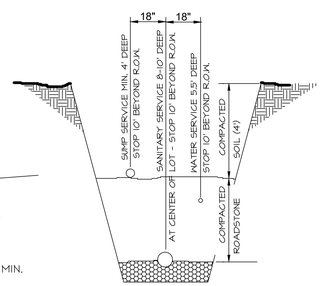
- PLAT BOUNDARY
- SECTION LINE
- LOT LINE
- CENTERLINE
- EASEMENT LINE
- FLARED END SECTION
- TYPE SW-501 STORM INTAKE
- TYPE SW-502 STORM INTAKE
- TYPE SW-503 STORM INTAKE
- TYPE SW-504 STORM INTAKE
- TYPE SW-505 STORM INTAKE
- TYPE SW-506 STORM INTAKE
- TYPE SW-511 STORM INTAKE
- TYPE SW-512 STORM INTAKE
- TYPE SW-513 STORM INTAKE
- TYPE SW-401 STORM MANHOLE
- TYPE SW-402 STORM MANHOLE
- TYPE SW-403 STORM MANHOLE
- TYPE SW-403 STORM MANHOLE
- TYPE SW-301 SANITARY MANHOLE
- TYPE SW-302 SANITARY MANHOLE
- TYPE SW-304 SANITARY MANHOLE
- STORM/SANITARY CLEANOUT
- WATER VALVE
- FIRE HYDRANT ASSEMBLY
- BLOW-OFF HYDRANT
- DETECTABLE WARNING PANEL
- SANITARY SEWER WITH SIZE
- SANITARY SERVICE
- STORM SEWER WITH SIZE
- STORM SERVICE
- WATER MAIN WITH SIZE
- WATER SERVICE
- PROPOSED CONTOUR
- SILT FENCE
- RIP RAP
- ADDRESS
- FOUND CORNER
- SET CORNER 5/8" I.R. W/ORANGE CAP #12265
- M. MEASURED DISTANCE
- P. PREVIOUSLY RECORDED DISTANCE

EXISTING

- LOT LINE
- SANITARY/STORM MANHOLE
- WATER VALVE
- FIRE HYDRANT
- STORM SEWER SINGLE INTAKE
- STORM SEWER DOUBLE INTAKE
- STORM SEWER ROUND INTAKE
- FLARED END SECTION
- DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUB
- POWER POLE
- STREET LIGHT
- GUY ANCHOR
- ELECTRIC TRANSFORMER
- GAS METER
- TELEPHONE RISER
- SIGN
- CATV — UNDERGROUND TELEVISION
- USE — UNDERGROUND ELECTRIC
- G — UNDERGROUND GAS
- UGFO — UNDERGROUND FIBER OPTIC
- UGT — UNDERGROUND TELEPHONE
- OHW — OVERHEAD ELECTRIC
- SAN — SANITARY SEWER WITH SIZE
- ST — STORM SEWER WITH SIZE
- W — WATER MAIN WITH SIZE
- 926 — EXISTING CONTOUR
- TREELINE
- B.S.L. — BUILDING SETBACK LINE
- P.U.E. — PUBLIC UTILITY EASEMENT
- M.O.E. — MINIMUM OPENING ELEVATION
- TREES TO BE REMOVED



TYPICAL 26' B/B CROSS SECTION
NO SCALE



SANITARY & SUMP SERVICES SHALL BE MARKED AT THE END OF PIPE WITH A 2X4 TO THE SURFACE & A STEEL FENCE POST. PLACE ONE 6 FT. STEEL POST BURIED 3 FT. AT WATER CURB BOX. COLOR MARKING OF SERVICES SHALL BE RED FOR SANITARY, GREEN FOR SUMPS AND BLUE FOR WATER.

SERVICE LOCATION DETAIL
NO SCALE

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com

CERTIFICATIONS

PRELIMINARY

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

PAUL J.D. CLAUSEN, IOWA LICENSED NO. 23712 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021
PAGES OR SHEETS COVERED BY THIS SEAL:

ALL SHEETS

PRELIMINARY

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA.

September 28, 2021

JEFFREY A. GADDIS, IOWA LICENSE NO. 18361 DATE
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2022

-

Civil Engineering Consultants, Inc.
2400 86th Street, Unit 12 . Des Moines, Iowa 50322
515.276.4884 . Fax: 515.276.7084 . mail@ceclac.com

PUBLISH DATE: September 28, 2021
DATE OF SURVEY: 10-14-2014 PC
DESIGNED BY: MEH
DRAWN BY:

PRELIMINARY
HUDSON HEIGHTS PLAT 2
VAN METER, IOWA
COVER SHEET

SHEET 01 OF 04

E8686

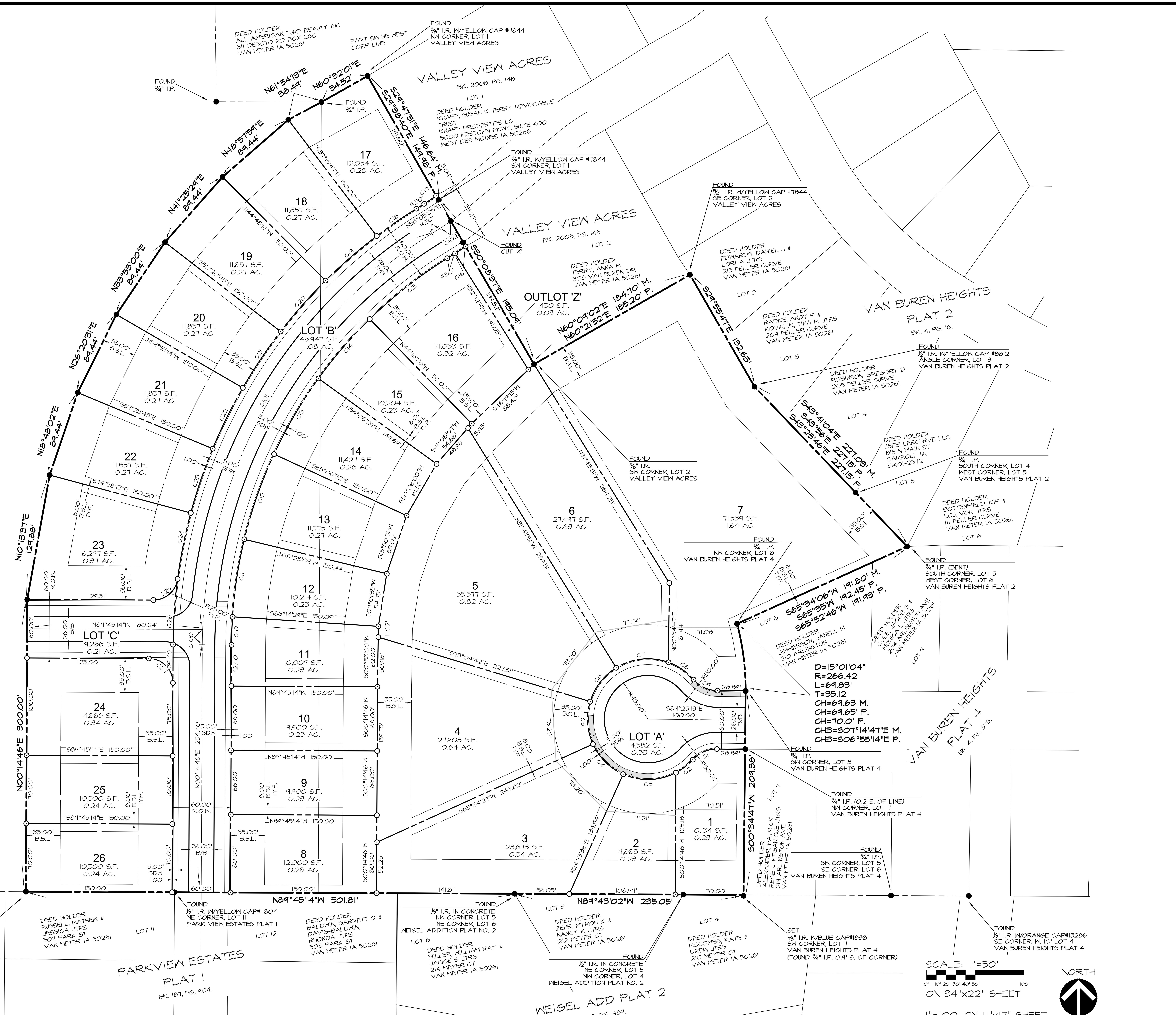
PLOT BY: AUSTIN ROEMER - 2021/09/28 - G:\E-FILES\E-8000\E8686_C3D Drawings\Plat\PPE8686 PP COVER.dwg - ANSI EXPAND D (34.00 X 22.00 INCHES) - AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 - CEC-XES TEST.CTB - PLOT SCALE = 1:1

STREET CENTERLINE

CURVE DATA						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C100	1°47'18"	500.00'	15.61'	7.80'	15.60'	N01°08'25"E
C101	56°03'01"	500.00'	489.13'	266.14'	469.86'	N30°03'34"E
C102	3°57'23"	200.00'	13.81'	6.91'	13.81'	N56°06'23"E

LOT FRONTAGE

CURVE DATA						
CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	48°27'32"	33.00'	27.91'	14.85'	27.09'	S66°21'01"W
C2	20°17'10"	62.00'	21.95'	11.09'	21.84'	S52°15'50"W
C3	51°49'11"	62.00'	56.07'	30.12'	54.18'	S88°19'01"W
C4	41°20'51"	62.00'	44.74'	23.40'	43.78'	N45°05'58"W
C5	41°20'51"	62.00'	44.74'	23.40'	43.78'	N03°45'07"W
C6	41°20'51"	62.00'	44.74'	23.40'	43.78'	N37°35'44"E
C7	51°38'24"	62.00'	55.88'	30.00'	54.01'	N84°05'21"E
C8	29°07'45"	62.00'	31.52'	16.11'	31.18'	S55°31'34"E
C9	48°27'32"	33.00'	27.91'	14.85'	27.09'	S65°11'27"E
C10	3°30'45"	470.00'	28.81'	14.41'	28.81'	N02°00'09"E
C11	9°49'20"	470.00'	80.57'	40.38'	80.47'	N08°40'11"E
C12	11°18'37"	470.00'	92.78'	46.54'	92.63'	N19°14'10"E
C13	11°00'02"	470.00'	90.24'	45.26'	90.10'	N30°23'29"E
C14	9°50'03"	470.00'	80.67'	40.43'	80.57'	N40°48'32"E
C15	12°21'31"	470.00'	101.38'	50.89'	101.18'	N51°54'19"E
C16	3°12'26"	230.00'	12.87'	6.44'	12.87'	N56°28'52"E
C17	4°58'55"	170.00'	14.78'	7.40'	14.78'	N55°35'37"E
C18	5°20'52"	530.00'	49.47'	24.75'	49.45'	N55°24'39"E
C19	7°32'29"	530.00'	69.76'	34.93'	69.71'	N48°57'59"E
C20	7°32'29"	530.00'	69.76'	34.93'	69.71'	N41°25'29"E
C21	7°32'29"	530.00'	69.76'	34.93'	69.71'	N33°53'00"E
C22	7°32'29"	530.00'	69.76'	34.93'	69.71'	N26°20'31"E
C23	7°32'29"	530.00'	69.76'	34.93'	69.71'	N18°48'02"E
C24	7°28'31"	530.00'	69.15'	34.62'	69.10'	N11°17'32"E
C25	82°41'29"	25.00'	36.08'	22.00'	33.03'	N48°54'01"E
C26	7°18'31"	530.00'	67.61'	33.85'	67.56'	N03°54'01"E
C27	90°00'00"	25.00'	39.27'	25.00'	35.36'	N44°45'14"W



Civil Engineering Consultants, Inc.

2400 86th Street . Unit 12 . Des Moines, Iowa 50322
515.276.4884 . Fax: 515.276.7084 . mail@ceclac.com

CEC

PUBLISH DATE: September 28, 2021

DATE OF SURVEY: 10-14-2019
DESIGNED BY: PC
DRAWN BY: MEH

PRELIMINARY

HUDSON HEIGHTS PLAT 2

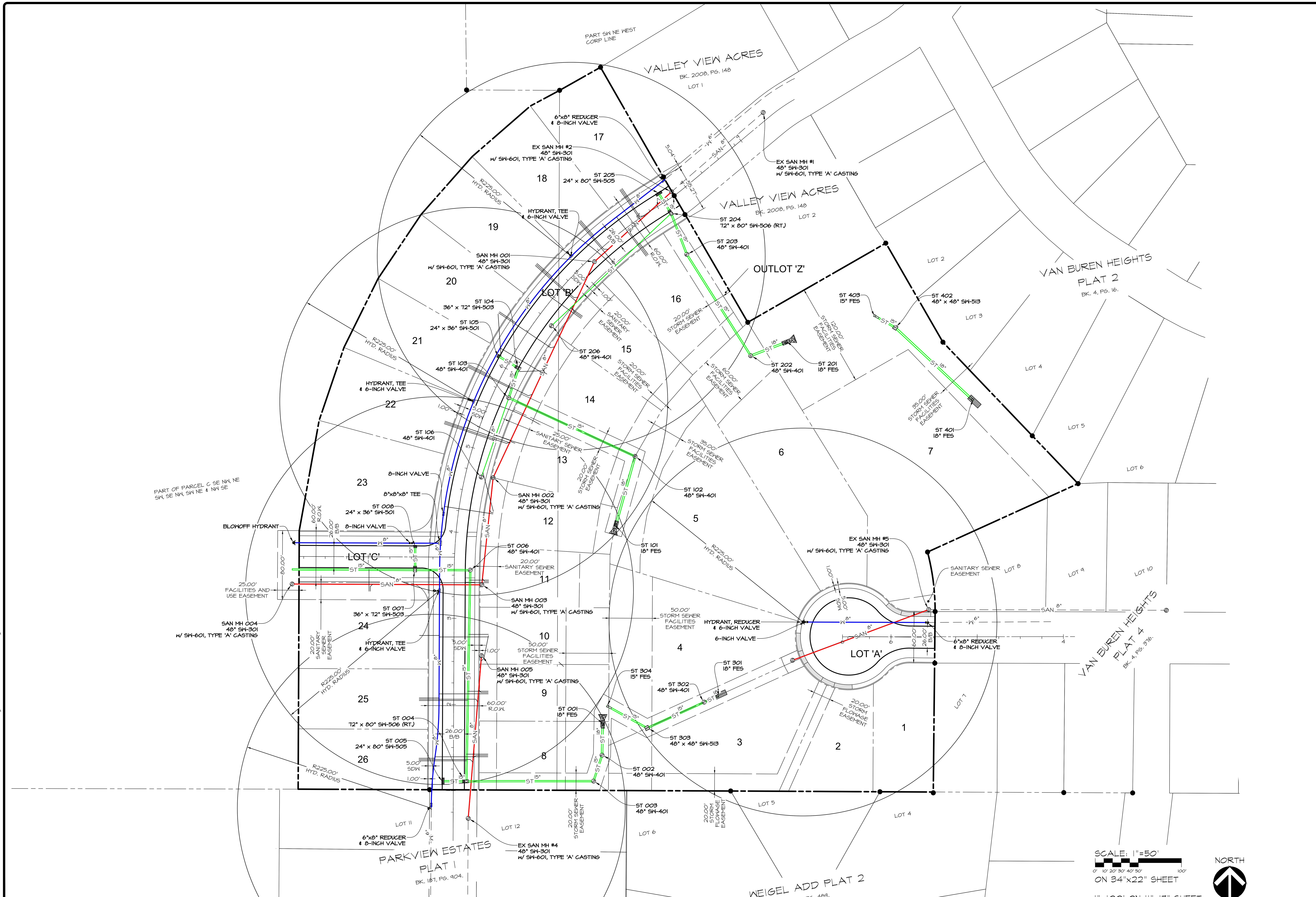
VAN METER, IOWA

DIMENSION SHEET

SHEET 02 OF ##

E8686

PLOT BY : AUSTIN ROEMER - 2021/09/28 - G:\E-FILES\E-8000\E8686_C3D Drawings\Plat\PP\E8686 PP DIM.dwg) - ANSI EXPAND D (34.00 X 22.00 INCHES) - AUTOCAD PDF (GENERAL DOCUMENTATION).PC3 - CEC-XES TEST.CTB - PLOT SCALE = 1:1



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DESIGNED BY: PC
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PRELIMINARY

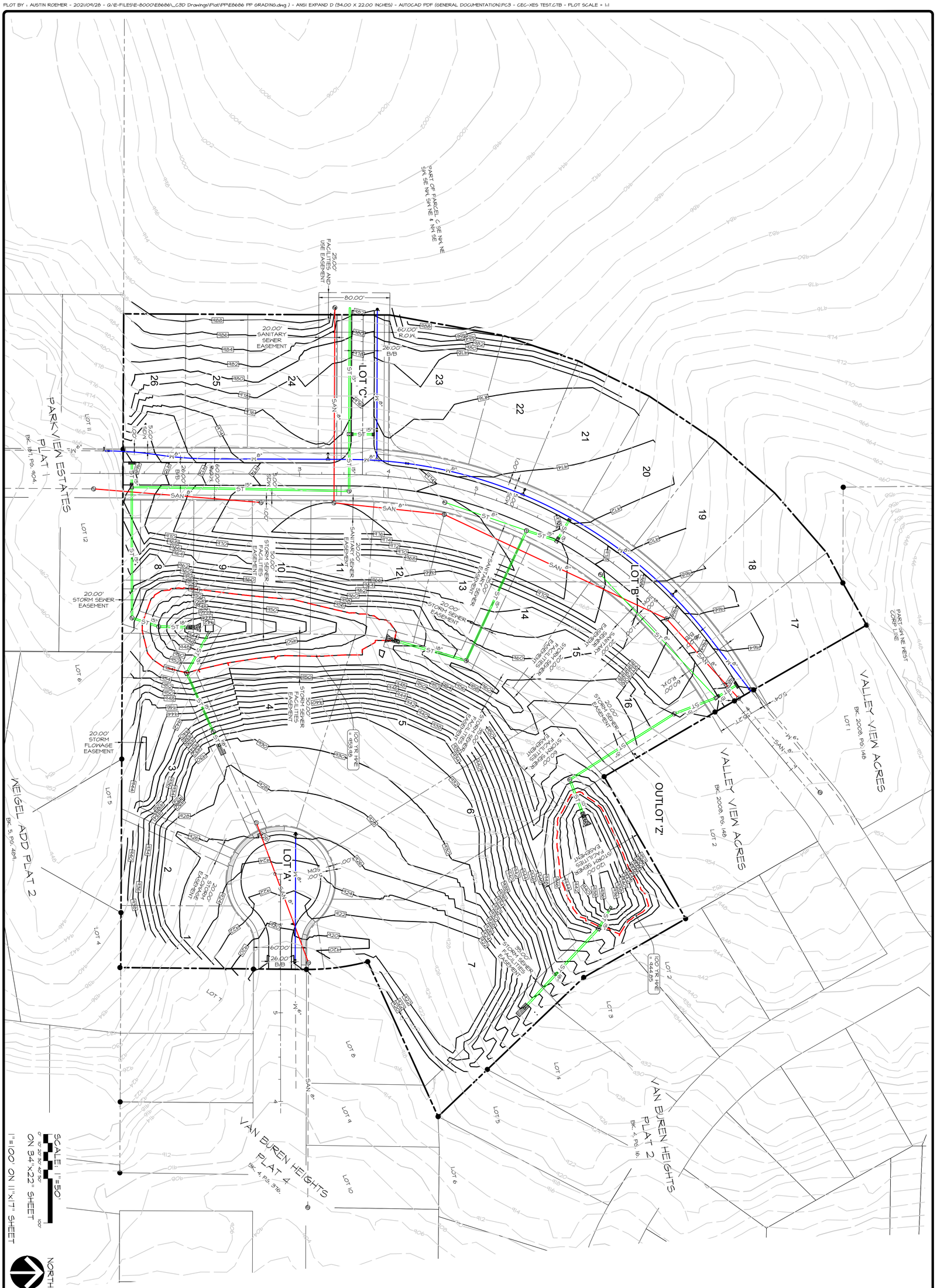
HUDSON HEIGHTS PLAT 2

VAN METER, IOWA

UTILITY SHEET

SHEET 03 OF ##

E8686



PRELIMINARY

SHEET 04 OF ##

E8686

HUDSON HEIGHTS PLAT 2

VAN METER, IOWA

GRADING SHEET

PUBLISH DATE: September 28, 2021

DATE OF SURVEY: 10-14-2019
DESIGNED BY: PC
DRAWN BY: MEH

CEC
Civil Engineering Consultants, Inc.
2400 86th Street . Unit 12 . Des Moines, Iowa 50322
515.276.4884 . Fax: 515.276.7084 . mail@ceclac.com

STORMWATER MANAGEMENT REPORT

Project: Hudson Heights Plat 2
Prepared By: Paul Clausen, P.E.
Austin Roemer, E.I.T.

CEC
Civil Engineering Consultants, Inc.

Date: September 27, 2021
Revised:
Project No: E8686

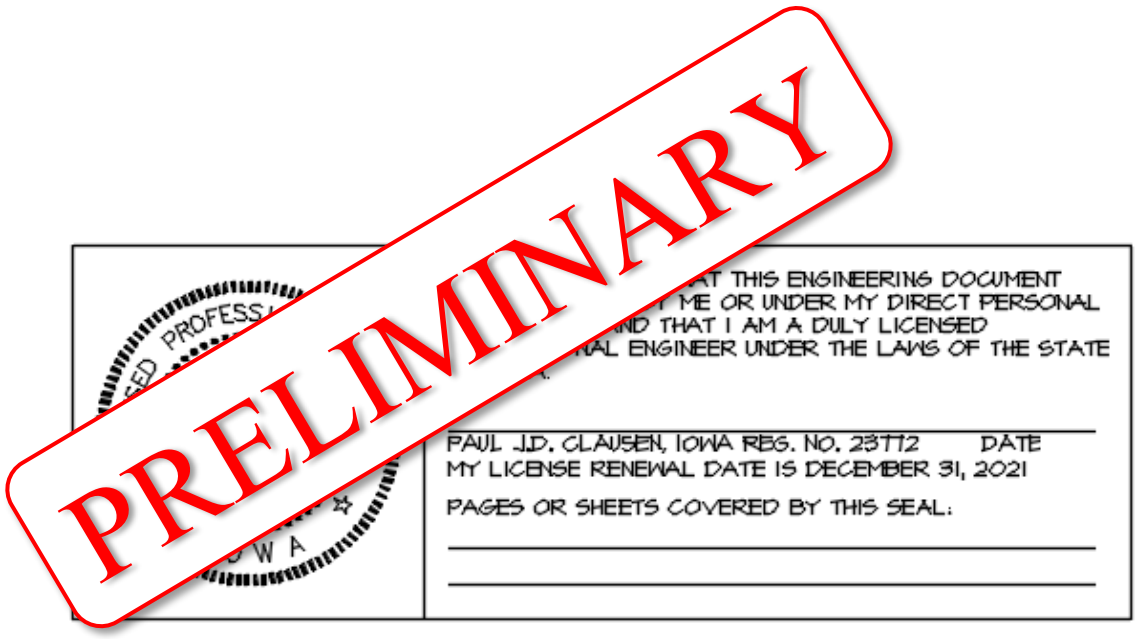


Table of Contents

1. Site Characteristics

a. Pre-developed Conditions

Hudson Heights Plat 2 is a 11.51-acre site located adjacent to and north of Park Street, west of Arlington Avenue, and south of Van Buren Drive in Van Meter, Iowa. The entire site will be disturbed during improvements. Stormwater runoff drains towards the east into unnamed ditches and streams, ending in the North Raccoon River.

The soils predominantly consist of Ladoga silty clay loam with slopes between 9% to 14%; Van Meter silt loam with slopes between 14% to 30%; and Colo, occasionally flooded-Ely silty clay loams, dissected till plain with slopes between 1% to 3%. Ladoga silty clay loam is classified as Hydrologic Soils Group C. Van Meter silt loam is classified as Hydrologic Soils Group D. Colo, occasionally flooded-Ely silty clay loams, dissected till plain is classified as Hydrologic Soils Group C/D. Hydrologic soils group C/D soils have a low infiltration rate when thoroughly wet with a slow rate of water transmission. The USDA Hydrologic Soils Report may be found in the Appendix.

b. Post-development Conditions

Hudson Heights Plat 2 project will consist of the development of twenty-six single-family residential lots and a 0.03-arce outlot. The entire site will be disturbed during improvements. Three detention basins will provide stormwater detention for the site. Two detention basins will be located on the northeast side of the site; the other basin will be centrally located on the south side of the site. The detention basins will release stormwater runoff into unnamed ditches and streams before ultimately draining to the North Raccoon River. The proposed conditions are assumed to have soils classified as Hydrologic Soils Group C.

c. Peak Stormwater Runoff Table

Stormwater Runoff Rate Summary							
Area Description	Area (Acres)	Runoff Rate, cfs					
		2-year	5-year	10-year	25-year	50-year	100-year
EXISTING DA	11.56	15.45	**23.99**	32.15	45.37	56.83	69.10
OFFSITE WEST (DET)	1.76	2.35	**3.65**	4.90	6.91	8.65	10.52
OFFSITE SOUTH (UNDET)	0.54	1.38	1.92	2.42	3.18	3.82	4.49
OFFSITE CENTRAL (PASS-THRU)	0.10	0.26	0.36	0.45	0.59	0.71	0.83
OFFSITE NORTH (PASS-THRU)	0.24	0.61	0.85	1.08	1.41	1.70	2.00
DEV CENTRAL DA	4.36	9.50	13.36	16.88	22.27	26.80	31.57
DEV NORTH DA	3.06	6.67	9.37	11.85	15.63	18.81	22.16
DEVELOPED UNDETAINED	4.14	7.37	10.79	14.01	19.00	23.25	**27.75**
CENTRAL POND		0.63	0.67	0.69	0.72	0.74	**0.76**
NORTH POND		0.24	0.26	0.28	0.30	0.32	**0.33**
TOTAL SITE		8.24	11.72	14.98	20.02	24.31	**28.84**
CENTRAL POND + PASS-THRU		0.63	0.67	0.69	0.72	0.74	**0.76**
NORTH POND + PASS-THRU		0.24	0.27	0.29	0.31	0.33	**0.34**
TOTAL SITE + OFFSITE RELEASE		9.22	13.13	16.76	22.36	27.12	**32.15**

d. Contributing Off-site Drainage

Approximately 2.40 acres of offsite area will drain onto the Hudson Heights Plat 2 site.

Offsite West consists of 1.76 acres of pasture and will be detained for on-site.

Offsite North consists of 0.24 acres of single-family residential, Offsite South consists of 0.54 acres of single-family residential, and Offsite Central consists of 0.10 acres of single-family residential. Offsite North, Offsite South, and Offsite Central will be treated as pass-thru. Refer to the drainage maps found in the Appendix.

e. Floodways, Floodplains and Wetlands

See Appendix for the Wetlands map and FIRM Panel Number 19049C0340F, effective date December 7, 2018.

2. Drainage Basin

a. Pre-developed Analysis

1) Pre-developed Land Use

All CN Values are from Section 2B-4

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Area (ac)	Curve Number
Existing DA	Pasture, grassland, or Range – good condition	C	11.56	74
Total Area / Weighted Curve Number			**11.56**	**74**
			=====	==

2) Precipitation Model

Rainfall Intensity Duration Frequency (IDF) Curve.

1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
2.67	**3.08**	**3.81**	**4.46**	**5.44**	**6.26**	**7.12**

3) Time of Concentration

		TIME OF CONCENTRATION
		SUBAREA
		Existing DA
SHEET FLOW	n (Manning's "n")	0.15
	L (length of flow)	100.0
	P2 (two year, 24 hr rainfall)	3.08
	S (slope in ft/ft)	5.44%
	T_{SF} (MINUTES)	6.69
SHALLOW CONCENTRATED FLOW	L (length of flow in feet)	726.1
	S (slope in ft/ft)	8.73%
	Ground Cover	SHORT-GRASS
	Velocity Coefficent (TABLE 2-B-3.02)	6.96
	V (ft/sec)	2.06
	T_{CF} (MINUTES)	5.88
CHANNEL FLOW	n (mannings "n")	N/A
	A (cross sectional area)	N/A
	P (wetted perimter)	N/A
	S (slope ft/ft)	N/A
	V (velocity ft/sec)	N/A
	L (Length of flow in feet)	N/A
	T_{CF} (MINUTES)	N/A
TIME OF CONCENTRATION (MINUTES)		12.58

4) Summary of Pre-Developed Runoff

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period					
	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
	(hr)	(hr)	(hr)	(hr)	(hr)	(hr)
SUBAREAS						
Existing DA	15.45	**23.99**	32.15	45.37	56.83	69.10
	12.03	12.03	12.00	12.00	12.00	12.00

b. Offsite Runoff Analysis

1) Watershed Area

All CN Values are from Section 2B-4

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Area (ac)	Curve Number
Offsite West	Pasture, grassland, or Range – good condition	C	1.76	74
Offsite South	Residential district by average lot size – ¼ acre	C	0.54	83
Offsite Central	Residential district by average lot size – ¼ acre	C	0.10	83
Offsite North	Residential district by average lot size – ¼ acre	C	0.24	83

2) Time of Concentration

		TIME OF CONCENTRATION
		SUBAREA
		OFFSITE WEST
SHEET FLOW	n (Manning's "n")	0.15
	L (length of flow)	100.0
	P2 (two year, 24 hr rainfall)	3.08
	S (slope in ft/ft)	3.29%
	T_{SF} (MINUTES)	8.18
SHALLOW CONCENTRATED FLOW	**L (length of flow in feet)**	209.5
	S (slope in ft/ft)	7.08%
	Ground Cover	SHORT-GRASS
	Velocity Coefficent (TABLE 2-B-3.02)	6.96
	V (ft/sec)	1.85
	T_{CF} (MINUTES)	1.89
CHANNEL FLOW	**n (mannings "n")**	N/A
	A (cross sectional area)	N/A
	P (wetted perimter)	N/A
	S (slope ft/ft)	N/A
	V (velocity ft/sec)	N/A
	L (Length of flow in feet)	N/A
	T_{CF} (MINUTES)	N/A
TIME OF CONCENTRATION (MINUTES)		**10.07**

***Min ToC of 5 minutes used for Offsite North, Offsite South, and Offsite Central.**

3) Precipitation Model

Rainfall Intensity Duration Frequency (IDF) Curve.

1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
2.67	**3.08**	**3.81**	**4.46**	**5.44**	**6.26**	**7.12**

4) Summary of Offsite Runoff

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 2-Yr (cfs) (hr)	5-Yr (cfs) (hr)	10-Yr (cfs) (hr)	25-Yr (cfs) (hr)	50-Yr (cfs) (hr)	100-Yr (cfs) (hr)
SUBAREAS						
Offsite West (Detained)	2.35 12.03	**3.65** 12.03	4.90 12.00	6.91 12.00	8.65 12.00	10.52 12.00
Offsite South (Undetained)	1.38 11.93	1.92 11.93	2.42 11.93	3.18 11.93	3.82 11.93	4.49 11.93
Offsite Central (Pass-Thru)	0.26 11.93	0.36 11.93	0.45 11.93	0.59 11.93	0.71 11.93	0.83 11.93
Offsite North (Pass-Thru)	0.61 11.93	0.85 11.93	1.08 11.93	1.41 11.93	1.70 11.93	2.00 11.93

c. Post-development Runoff Analysis

1) Developed Drainage Area

Sub-Area Identifier	Land Use	Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Central DA	Residential districts by average lot size – ¼ acre	C	4.36	83
North DA	Residential districts by average lot size – ¼ acre	C	3.06	83
DEV UNDET	Residential districts by average lot size – ½ acre	C	2.46	79
	– 1 acre	C	1.68	80
	Total	**C**	**4.14**	**79**
			=====	
	Total Area:		**11.56**	

2) Time of Concentration

The time of concentration for the Central DA, North DA, East DA, and DEV UNDET is assumed to be 10 minutes.

3) Summary of Developed Runoff

Hydrograph Peak/Peak Time Table

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period					
	2-Yr (cfs) (hr)	5-Yr (cfs) (hr)	10-Yr (cfs) (hr)	25-Yr (cfs) (hr)	50-Yr (cfs) (hr)	100-Yr (cfs) (hr)
SUBAREAS						
Central DA	9.50 12.00	13.36 12.00	16.88 12.00	22.27 12.00	26.80 12.00	**31.57** 12.00
North DA	6.67 12.00	9.37 12.00	11.85 12.00	15.63 12.00	18.81 12.00	**22.16** 12.00
DEV UNDET	7.37 12.03	10.79 12.00	14.01 12.00	19.00 12.00	23.25 12.00	**27.75** 12.00

d. Stormwater Conveyance Design

1) Design Information References

i. The Rational Method was used to determine design flows. Manning's Equation was used to determine pipe capacities.
ii. Intakes were located to provide bypass flows below the maximum 50% bypass flow for the 5-year event. (See Figure 5.1 Storm Sewer Intake Calculations)
iii. Low point intakes were designed to intercept the 100-year storm event. Pipes downstream from low point intakes were designed to convey 100-year flows.
iv. Cleansing velocities within storm sewer pipes were calculated using ½ full pipes. All cleansing velocities were between 3 fps and 15 fps.

2) Storm Sewer

1. Storm Sewer System

a. Intake Calculations

Storm Sewer Calculations for Hudson Heights Plat 2

* LP or CG= intake is at a low point or continuous grade

LP=0 CG=1 AREA=3

n = 0.016 Broom Finish Concrete (typical for most streets)

A	B	D	E	F	G	H	I	J	K	L	M	N	O	O	P	R		S	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
DRAINAGE AREA IDENTIFIER	**Area (ac)**	**I5 (in/hr)**	**I10 (in/hr)**	**I100 (in/hr)**	**c5**	**c10**	**c100**	**Q5 (cfs)**	**Q10 (cfs)**	**Q100 (cfs)**	**q5 + bypass**	**q10 + bypass**	**q100 + bypass**	*** CG LP**	**INT. Type SW-**	**Slope (ft/ft)**	**Street X-Slope**	**Road Width (ft)**	**Q_{i5} (cfs)**	**Q_{i10} (cfs)**	**Q_{i100} (cfs)**	**d5 ft**	**d10 ft**	**d100 (ft)**	**Qb5 (cfs)**	**Qb10 (cfs)**	**Qb100 (cfs)**	**%Capture 5Yr**	**%Capture 10Yr**	**%Capture 100Yr**	**Bypasses To Intake**
ST 206	0.00	4.12	4.82	7.44	0.45	0.50	0.65	0.06	0.06	0.06	0.06	0.06	0.06	0	**501**	4.00%	2.00%	13.0	0.06	0.06	0.06	0.03	0.03	0.03	0.00	0.00	0.00	100%	100%	100%	MANHOLE
ST 205	1.50	4.12	4.82	7.44	0.45	0.50	0.65	2.78	3.62	7.25	3.47	4.52	9.74	1	**505**	4.00%	2.00%	13.0	3.03	3.94	7.65	0.13	0.13	0.13	0.44	0.57	2.09	87%	87%	79%	OFFSITE
ST 204	0.39	4.12	4.82	7.44	0.45	0.50	0.65	0.72	0.94	1.89	0.84	1.12	2.48	1	**505**	4.00%	2.00%	13.0	0.77	1.01	1.95	0.10	0.12	0.13	0.07	0.11	0.53	92%	90%	79%	OFFSITE
ST 106	0.00	4.12	4.82	7.44	0.45	0.50	0.65	0.04	0.04	0.04	0.04	0.04	0.04	0	**501**	1.00%	2.00%	13.0	0.04	0.04	0.04	0.02	0.02	0.02	0.00	0.00	0.00	100%	100%	100%	MANHOLE
ST 105	1.31	4.12	4.82	7.44	0.45	0.50	0.65	2.43	3.16	6.34	2.77	3.64	7.70	1	**501**	3.00%	2.00%	13.0	2.09	2.74	5.21	0.13	0.13	0.13	0.69	0.90	2.49	75%	75%	68%	ST 205
ST 104	0.38	4.12	4.82	7.44	0.45	0.50	0.65	0.70	0.92	1.84	0.70	0.92	1.84	1	**501**	3.00%	2.00%	13.0	0.59	0.74	1.24	0.10	0.11	0.13	0.11	0.18	0.59	84%	80%	68%	ST 204
ST 008	0.40	4.12	4.82	7.44	0.45	0.50	0.65	0.74	0.96	1.93	0.74	0.96	1.93	1	**501**	2.00%	2.00%	13.0	0.62	0.77	1.37	0.11	0.13	0.13	0.12	0.20	0.57	83%	80%	71%	ST 105
ST 007	0.56	4.12	4.82	7.44	0.45	0.50	0.65	1.04	1.35	2.71	1.04	1.35	2.71	1	**501**	2.00%	2.00%	13.0	0.82	1.06	1.91	0.13	0.13	0.13	0.22	0.29	0.80	79%	78%	71%	ST 105
ST 005	1.61	4.12	4.82	7.44	0.45	0.50	0.65	2.98	3.88	7.79	2.98	3.88	7.79	1	**505**	6.25%	2.00%	13.0	2.50	3.25	5.87	0.13	0.13	0.13	0.48	0.63	1.92	84%	84%	75%	OFFSITE
ST 004	0.34	4.12	4.82	7.44	0.45	0.50	0.65	0.63	0.82	1.64	0.63	0.82	1.64	1	**505**	6.25%	2.00%	13.0	0.59	0.75	1.26	0.09	0.10	0.12	0.04	0.07	0.38	94%	92%	77%	OFFSITE

b. Pipe Calculations

All Minimum Pipe Slopes are based on using RCP
No Pipe Slopes less than 0.40% shall be used

Struc	to	Struc	Cumm Q_5pipe cfs	Cumm Q_{10}pipe cfs	Cumm Q_{100}pipe cfs	DESIGN STORM	Min 24"	Min 21"	Min 18"	Min 15"	Min 12"	Min 8"	PIPE DESIGN	
							24	21	18	15	12	8	PIPE SIZE	SLOPE
ST 206	to	ST 204	0.06	0.06	0.06	Q5pipe cfs	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8	4.75%
ST 205	to	ST 204	3.03	3.94	7.65	Q5pipe cfs	0.02%	0.04%	0.08%	0.22%	0.72%	2.99%	15	1.00%
ST 204	to	ST 203	3.86	5.01	9.66	Q5pipe cfs	0.03%	0.06%	0.13%	0.36%	1.17%	4.86%	15	3.50%
ST 203	to	ST 202	3.86	5.01	9.66	Q100pipe cfs	0.18%	0.37%	0.84%	2.22%	7.31%	30.47%	15	8.00%
ST 202	to	ST 201	3.86	5.01	9.66	Q100pipe cfs	0.18%	0.37%	0.84%	2.22%	7.31%	30.47%	18	2.00%
ST 106	to	ST 103	0.04	0.04	0.04	Q5pipe cfs	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8	2.75%
ST 105	to	ST 104	2.09	2.74	5.21	Q5pipe cfs	0.01%	0.02%	0.04%	0.10%	0.34%	1.42%	15	1.00%
ST 104	to	ST 103	2.68	3.48	6.46	Q100pipe cfs	0.08%	0.17%	0.38%	0.99%	3.27%	13.62%	15	1.00%
ST 103	to	ST 102	2.72	3.52	6.50	Q100pipe cfs	0.08%	0.17%	0.38%	1.01%	3.31%	13.79%	15	7.50%
ST 102	to	ST 101	2.72	3.52	6.50	Q100pipe cfs	0.08%	0.17%	0.38%	1.01%	3.31%	13.79%	18	0.50%
ST 008	to	ST 007	0.62	0.77	1.37	Q5pipe cfs	0.00%	0.00%	0.00%	0.01%	0.03%	0.12%	15	1.00%
ST 007	to	ST 006	1.43	1.83	3.28	Q5pipe cfs	0.00%	0.01%	0.02%	0.05%	0.16%	0.67%	15	1.00%
ST 006	to	ST 004	1.43	1.83	3.28	Q5pipe cfs	0.00%	0.01%	0.02%	0.05%	0.16%	0.67%	15	3.00%
ST 005	to	ST 004	2.50	3.25	5.87	Q5pipe cfs	0.01%	0.02%	0.06%	0.15%	0.49%	2.04%	15	1.00%
ST 004	to	ST 003	4.53	5.83	10.41	Q100pipe cfs	0.21%	0.43%	0.98%	2.58%	8.49%	35.37%	15	8.00%
ST 003	to	ST 002	4.53	5.83	10.41	Q100pipe cfs	0.21%	0.43%	0.98%	2.58%	8.49%	35.37%	15	8.00%
ST 002	to	ST 001	4.53	5.83	10.41	Q100pipe cfs	0.21%	0.43%	0.98%	2.58%	8.49%	35.37%	18	2.50%

c. TR-55 Design Limitations

TR-55 includes a method for estimating required storage volume based upon peak inflow, peak outflow, and total runoff volume. This method may result in storage errors of 25% and should not be used in final design. The detention basin size in final design should be based upon actual hydrograph routing utilizing methods such as WINTR-55 or TR-20.

e. Stormwater Facilities Design – Onsite

1) Release Rate

The allowed release rate of the Hudson Heights Plat 2 site during the developed 100-year rain event will be limited to the peak stormwater runoff rate of the 5-year rain event with pre-developed conditions plus the release rate of 5-year storm for the detained offsite.

$Q_{ALLOWABLE\ RELEASE} = Q_{5\text{-}YEAR\ ONSITE\ PREDEVELOPED} + Q_{5\text{-}YEAR\ OFFSITE\ WEST}$

$Q_{ALLOWABLE\ RELEASE}$ = 23.99 cfs + 3.65 cfs = **27.64 cfs**

$Q_{100\ DEVELOPED} = Q_{100\ CENTRAL\ POND} + Q_{100\ NORTH\ POND} + Q_{100\ DEV\ UNDET}$

$Q_{100\ DEVELOPED}$ = 0.76 cfs + 0.33 cfs + 27.75 cfs = **28.84 cfs**

2) Central Detention Basin Performance

The Hydraflow Hydrographs (see Appendix) show the detention basin performance for the developed Central Drainage Area + Offsite Central Pass-Thru. There will be a two-stage outlet structure for the detention pond. The outlet will consist of a 4" orifice set at an elevation of 942.00. The proposed detention basin will release 0.76 cfs from the site during the 100-year rain event with a high-water elevation of 953.98 and volume of 97,450 cubic feet.

The 2nd stage outlet weir will consist of an SW-513 area intake weir structure with openings on 3 sides set at an elevation of 954.00. This structure will allow for catastrophic flow events and offsite pass-thru flow to be conveyed downstream. There is a 20' emergency overflow at an elevation of 954.50 should the outlet structure fail. The top of pond is set at an elevation of 955.00 providing approximately 1.0' of freeboard during the 100-year rain event.

3) North Detention Basin Performance

The Hydraflow Hydrographs (see Appendix) show the detention basin performance for the developed North Drainage Area + Offsite North Pass-Thru. There will be a two-stage outlet structure for the detention pond. The outlet will consist of a 3" orifice set at an elevation of 935.00. The proposed detention basin will release 0.34 cfs from the site during the 100-year rain event with a high-water elevation of 944.85 and volume of 58,545 cubic feet.

The 2nd stage outlet weir will consist of an SW-513 area intake weir structure with openings on 3 sides set at an elevation of 945.00. This structure will allow for catastrophic flow events to be conveyed downstream. There is a 20' emergency overflow at an elevation of 945.50 should the outlet structure fail. The top of pond is set at an elevation of 946.00 providing approximately 1.1' of freeboard during the 100-year rain event.

3. Energy Dissipation Design

The soils predominantly consist of Ladoga silty clay loam with slopes between 9% to 14%; Vanmeter silt loam with slopes between 14% to 30%; and Colo, occasionally flooded-Ely silty clay loams, dissected till plain with slopes between 1% to 3%. Ladoga silty clay loam is classified as Hydrologic Soils Group C. Vanmeter silt loam is classified as Hydrologic Soils Group D. Colo, occasionally flooded-Ely silty clay loams, dissected till plain is classified as Hydrologic Soils Group C/D. Hydrologic soils group C/D soils have a low infiltration rate when thoroughly wet with a slow rate of water transmission. Flared end section discharging stormwater will have rip rap to dissipate the energy of the water flowing into adjacent waterways.

ST 001:

Use 18" RCP @ 2.50%, Release Q_{100} = 10.41 cfs Pipe V_{100} = 9.91 ft/s

A 10' long x 18" deep apron (7.5 tons) of class 'E' riprap will be placed to prevent erosion. Refer to **Figure 7E-10.04:** Design of Outlet Protection, Maximum Tailwater Condition, see appendix.

ST 101:

Use 18" RCP @ 0.50%, Release Q_{100} = 6.50 cfs Pipe V_{100} = 4.71 ft/s

A 10' long x 18" deep apron (7.5 tons) of class 'E' riprap will be placed to prevent erosion. Refer to **Figure 7E-10.04:** Design of Outlet Protection, Maximum Tailwater Condition, see appendix.

ST 201:

Use 18" RCP @ 2.00%, Release Q_{100} = 9.66 cfs Pipe V_{100} = 8.92 ft/s

A 10' long x 18" deep apron (7.5 tons) of class 'E' riprap will be placed to prevent erosion. Refer to **Figure 7E-10.04:** Design of Outlet Protection, Maximum Tailwater Condition, see appendix.

ST 301:

Use 18" RCP @ 2.00%, Release Q_{100} = 0.72 cfs Pipe V_{100} = 4.14 ft/s

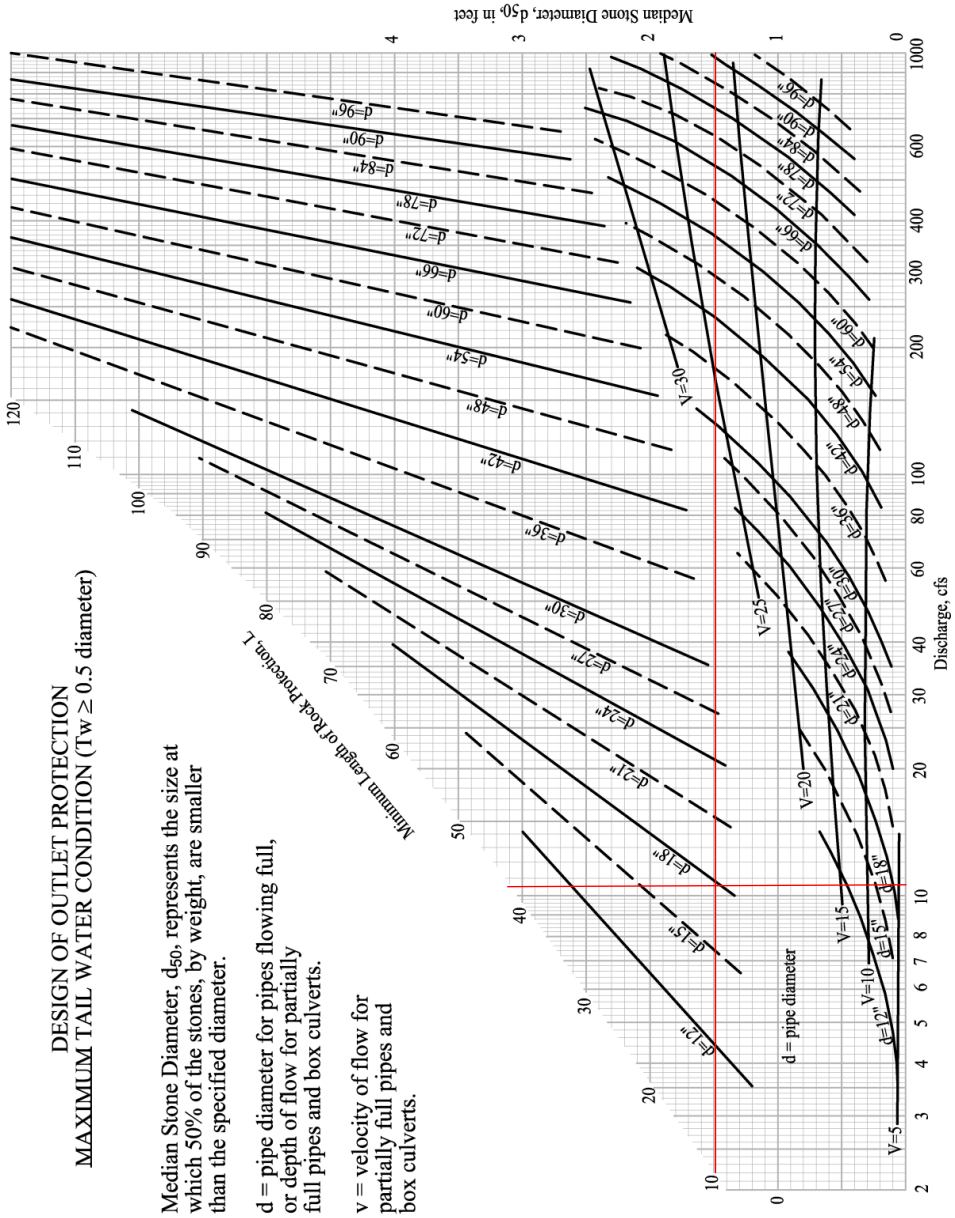
A 10' long turf reinforcement mat (11 SY) will be placed at the end of ST 301 to prevent erosion.

ST 401:

Use 18" RCP @ 0.50%, Release Q_{100} = 0.21 cfs Pipe V_{100} = 2.08 ft/s

A 10' long turf reinforcement mat (11 SY) will be placed at the end of ST 401 to prevent erosion.

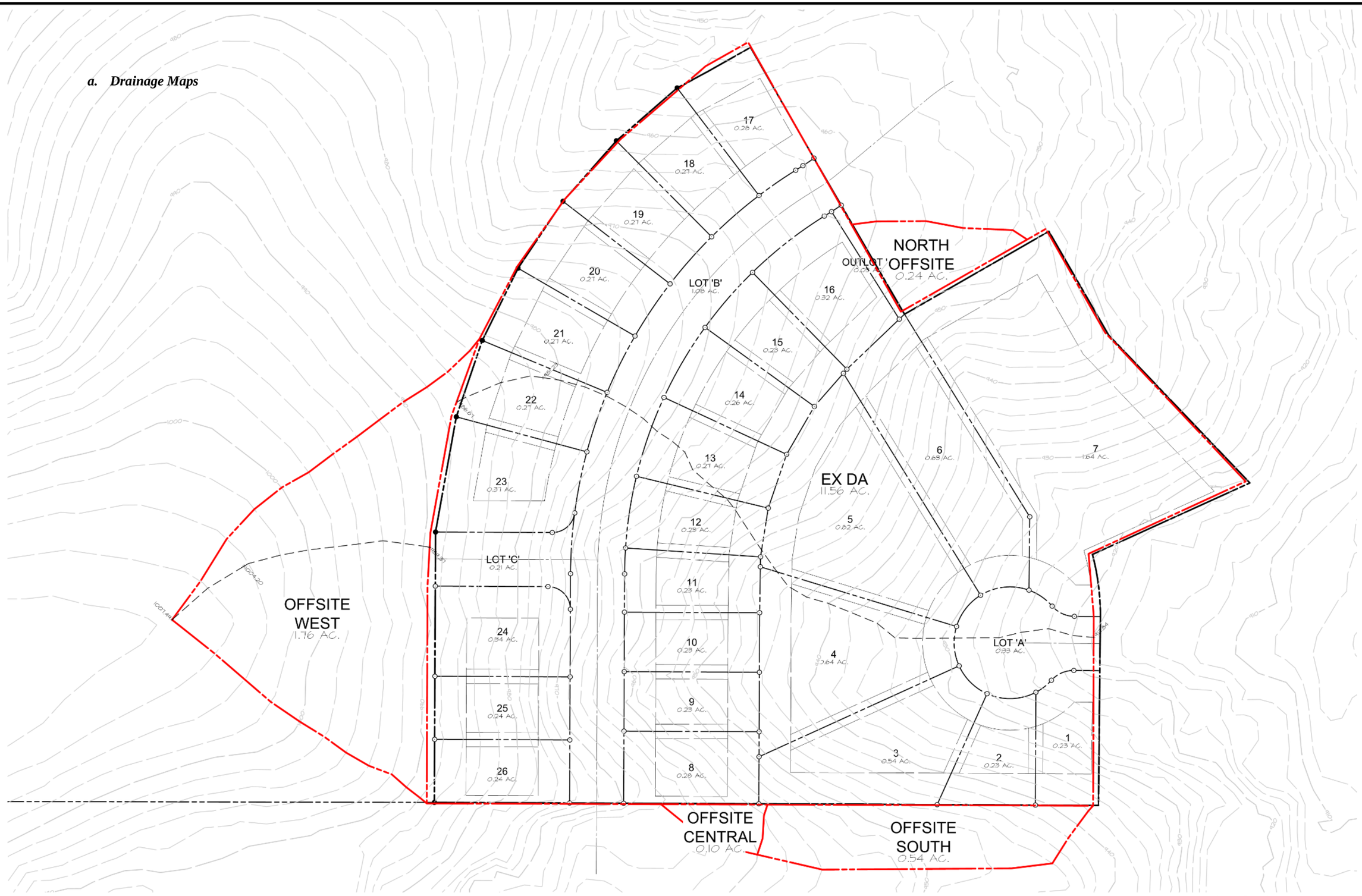
Figure 7E-10.04: Design of Outlet Protection, Maximum Tailwater Condition



4. Permits

5. Appendix

a. Drainage Maps



SCALE: 1"=50'
ON 34"X22" SHEET
1"=100' ON 11"X17" SHEET

NORTH

CEC
Civil Engineering Consultants, Inc.
2400 86th Street, Unit 12 . Des Moines, Iowa 50322
515.276.4884 . mail@ceclac.com

#	DATE	DESCRIPTION
1	--	--
2	--	--
3	--	--

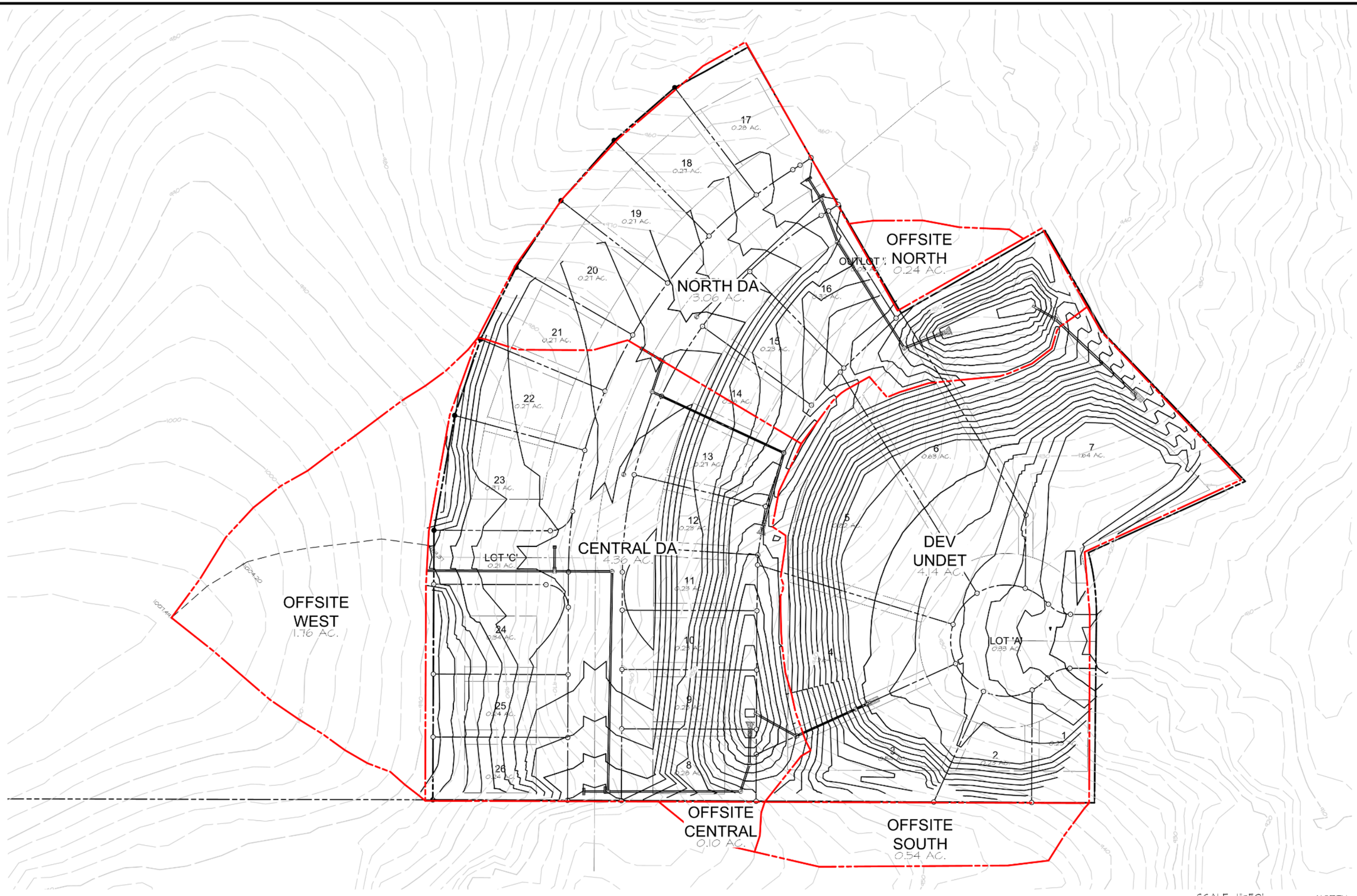
DATE OF SURVEY:
DESIGNED BY:
DRAWN BY:

HUDSON HEIGHTS PLAT 2
VAN METER, IOWA

EXISTING DRAINAGE MAP

SHEET 01 OF 03

E8686



SCALE: 1"=50'
ON 34"X22" SHEET
1"=100' ON 11"X17" SHEET

NORTH

CEC
Civil Engineering Consultants, Inc.
2400 86th Street, Unit 12 . Des Moines, Iowa 50322
515.276.4884 . mail@ceclac.com

NO.	DATE	BY	DESCRIPTION

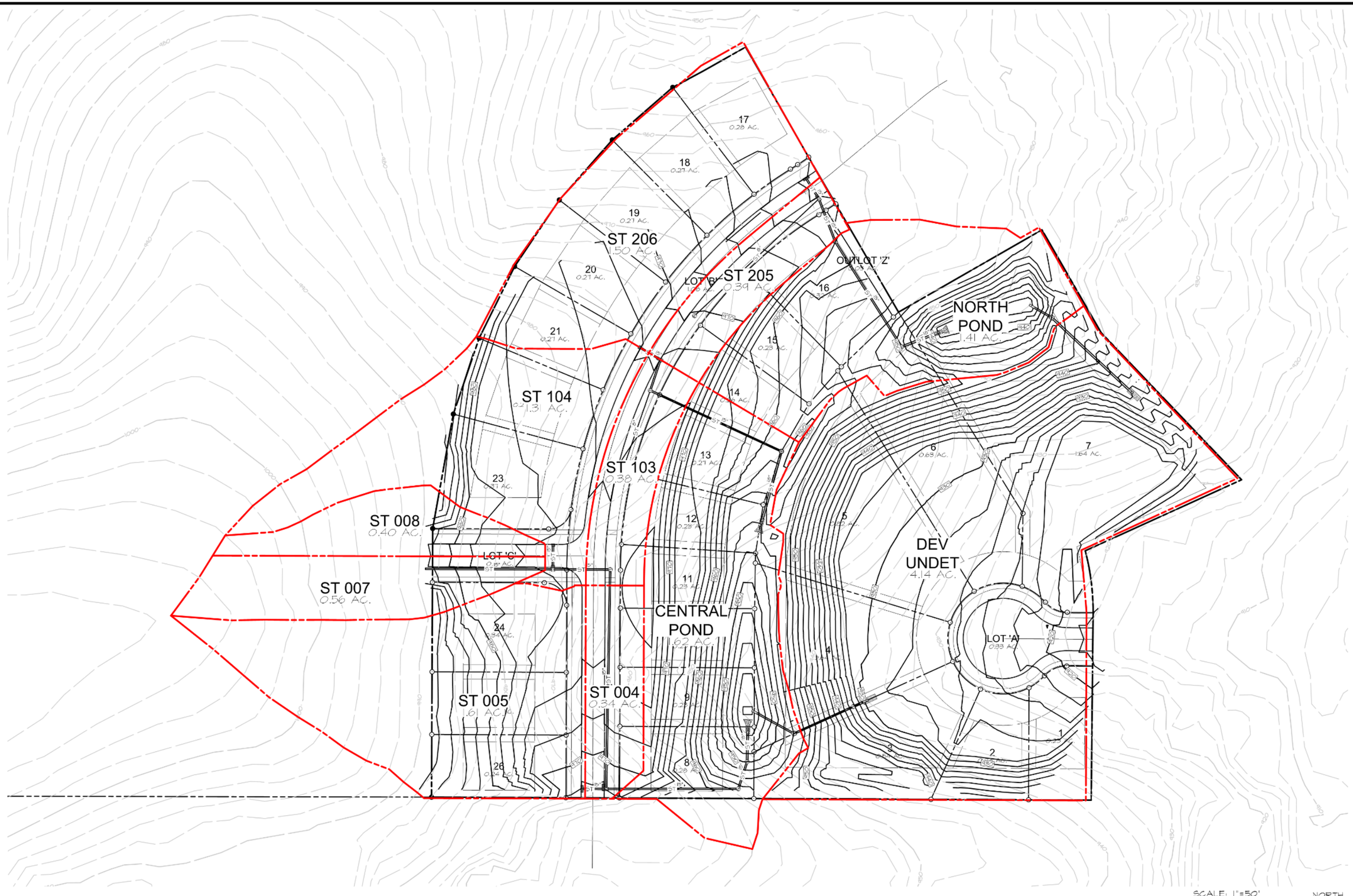
DATE OF SURVEY:
DESIGNED BY:
DRAWN BY:

HUDSON HEIGHTS PLAT 2
VAN METER, IOWA

DEVELOPED DRAINAGE MAP

SHEET
02
OF 03

E8686



CEC
Civil Engineering Consultants, Inc.
2400 86th Street, Unit 12 . Des Moines, Iowa 50322
515.276.4884 . mail@ceclac.com

ISSUE/DATE/DESCRIPTION
- - -
- - -
- - -

DATE OF SURVEY:
DESIGNED BY:
DRAWN BY:

HUDSON HEIGHTS PLAT 2

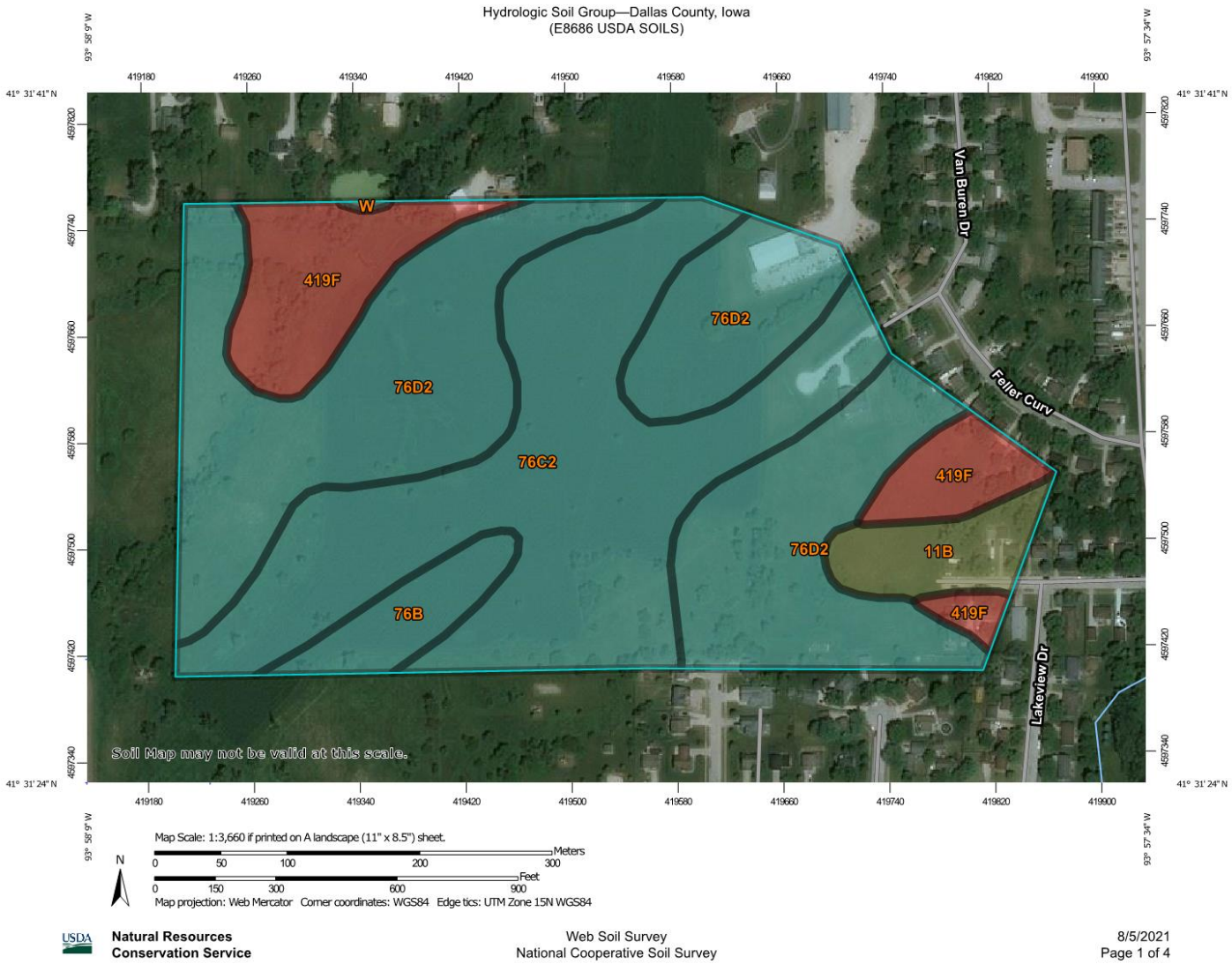
VAN METER, IOWA

INTAKE DRAINAGE MAP

SHEET 03 OF 03

E8686

b. Web Soils Soil Report



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dallas County, Iowa
Survey Area Data: Version 26, Jun 10, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2012—Sep 28, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
11B	Colo, occasionally flooded-Ely silty clay loams, dissected till plain, 2 to 5 percent slopes	C/D	2.2	4.4%
76B	Ladoga silt loam, 2 to 5 percent slopes	C	2.0	3.9%
76C2	Ladoga silty clay loam, dissected till plain, 5 to 9 percent slopes, eroded	C	17.9	35.1%
76D2	Ladoga silty clay loam, 9 to 14 percent slopes, eroded	C	22.8	44.6%
419F	Vanmeter silt loam, 14 to 30 percent slopes	D	6.0	11.8%
W	Water		0.0	0.1%
Totals for Area of Interest			**51.1**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

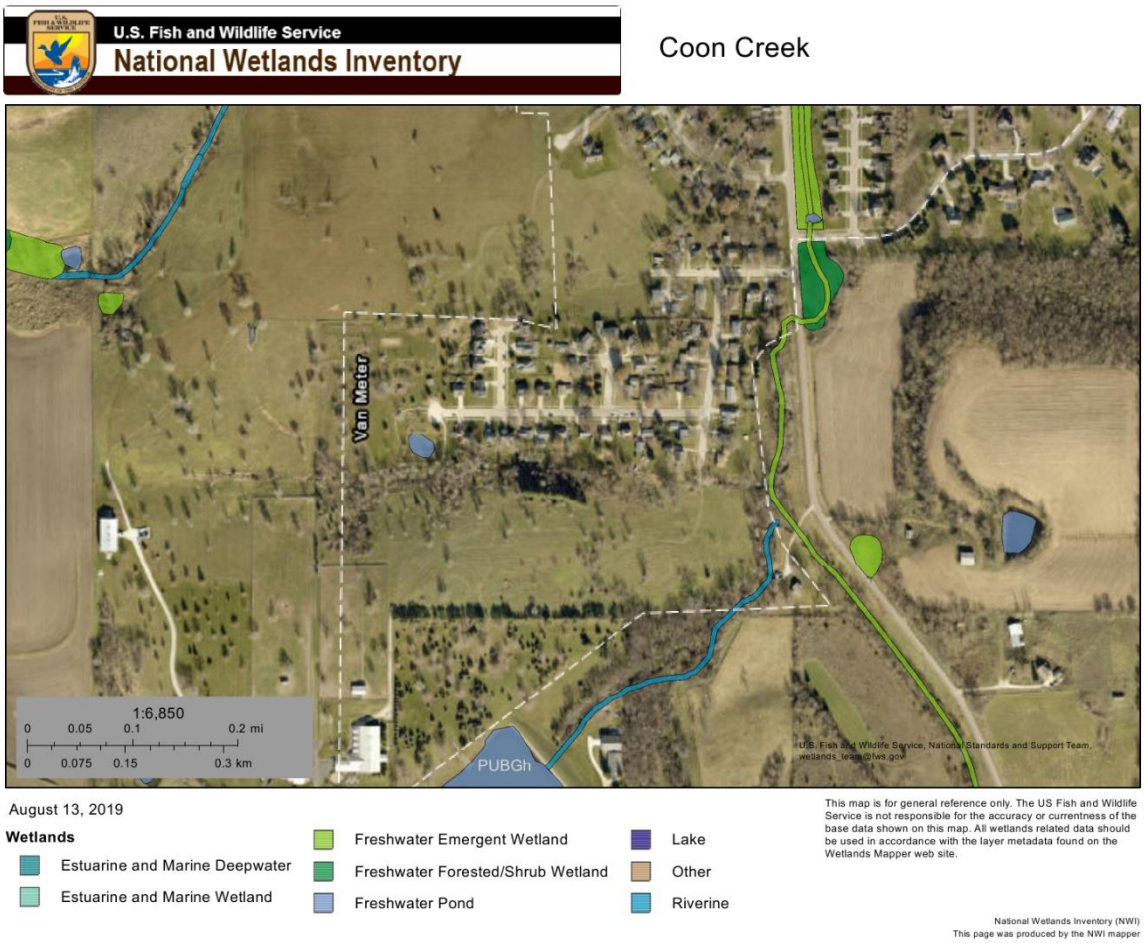
Rating Options

Aggregation Method: Dominant Condition

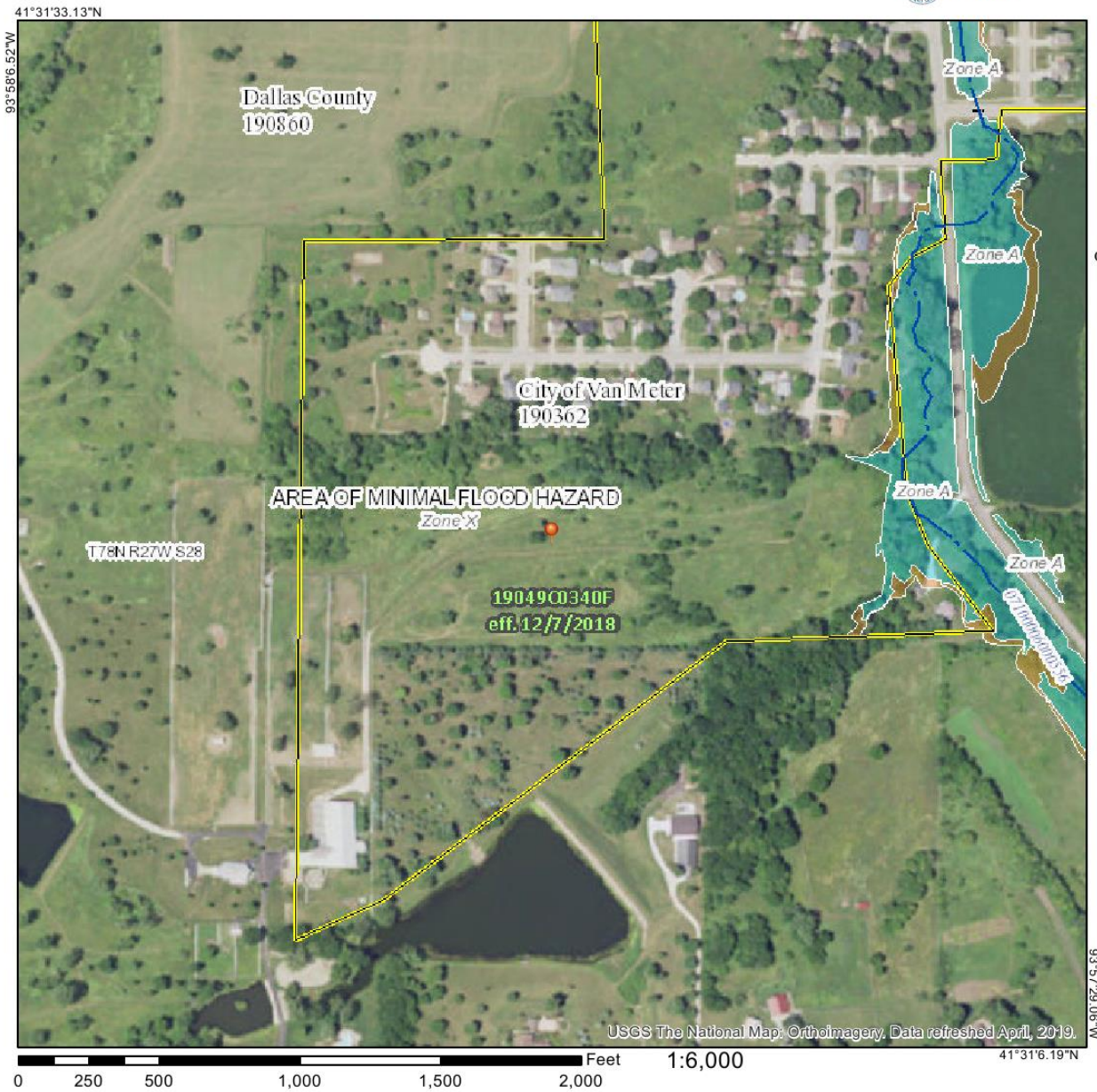
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

c. Wetlands


U.S. Fish and Wildlife Service
National Wetlands Inventory
Coon Creek
Van Meter
PUBGh
1:6,850
0 0.05 0.1 0.2 mi
0 0.075 0.15 0.3 km
U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov
August 13, 2019
Wetlands
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- **SPECIAL FLOOD HAZARD AREAS**
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- **OTHER AREAS OF FLOOD HAZARD**
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- **OTHER AREAS**
  - NO SCREEN Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- **GENERAL STRUCTURES**
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- **OTHER FEATURES**
  - 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- **MAP PANELS**
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

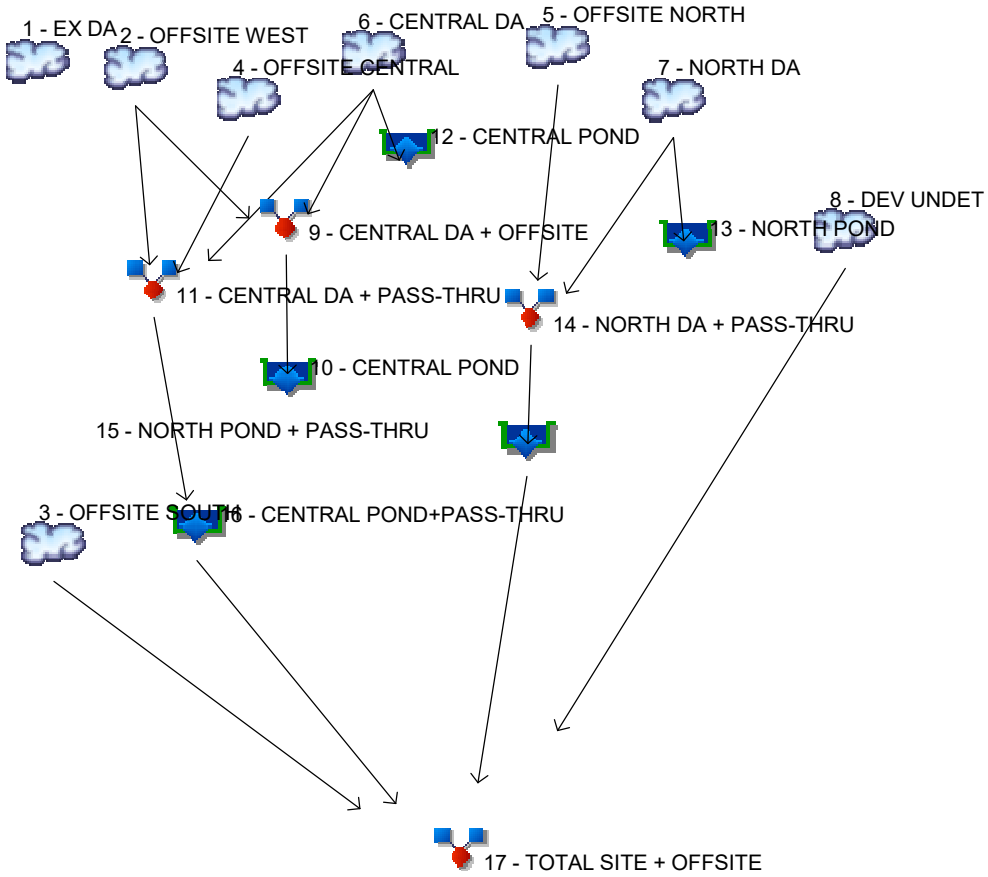
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/19/2019 at 2:48:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

d. FEMA Flood Map

e. Hydrographs Report

Watershed Model Schematic



Legend

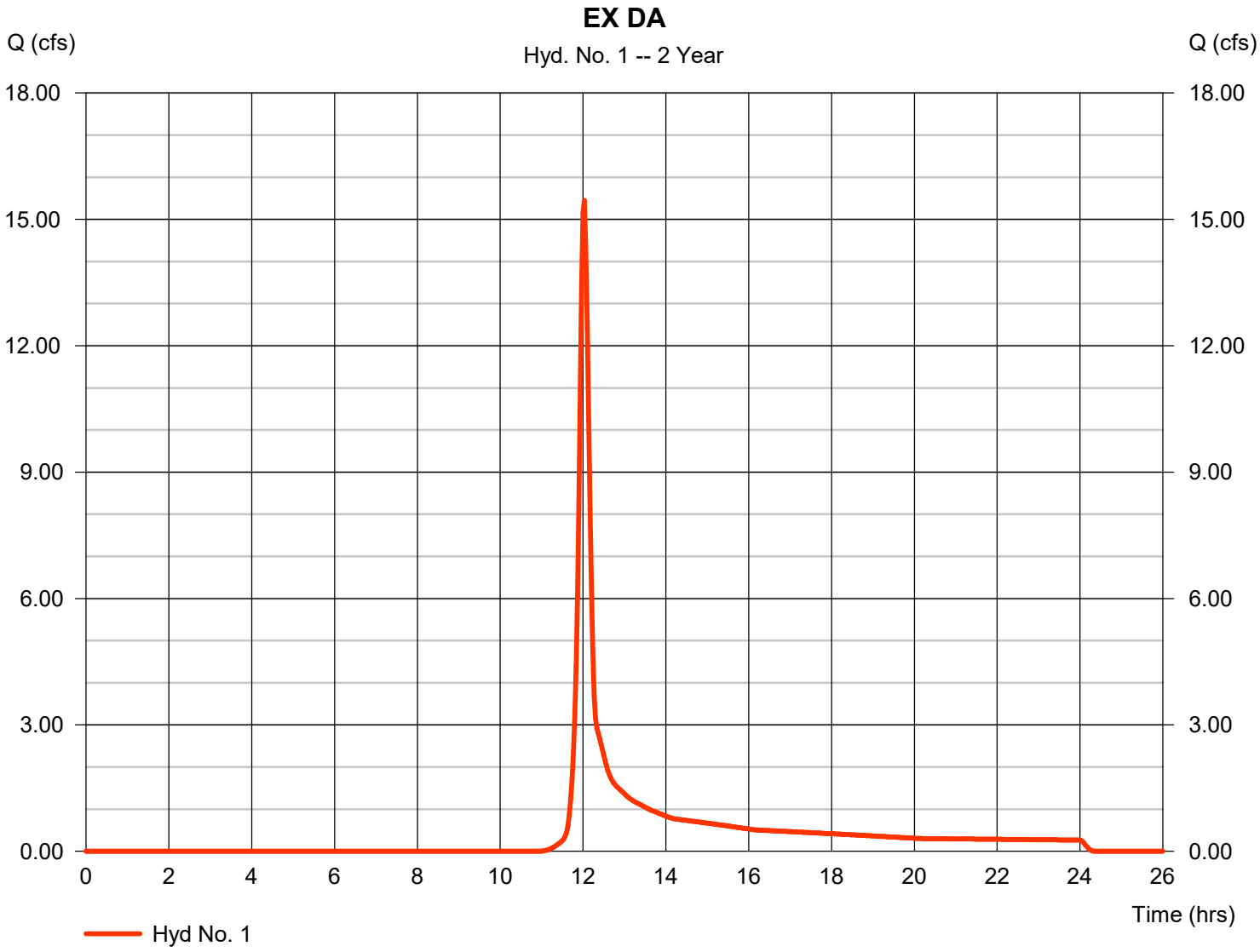
Hyd.	Origin	Description
1	SCS Runoff	EX DA
2	SCS Runoff	OFFSITE WEST
3	SCS Runoff	OFFSITE SOUTH
4	SCS Runoff	OFFSITE CENTRAL
5	SCS Runoff	OFFSITE NORTH
6	SCS Runoff	CENTRAL DA
7	SCS Runoff	NORTH DA
8	SCS Runoff	DEV UNDET
9	Combine	CENTRAL DA + OFFSITE
10	Reservoir	CENTRAL POND
11	Combine	CENTRAL DA + PASS-THRU
12	Reservoir	CENTRAL POND
13	Reservoir	NORTH POND
14	Combine	NORTH DA + PASS-THRU
15	Reservoir	NORTH POND + PASS-THRU
16	Reservoir	CENTRAL POND+PASS-THRU
17	Combine	TOTAL SITE + OFFSITE

Hydrograph Report

Hyd. No. 1

EX DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.45 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	41,516 cuft
Drainage area	=	11.560 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

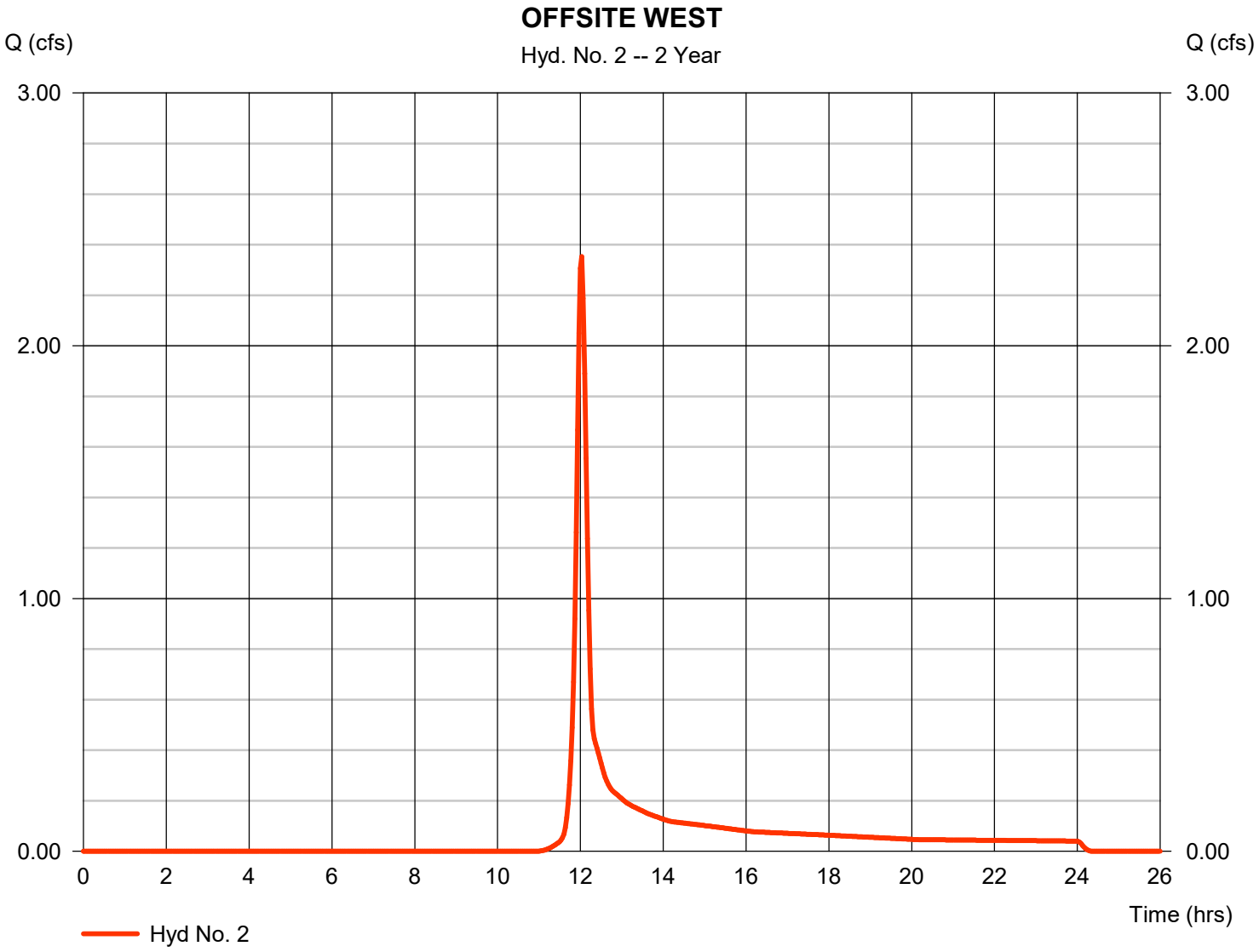


Hydrograph Report

Hyd. No. 2

OFFSITE WEST

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.352 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	6,321 cuft
Drainage area	=	1.760 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.10 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

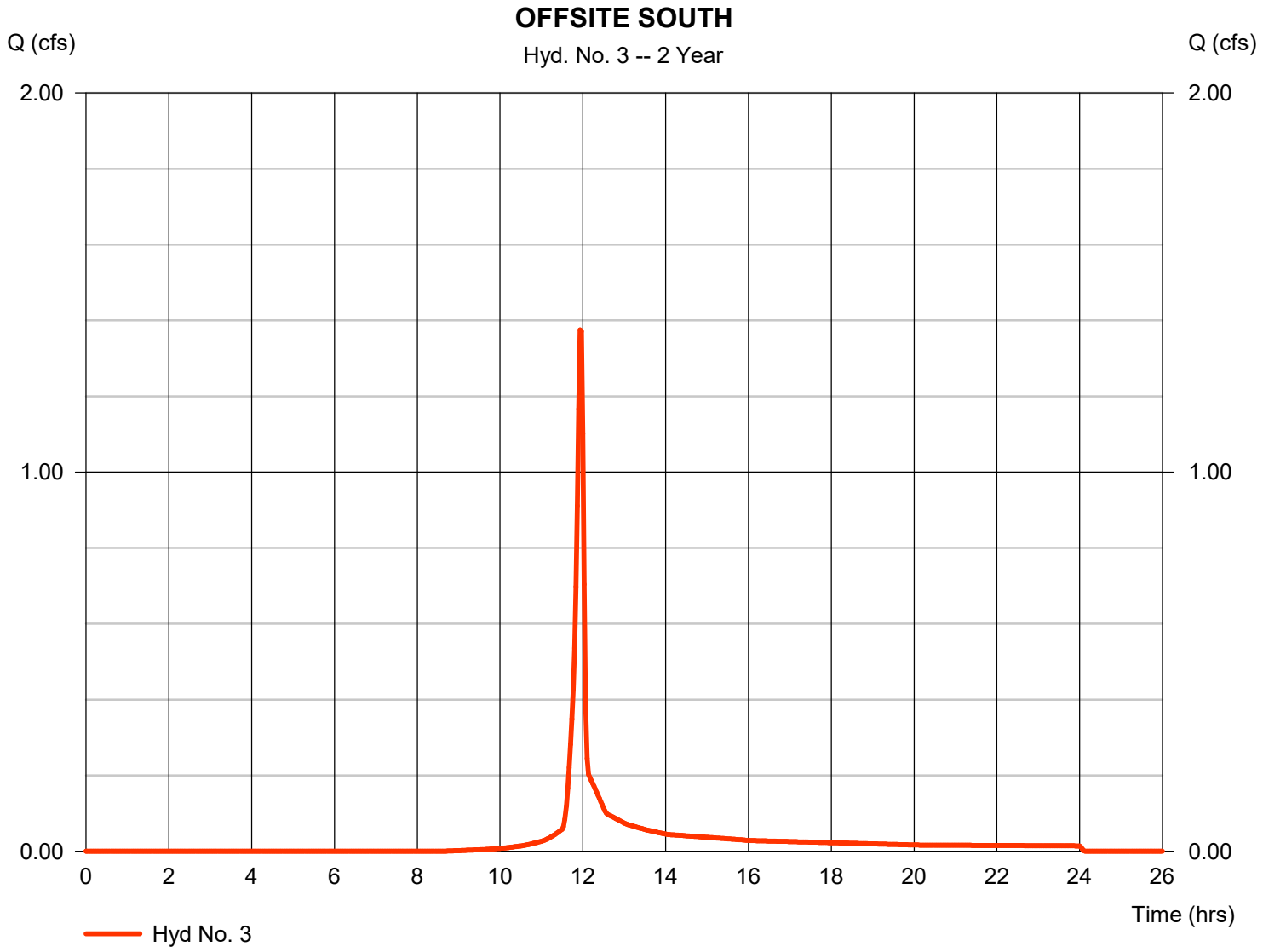


Hydrograph Report

Hyd. No. 3

OFFSITE SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.375 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	2,777 cuft
Drainage area	=	0.540 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

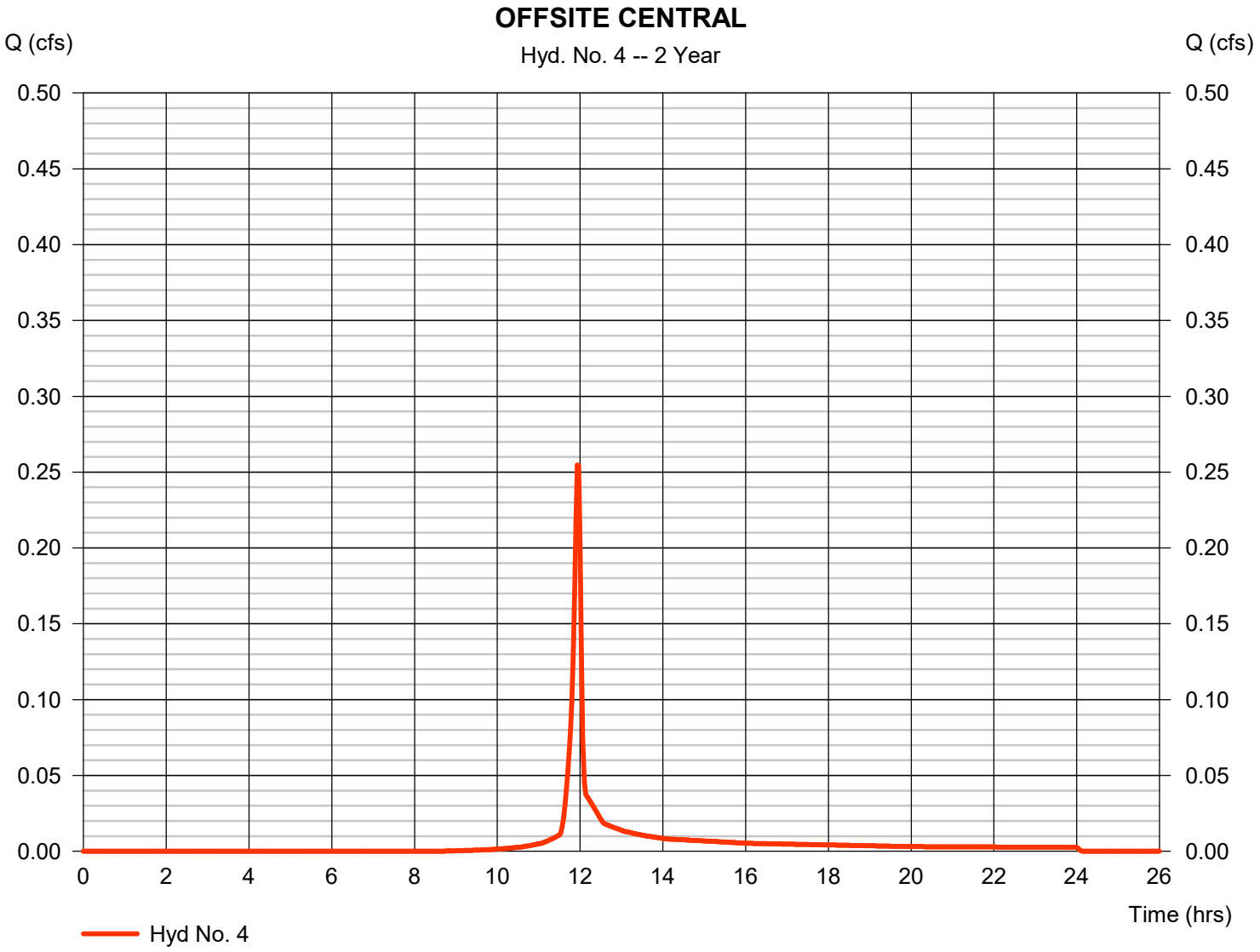


Hydrograph Report

Hyd. No. 4

OFFSITE CENTRAL

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.255 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	514 cuft
Drainage area	=	0.100 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

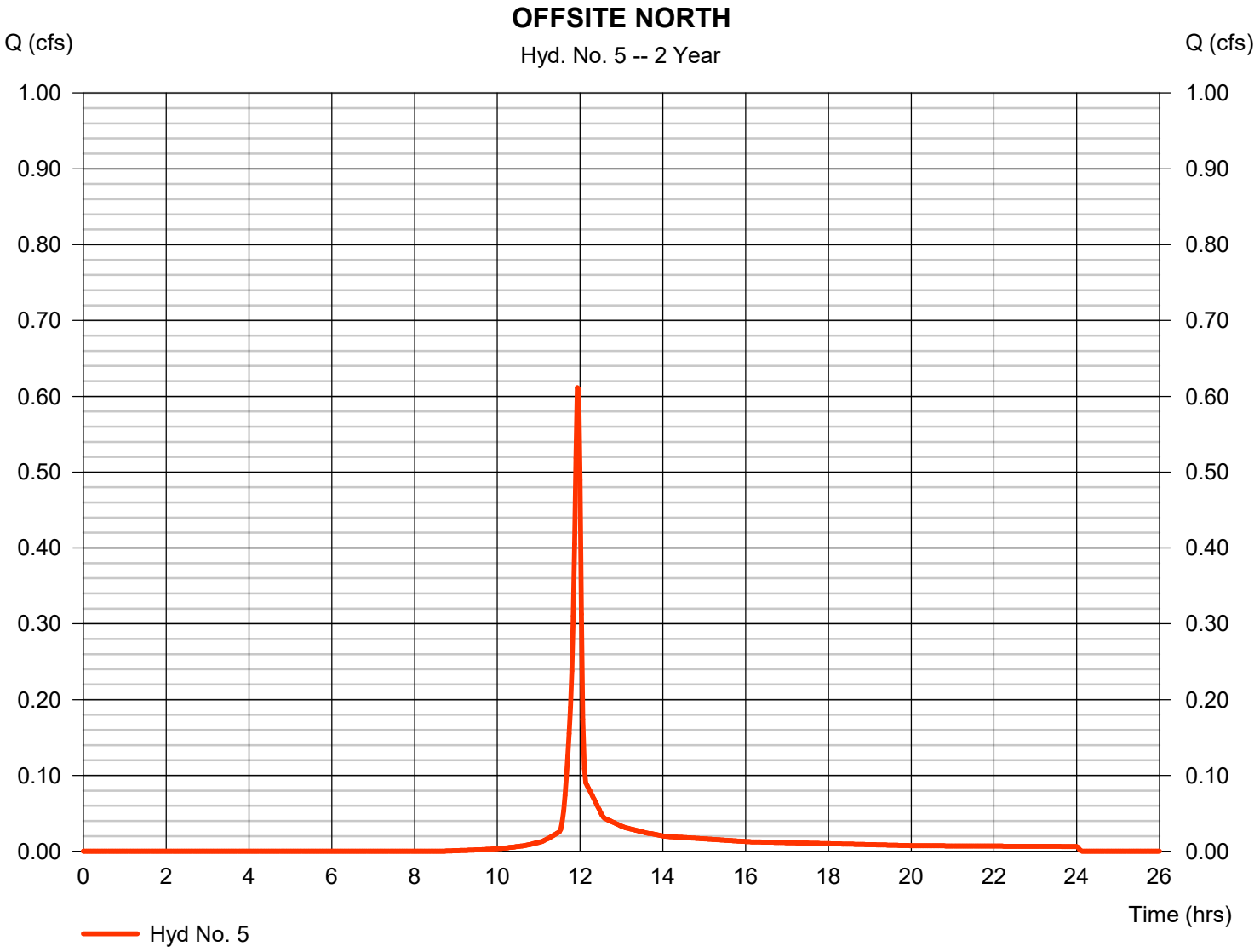


Hydrograph Report

Hyd. No. 5

OFFSITE NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.611 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,234 cuft
Drainage area	=	0.240 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

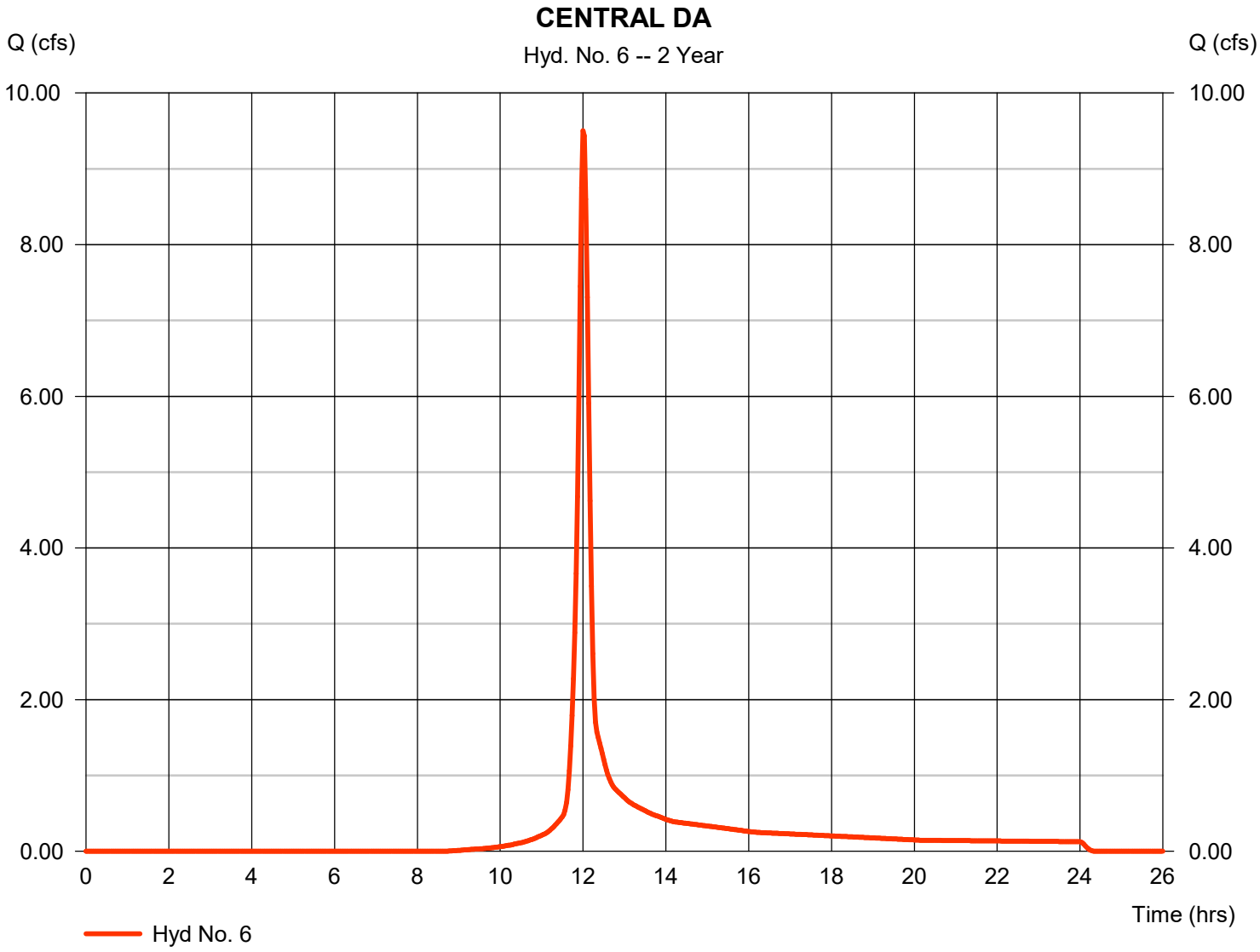


Hydrograph Report

Hyd. No. 6

CENTRAL DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.501 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	24,665 cuft
Drainage area	=	4.360 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

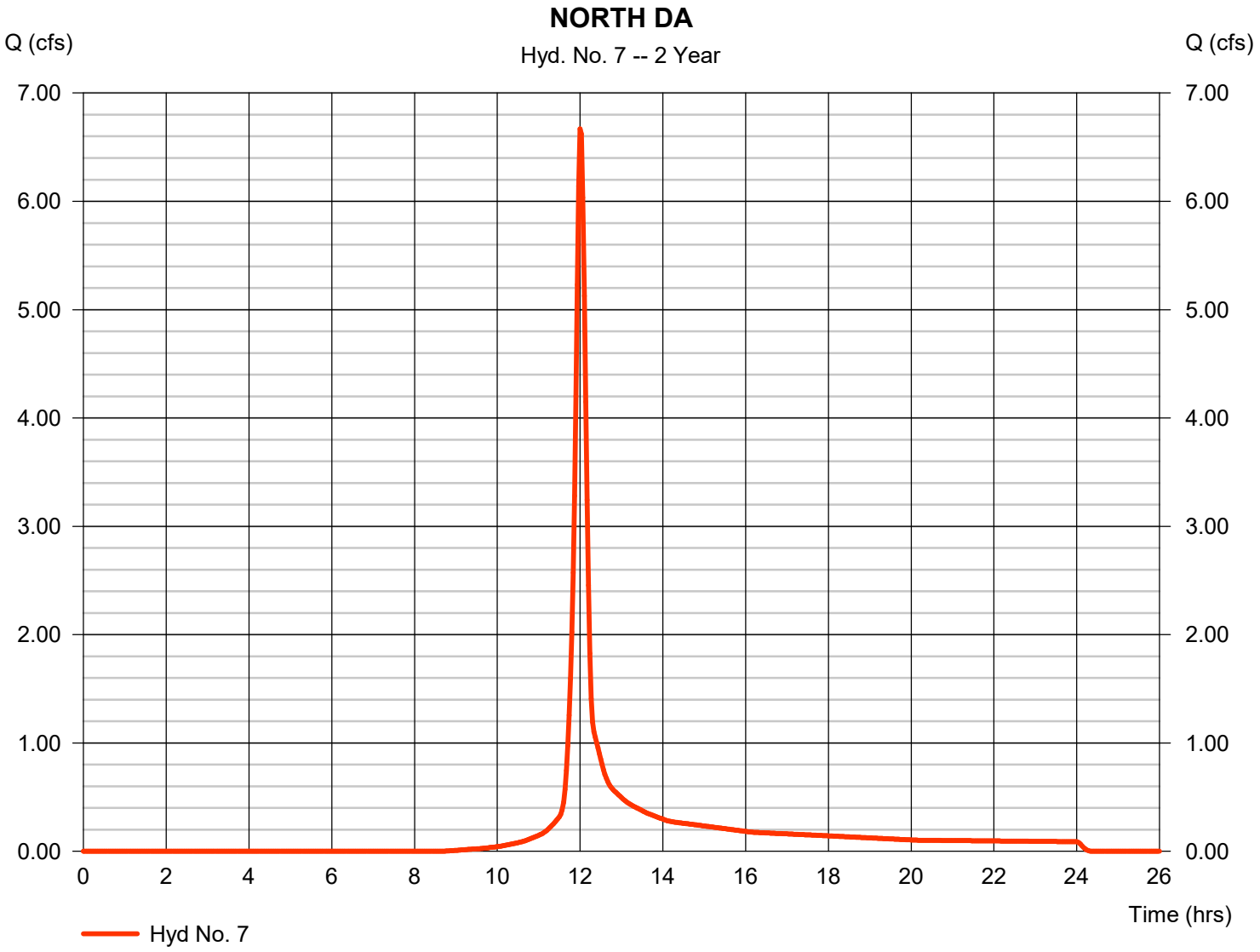


Hydrograph Report

Hyd. No. 7

NORTH DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.668 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	17,311 cuft
Drainage area	=	3.060 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.08 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



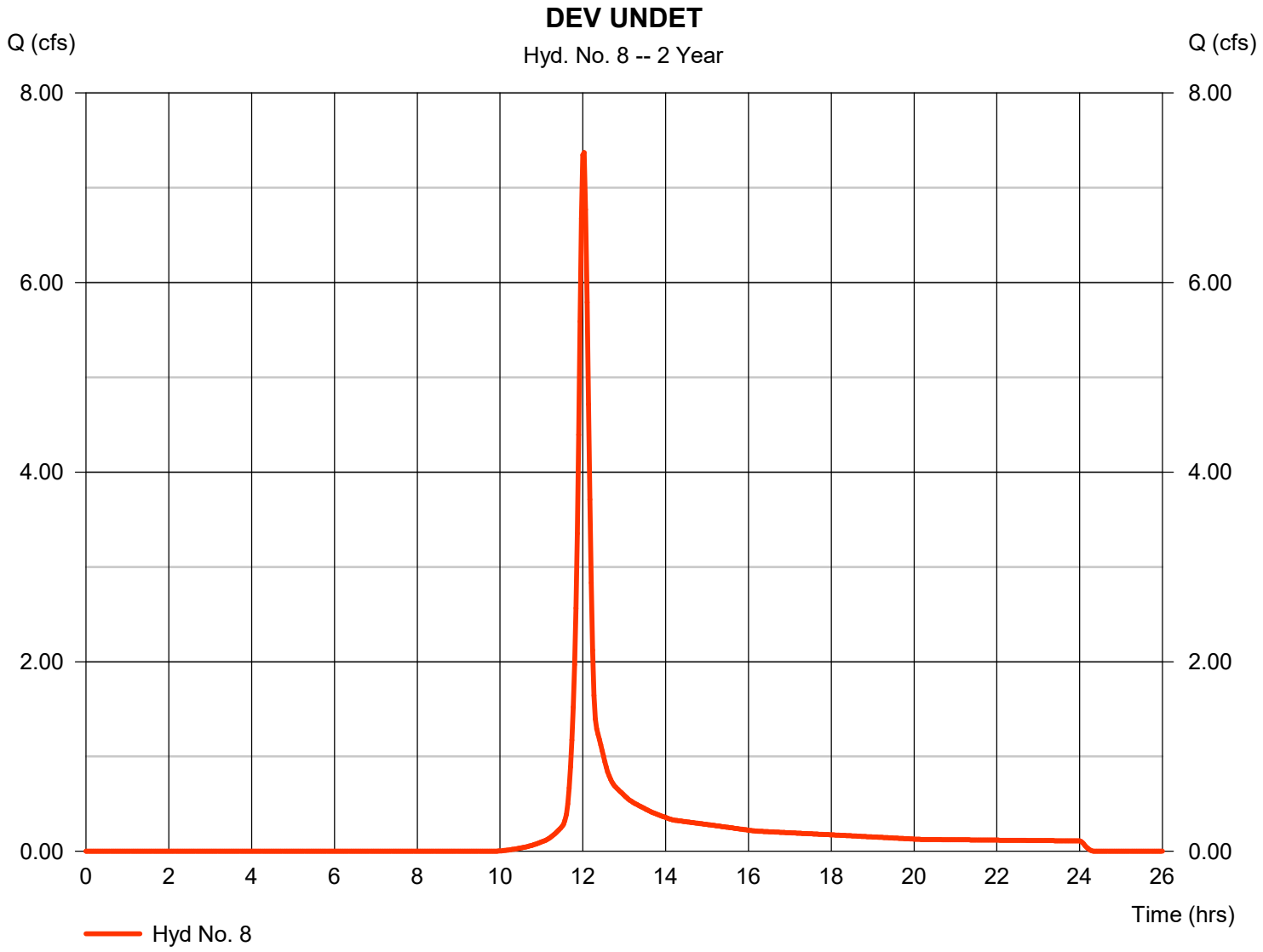
Hydrograph Report

Hyd. No. 8

DEV UNDET

Hydrograph type	= SCS Runoff	Peak discharge	= 7.372 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 19,330 cuft
Drainage area	= 4.140 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.08 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(2.460 x 79) + (1.680 x 80)] / 4.140

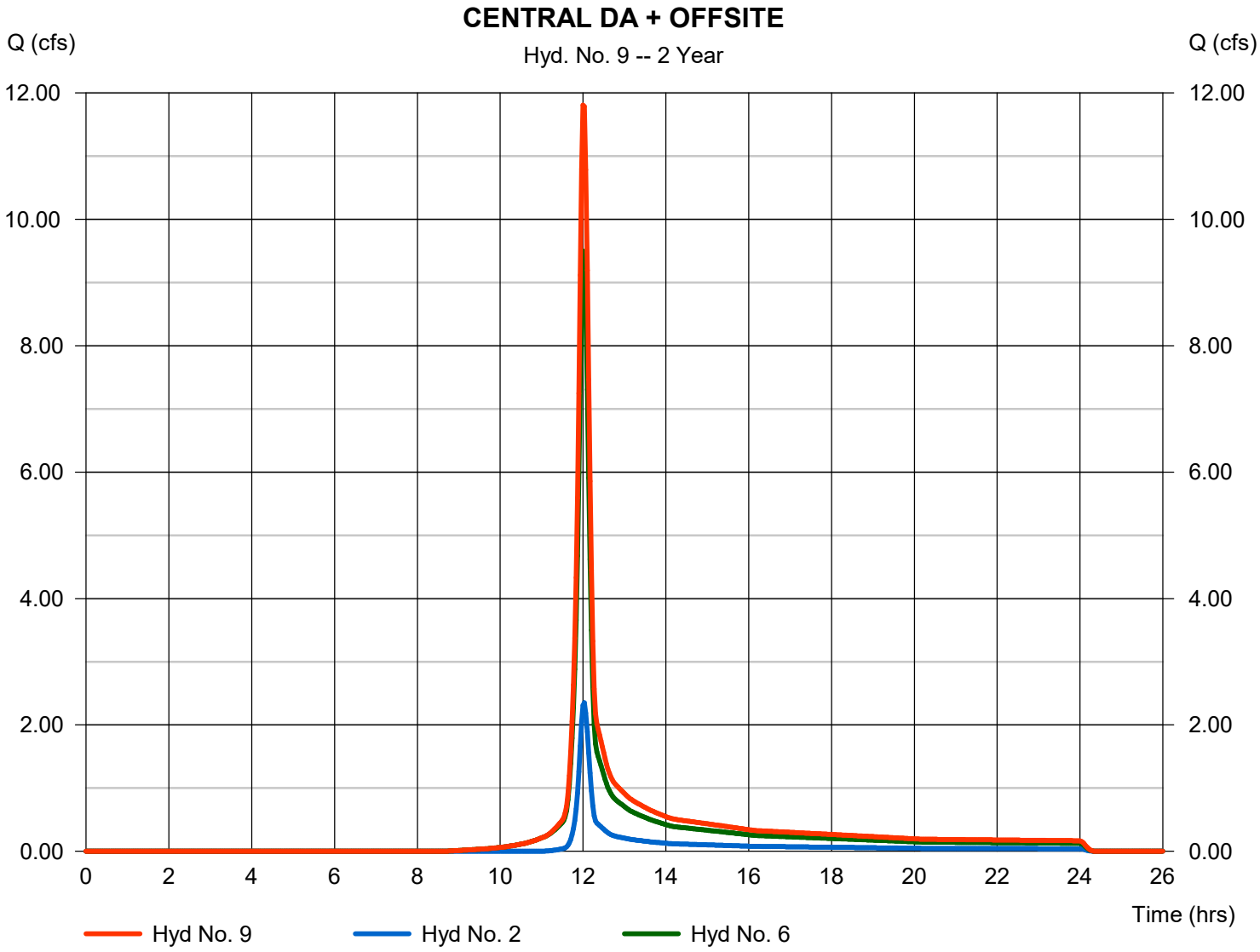


Hydrograph Report

Hyd. No. 9

CENTRAL DA + OFFSITE

Hydrograph type	=	Combine	Peak discharge	=	11.81 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	30,986 cuft
Inflow hyds.	=	2, 6	Contrib. drain. area	=	6.120 ac



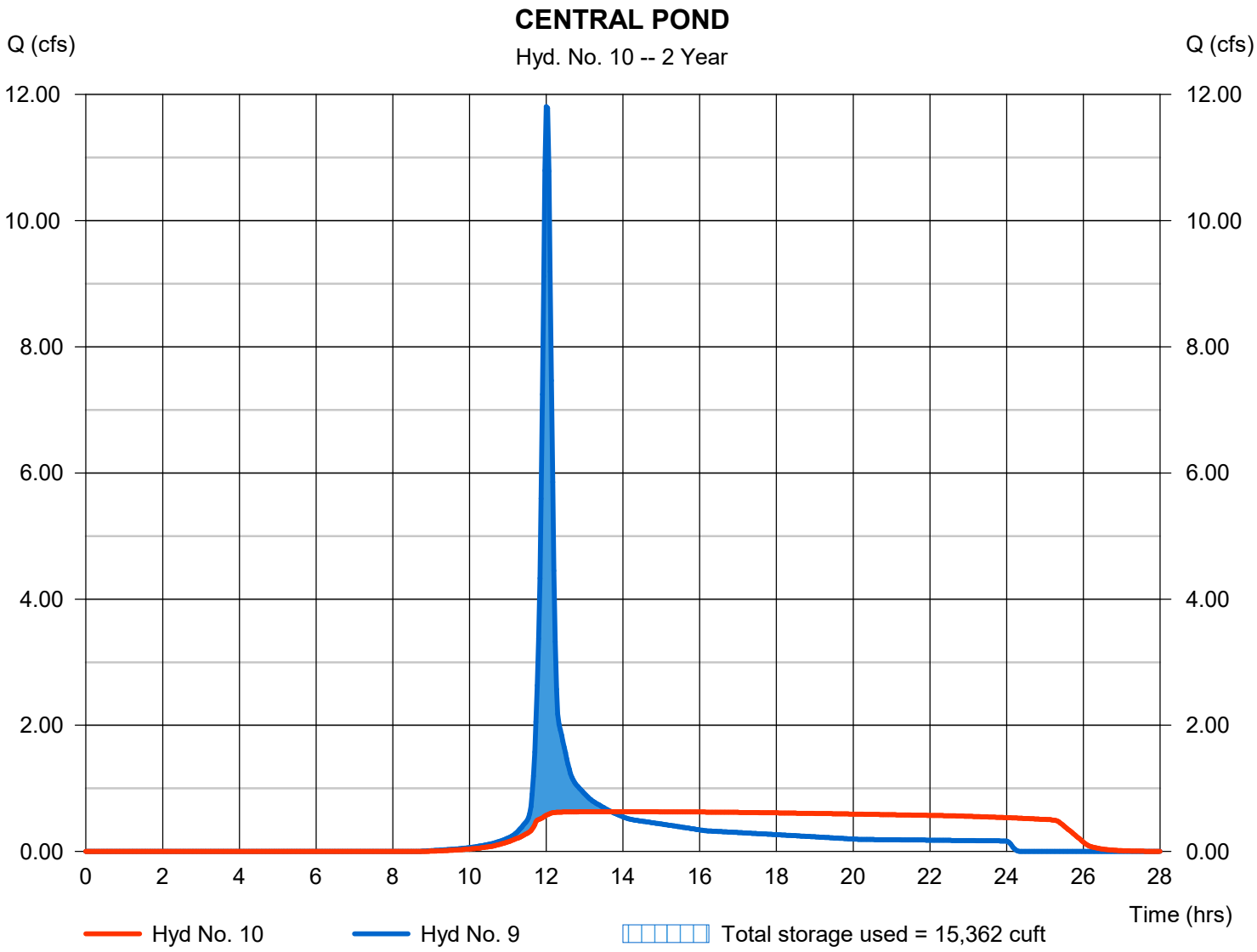
Hydrograph Report

Hyd. No. 10

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.630 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.70 hrs
Time interval	=	2 min	Hyd. volume	=	30,985 cuft
Inflow hyd. No.	=	9 - CENTRAL DA + OFFSITE	Max. Elevation	=	948.37 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	15,362 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - CENTRAL POND

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 942.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	942.00	90	0	0
2.00	944.00	1,190	1,280	1,280
4.00	946.00	2,760	3,950	5,230
6.00	948.00	4,970	7,730	12,960
8.00	950.00	8,020	12,990	25,950
10.00	952.00	12,470	20,490	46,440
12.00	954.00	18,250	30,720	77,160
13.00	955.00	22,330	20,290	97,450

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 4.00	0.00	0.00	0.00
Span (in)	= 4.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 942.00	0.00	0.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 6.00	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

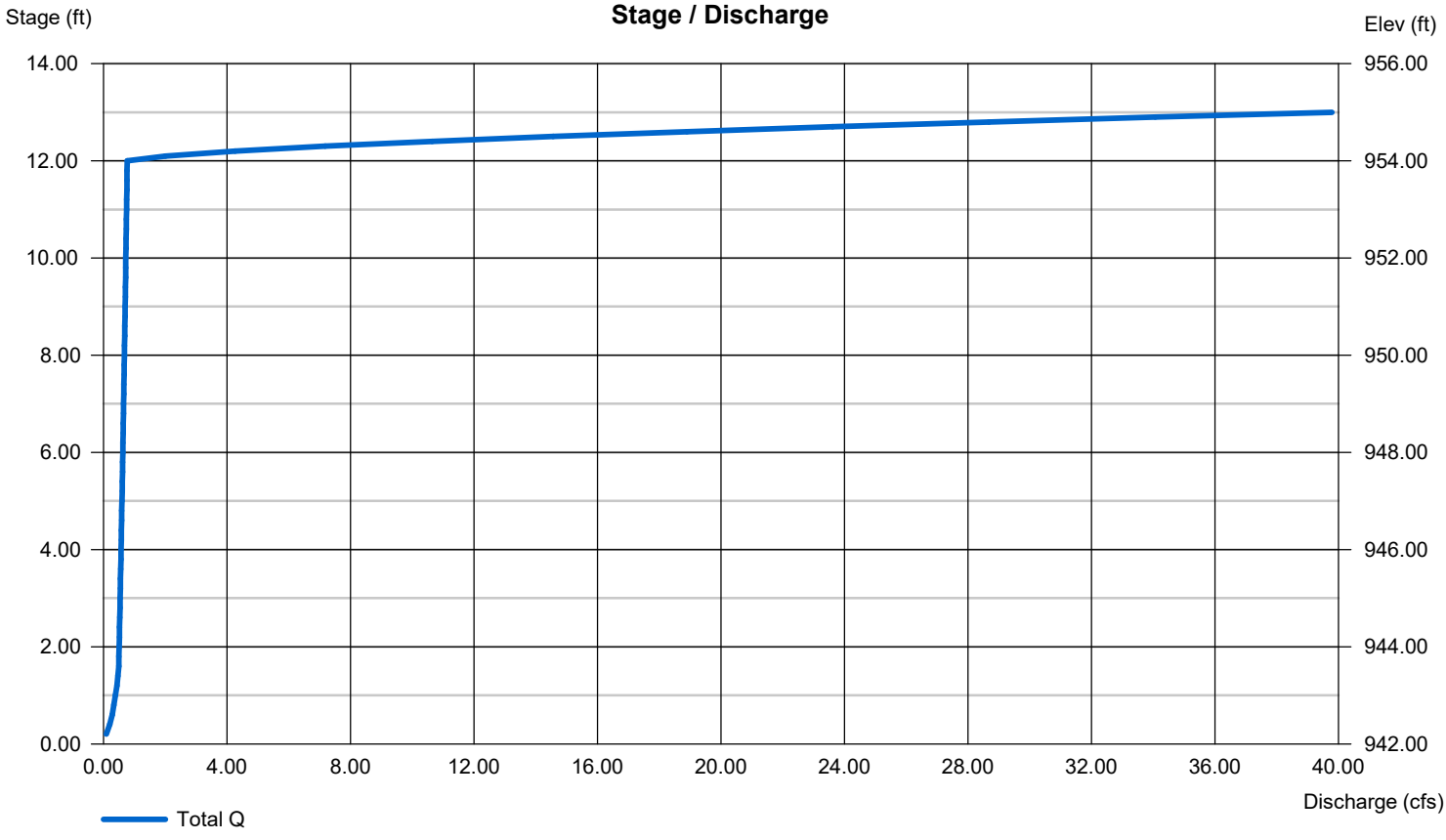
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	0.00	0.00	0.00
Crest El. (ft)	= 954.00	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).

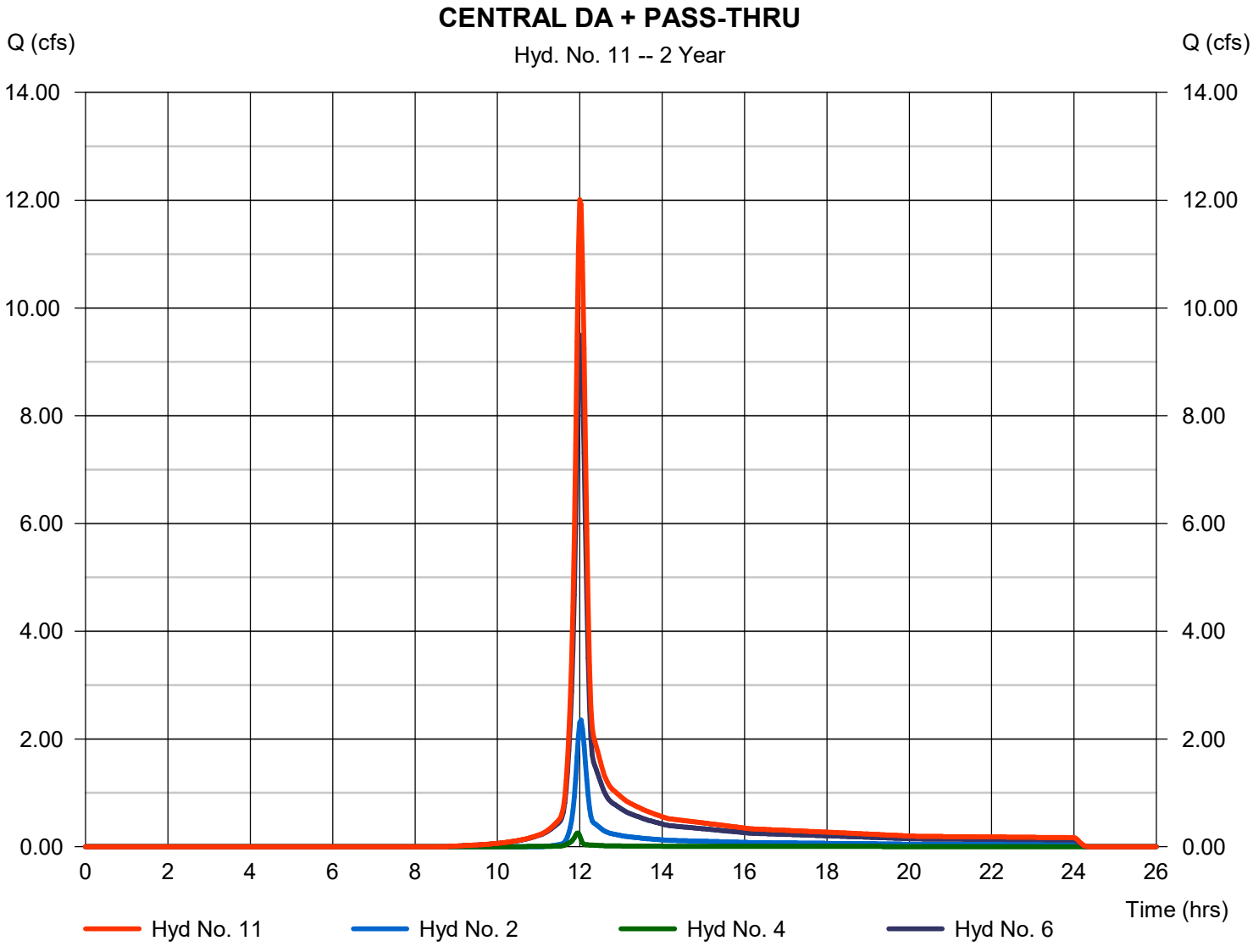


Hydrograph Report

Hyd. No. 11

CENTRAL DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 12.01 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 31,501 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 6.220 ac



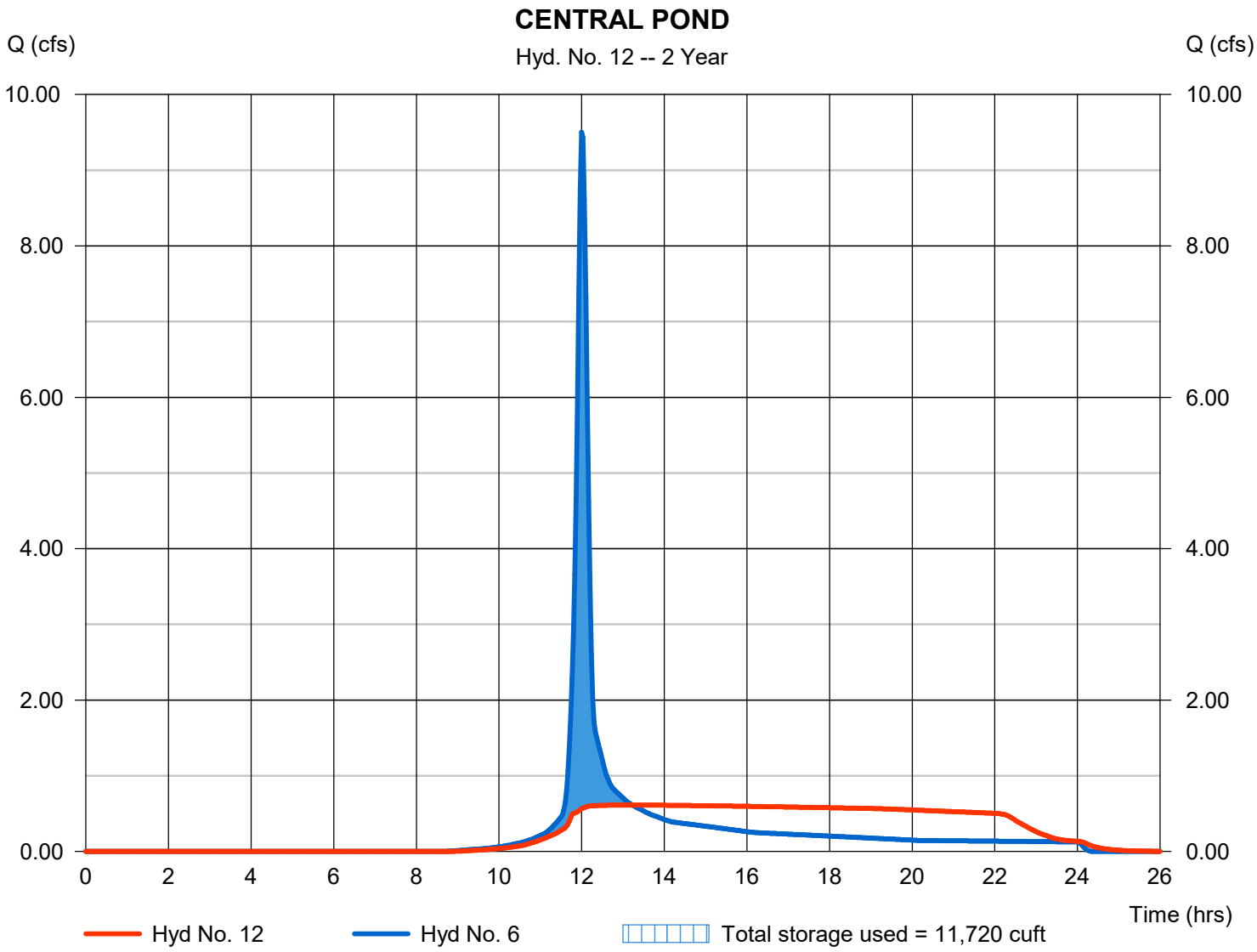
Hydrograph Report

Hyd. No. 12

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.612 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.23 hrs
Time interval	=	2 min	Hyd. volume	=	24,664 cuft
Inflow hyd. No.	=	6 - CENTRAL DA	Max. Elevation	=	947.68 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	11,720 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - CENTRAL POND

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 942.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	942.00	90	0	0
2.00	944.00	1,190	1,280	1,280
4.00	946.00	2,760	3,950	5,230
6.00	948.00	4,970	7,730	12,960
8.00	950.00	8,020	12,990	25,950
10.00	952.00	12,470	20,490	46,440
12.00	954.00	18,250	30,720	77,160
13.00	955.00	22,330	20,290	97,450

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 4.00	0.00	0.00	0.00
Span (in)	= 4.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 942.00	0.00	0.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 6.00	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

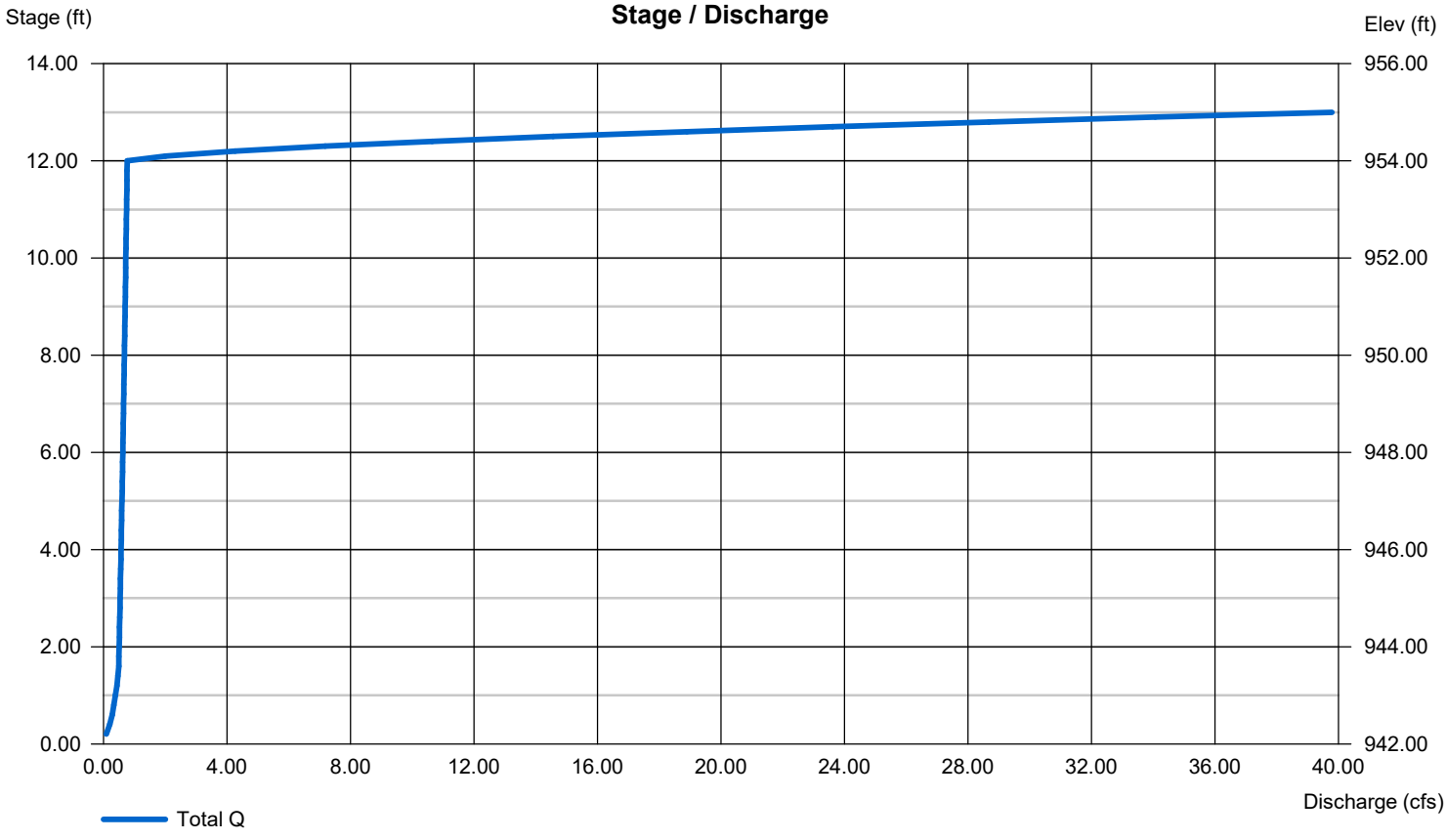
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	0.00	0.00	0.00
Crest El. (ft)	= 954.00	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).



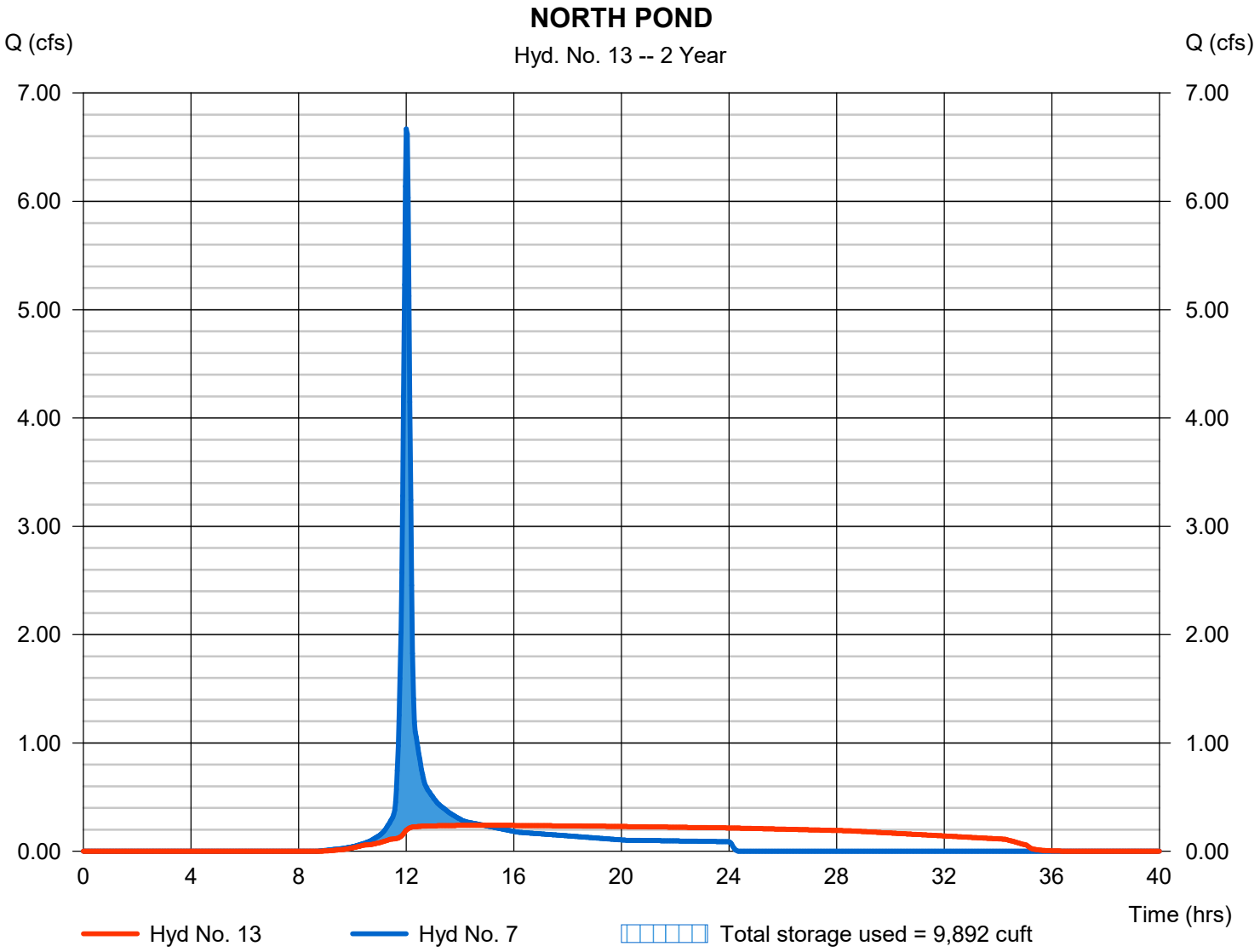
Hydrograph Report

Hyd. No. 13

NORTH POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.239 cfs
Storm frequency	=	2 yrs	Time to peak	=	14.90 hrs
Time interval	=	2 min	Hyd. volume	=	17,310 cuft
Inflow hyd. No.	=	7 - NORTH DA	Max. Elevation	=	939.83 ft
Reservoir name	=	NORTH POND	Max. Storage	=	9,892 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - NORTH POND

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 935.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	935.00	10	0	0
1.00	936.00	580	295	295
3.00	938.00	2,560	3,140	3,435
5.00	940.00	4,510	7,070	10,505
7.00	942.00	6,700	11,210	21,715
9.00	944.00	9,140	15,840	37,555
11.00	946.00	11,850	20,990	58,545

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 3.00	0.00	0.00	0.00
Span (in)	= 3.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 935.00	0.00	0.00	0.00
Length (ft)	= 60.00	0.00	0.00	0.00
Slope (%)	= 0.50	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

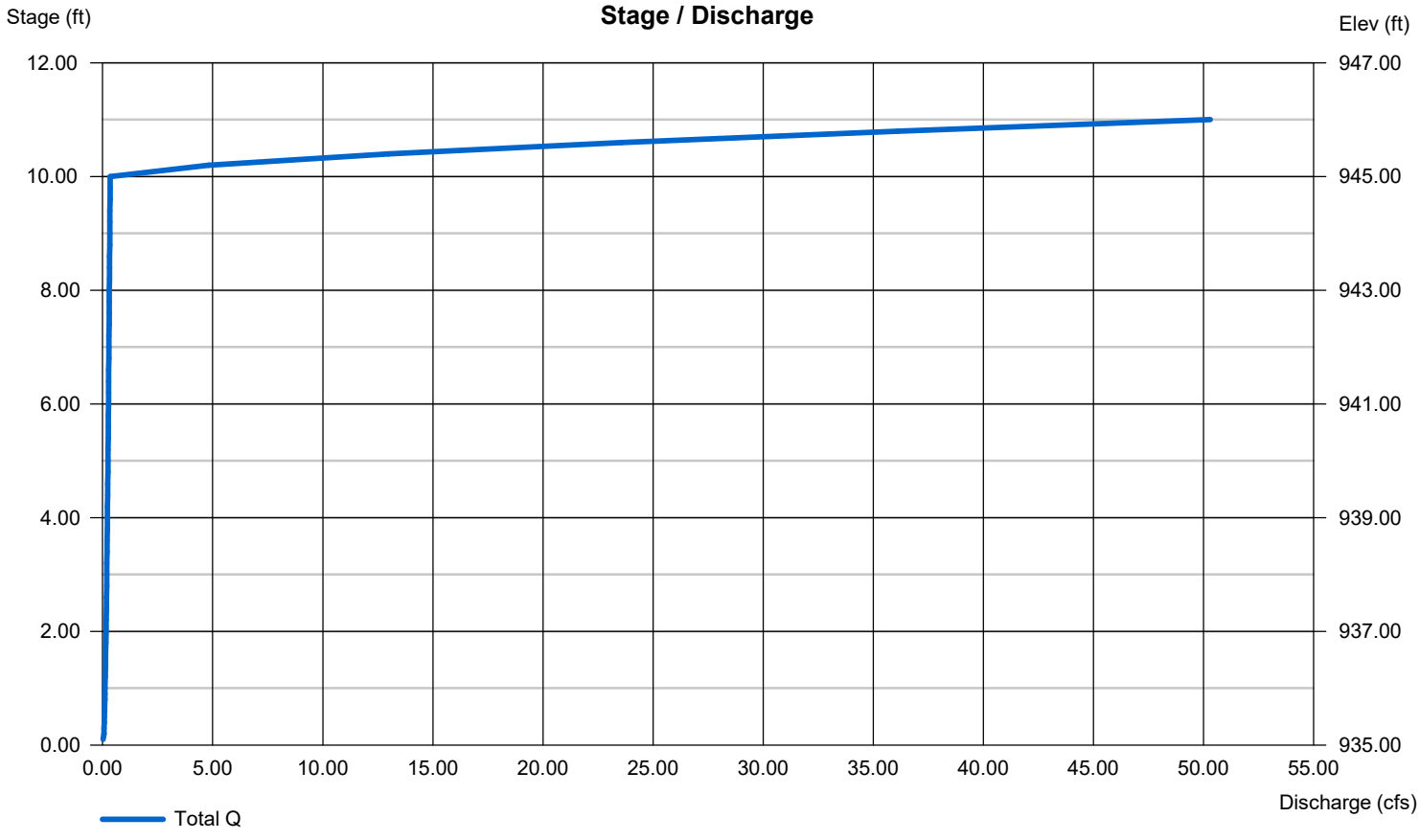
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	0.00	0.00	0.00
Crest El. (ft)	= 945.00	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).

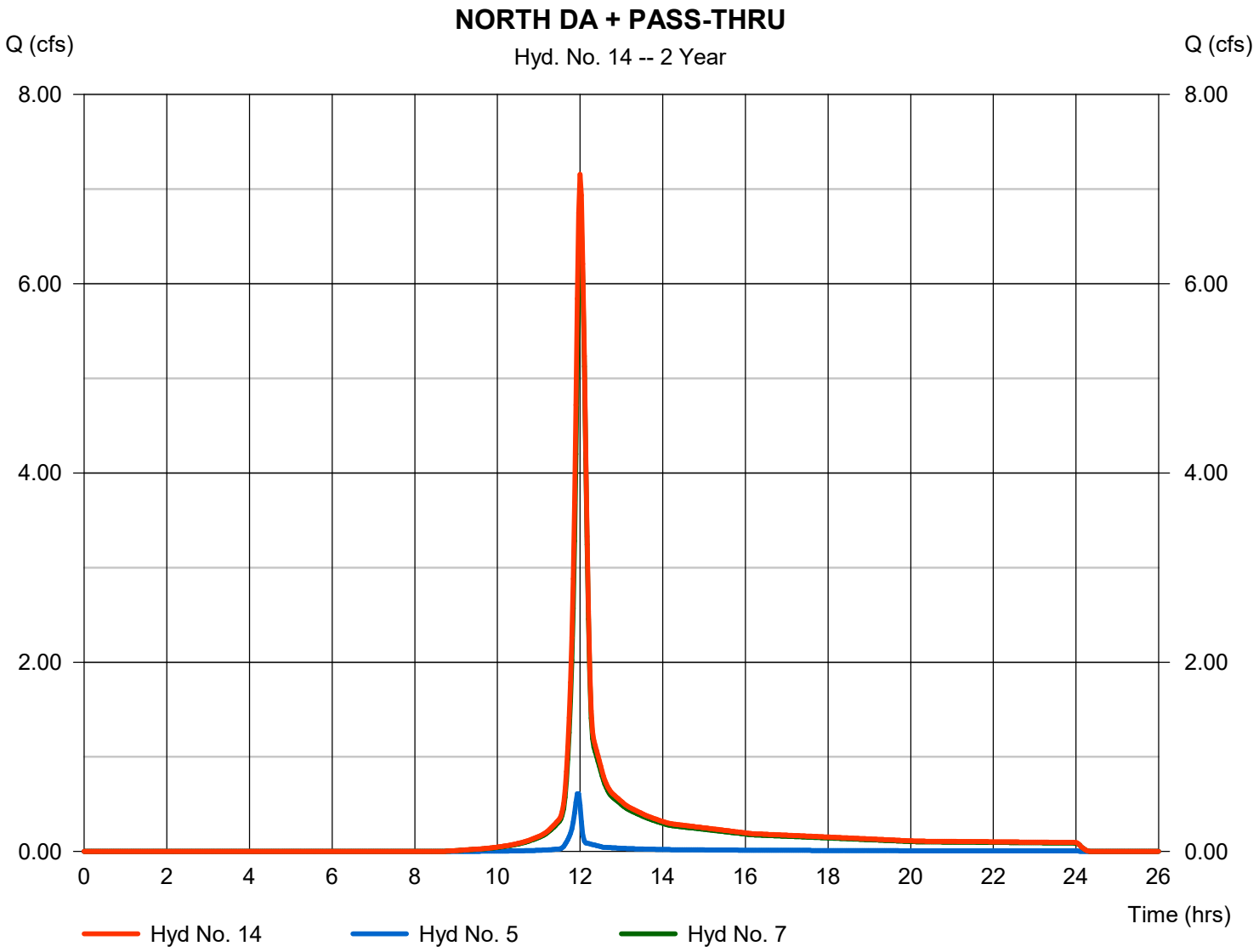


Hydrograph Report

Hyd. No. 14

NORTH DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 7.158 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 18,545 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 3.300 ac



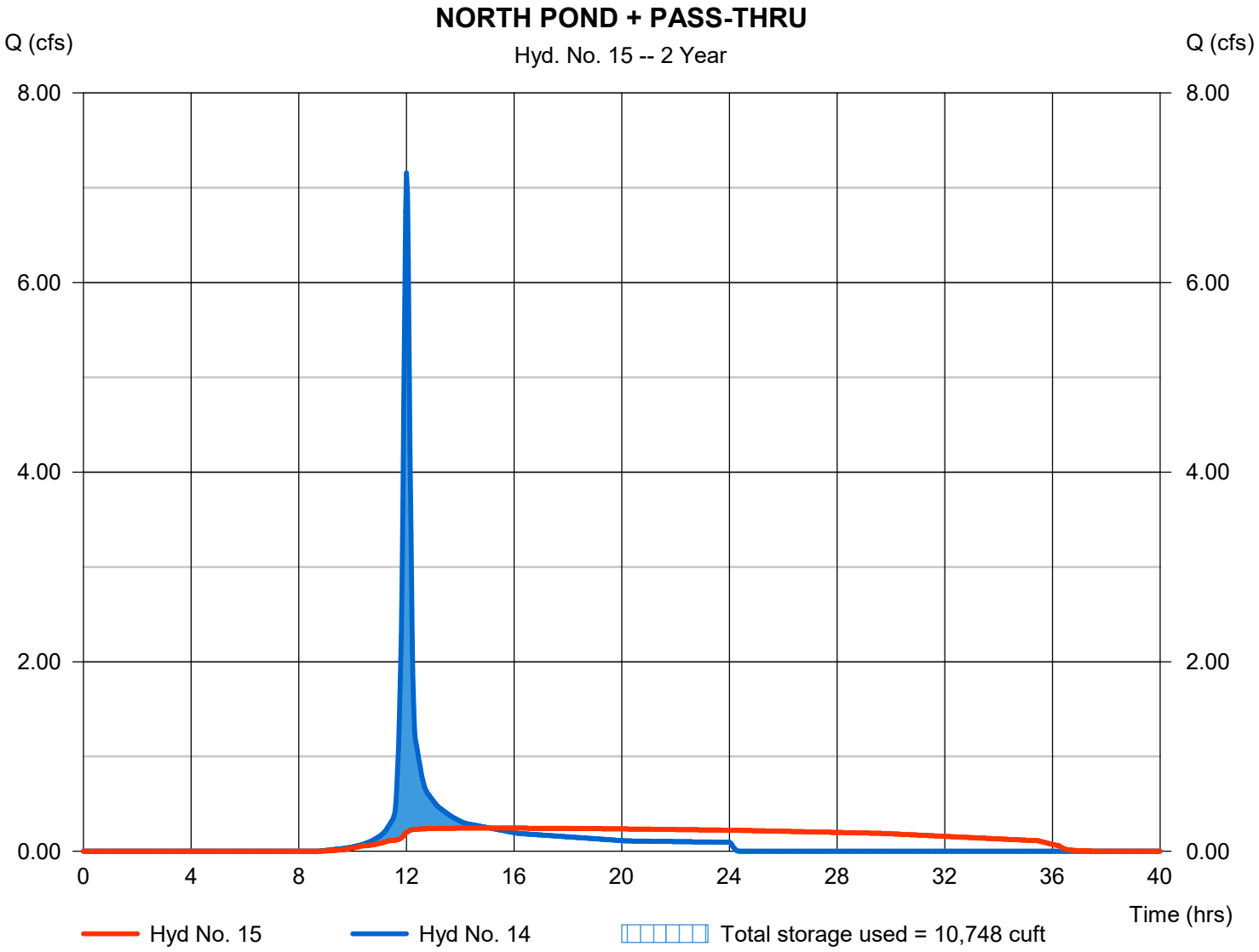
Hydrograph Report

Hyd. No. 15

NORTH POND + PASS-THRU

Hydrograph type	= Reservoir	Peak discharge	= 0.244 cfs
Storm frequency	= 2 yrs	Time to peak	= 15.10 hrs
Time interval	= 2 min	Hyd. volume	= 18,544 cuft
Inflow hyd. No.	= 14 - NORTH DA + PASS-THRU	Max. Elevation	= 940.04 ft
Reservoir name	= NORTH POND	Max. Storage	= 10,748 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - NORTH POND

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 935.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	935.00	10	0	0
1.00	936.00	580	295	295
3.00	938.00	2,560	3,140	3,435
5.00	940.00	4,510	7,070	10,505
7.00	942.00	6,700	11,210	21,715
9.00	944.00	9,140	15,840	37,555
11.00	946.00	11,850	20,990	58,545

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 3.00	0.00	0.00	0.00
Span (in)	= 3.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 935.00	0.00	0.00	0.00
Length (ft)	= 60.00	0.00	0.00	0.00
Slope (%)	= 0.50	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

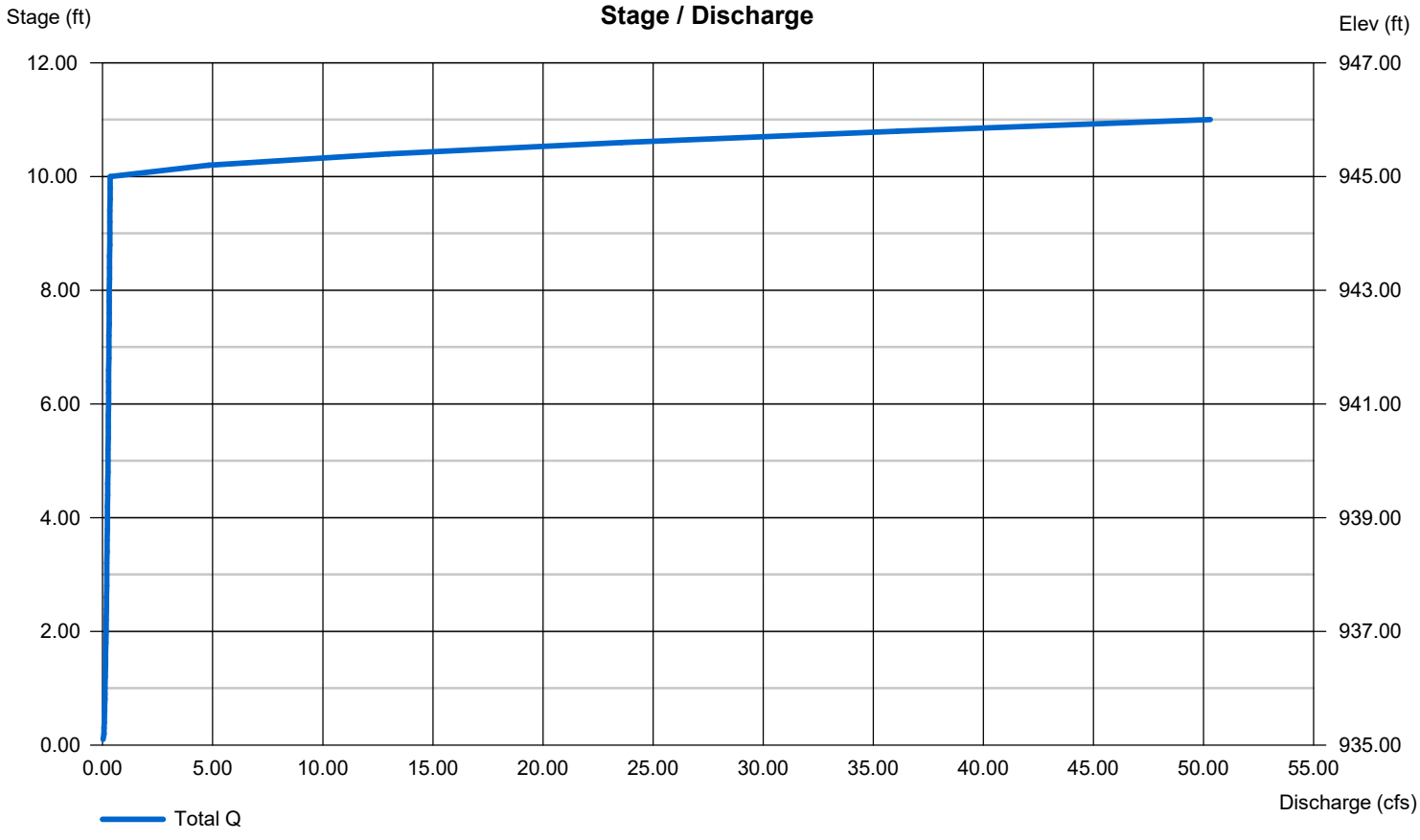
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	0.00	0.00	0.00
Crest El. (ft)	= 945.00	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).



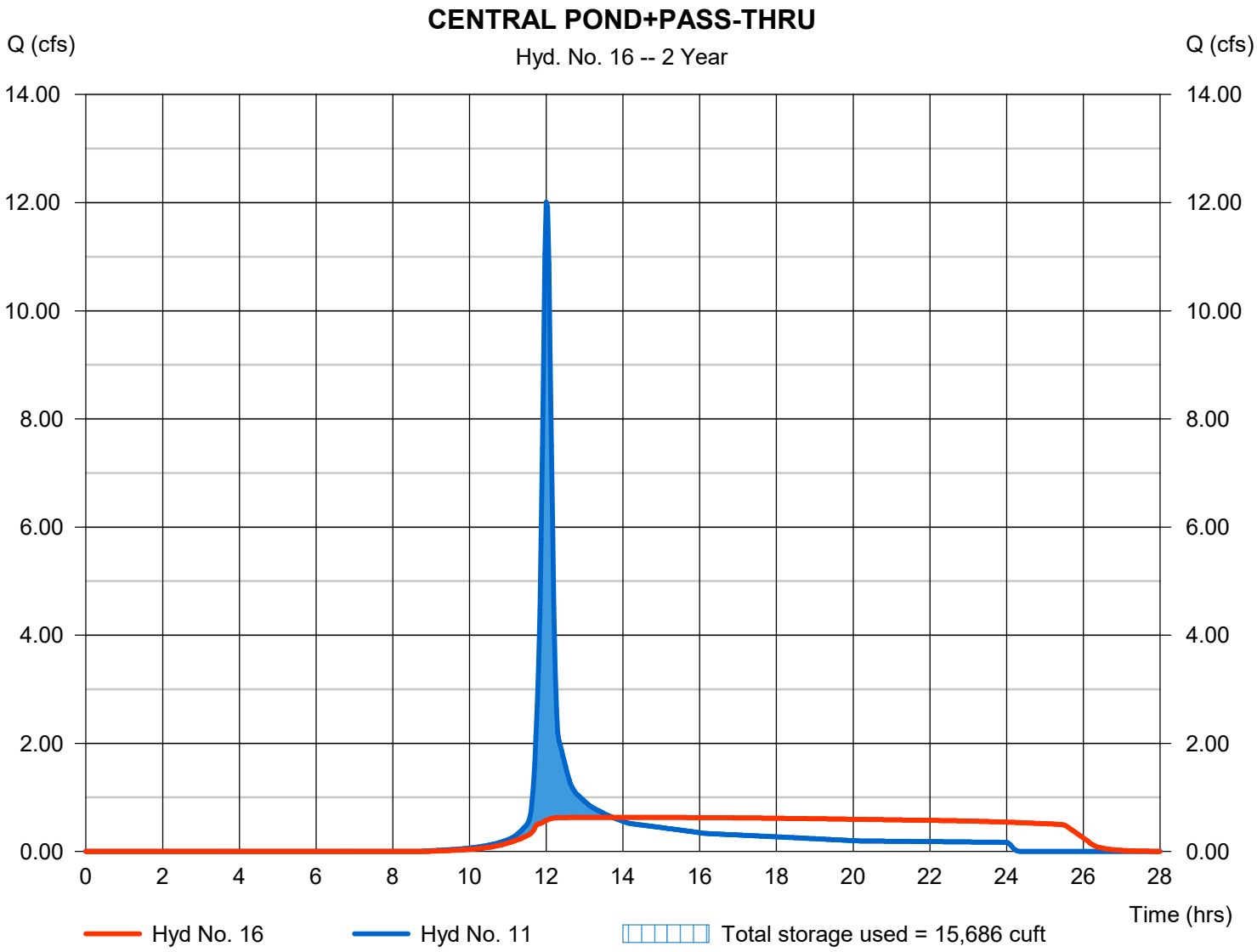
Hydrograph Report

Hyd. No. 16

CENTRAL POND+PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.632 cfs
Storm frequency	=	2 yrs	Time to peak	=	13.73 hrs
Time interval	=	2 min	Hyd. volume	=	31,499 cuft
Inflow hyd. No.	=	11 - CENTRAL DA + PASS-THRU	Max. Elevation	=	948.42 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	15,686 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - CENTRAL POND

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 942.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	942.00	90	0	0
2.00	944.00	1,190	1,280	1,280
4.00	946.00	2,760	3,950	5,230
6.00	948.00	4,970	7,730	12,960
8.00	950.00	8,020	12,990	25,950
10.00	952.00	12,470	20,490	46,440
12.00	954.00	18,250	30,720	77,160
13.00	955.00	22,330	20,290	97,450

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 4.00	0.00	0.00	0.00
Span (in)	= 4.00	0.00	0.00	0.00
No. Barrels	= 1	0	0	0
Invert El. (ft)	= 942.00	0.00	0.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 6.00	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

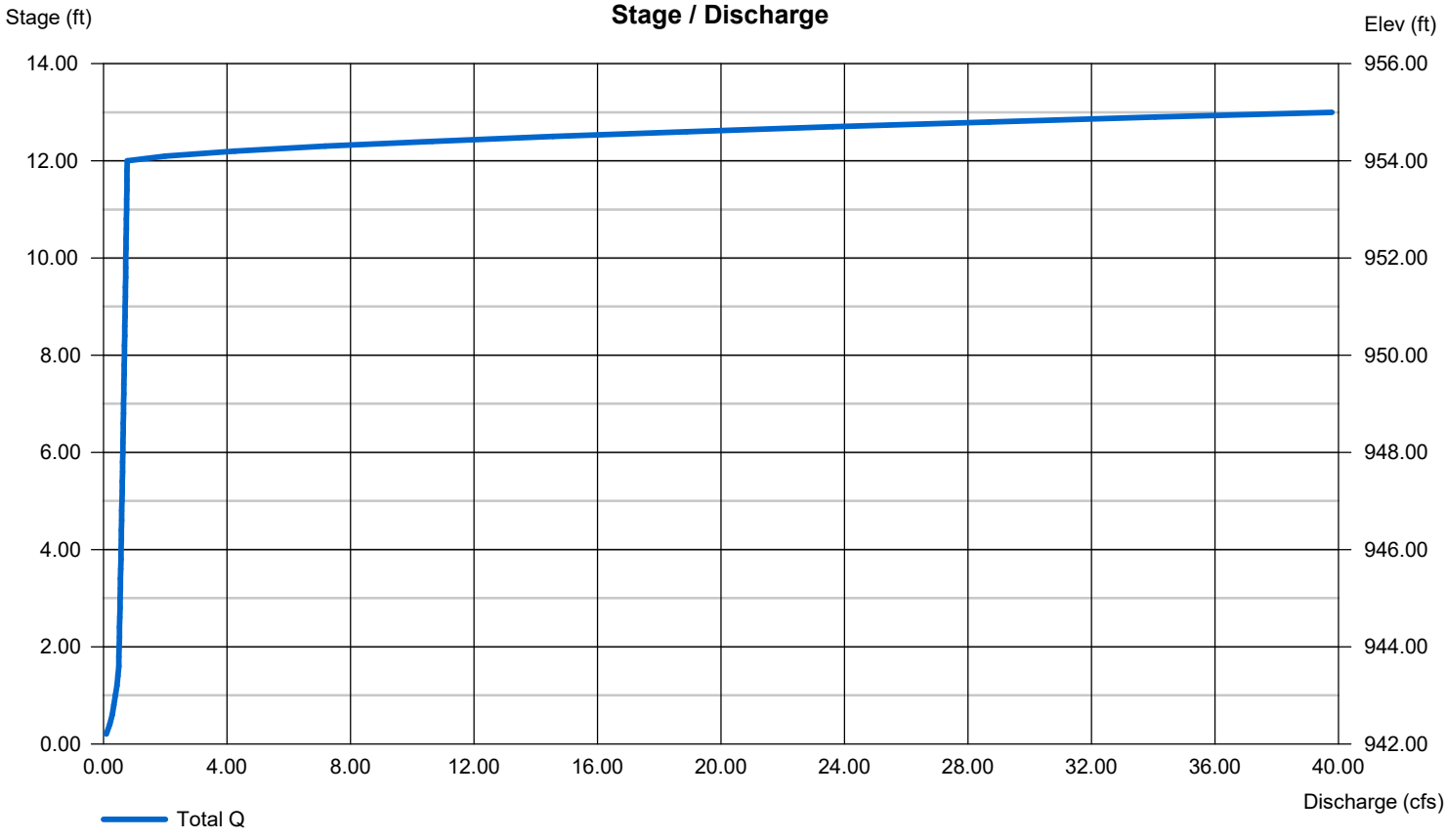
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 15.00	0.00	0.00	0.00
Crest El. (ft)	= 954.00	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).

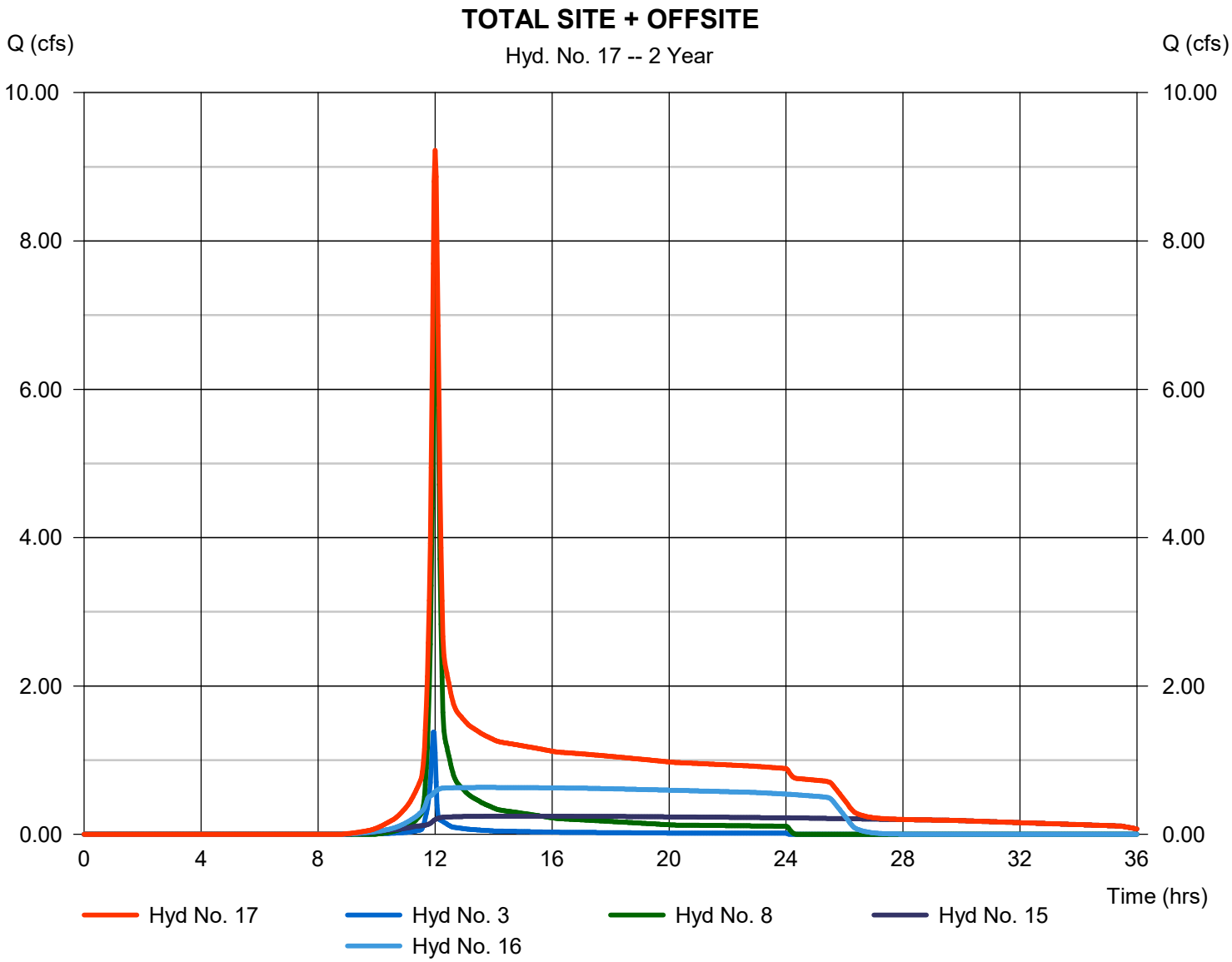


Hydrograph Report

Hyd. No. 17

TOTAL SITE + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 9.222 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 72,150 cuft
Inflow hyds.	= 3, 8, 15, 16	Contrib. drain. area	= 4.680 ac

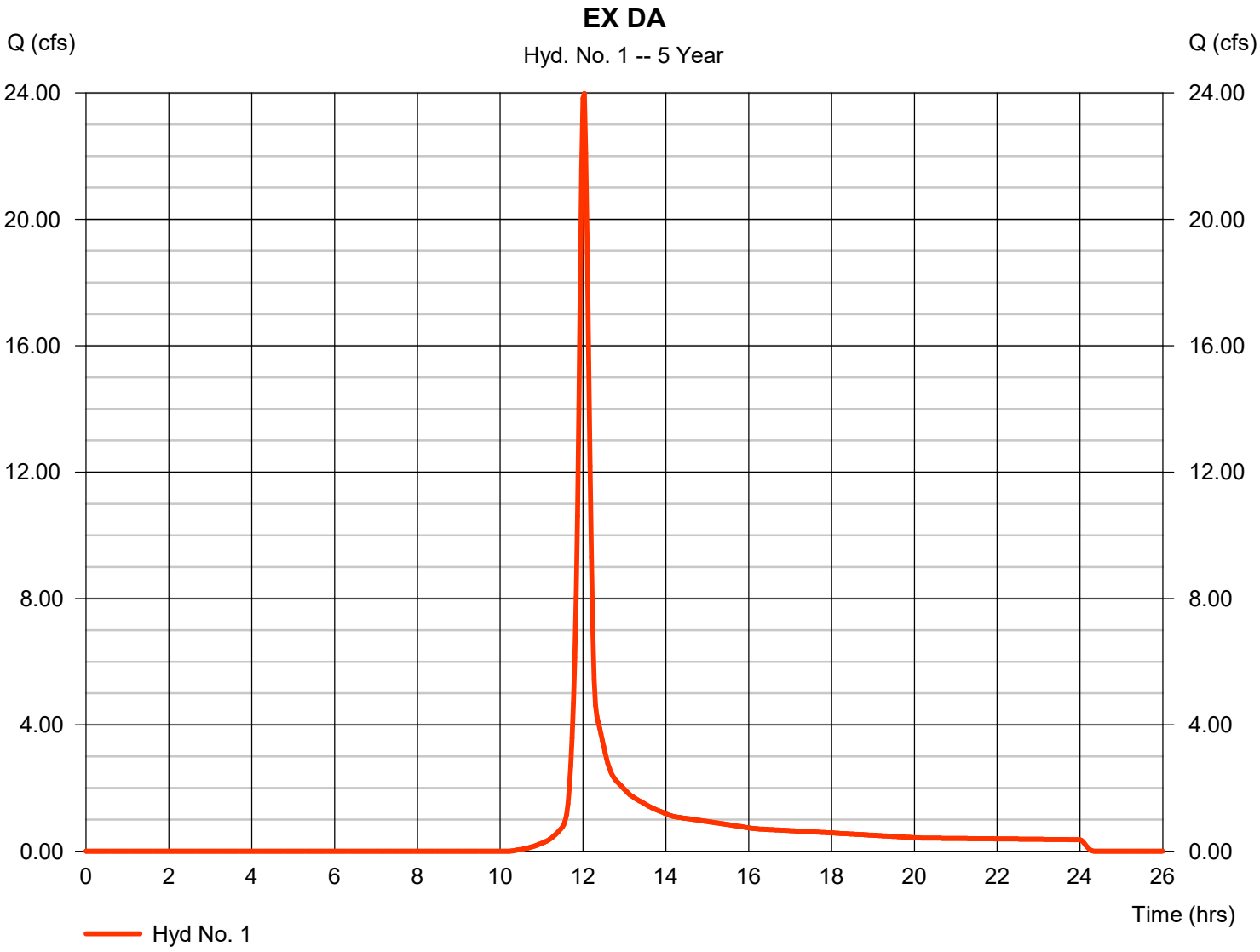


Hydrograph Report

Hyd. No. 1

EX DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	23.99 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	63,108 cuft
Drainage area	=	11.560 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.60 min
Total precip.	=	3.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

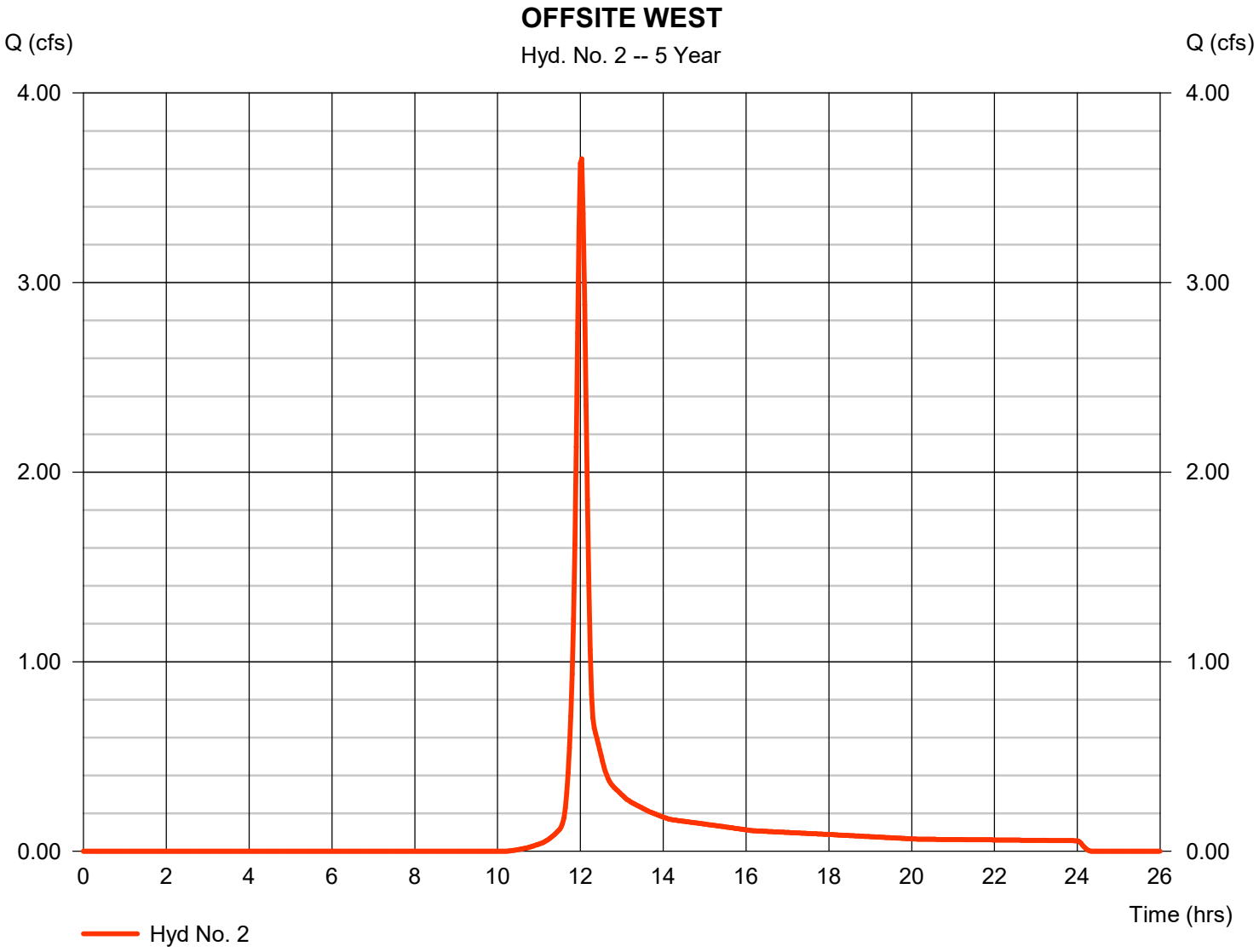


Hydrograph Report

Hyd. No. 2

OFFSITE WEST

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.652 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.03 hrs
Time interval	=	2 min	Hyd. volume	=	9,608 cuft
Drainage area	=	1.760 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.10 min
Total precip.	=	3.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

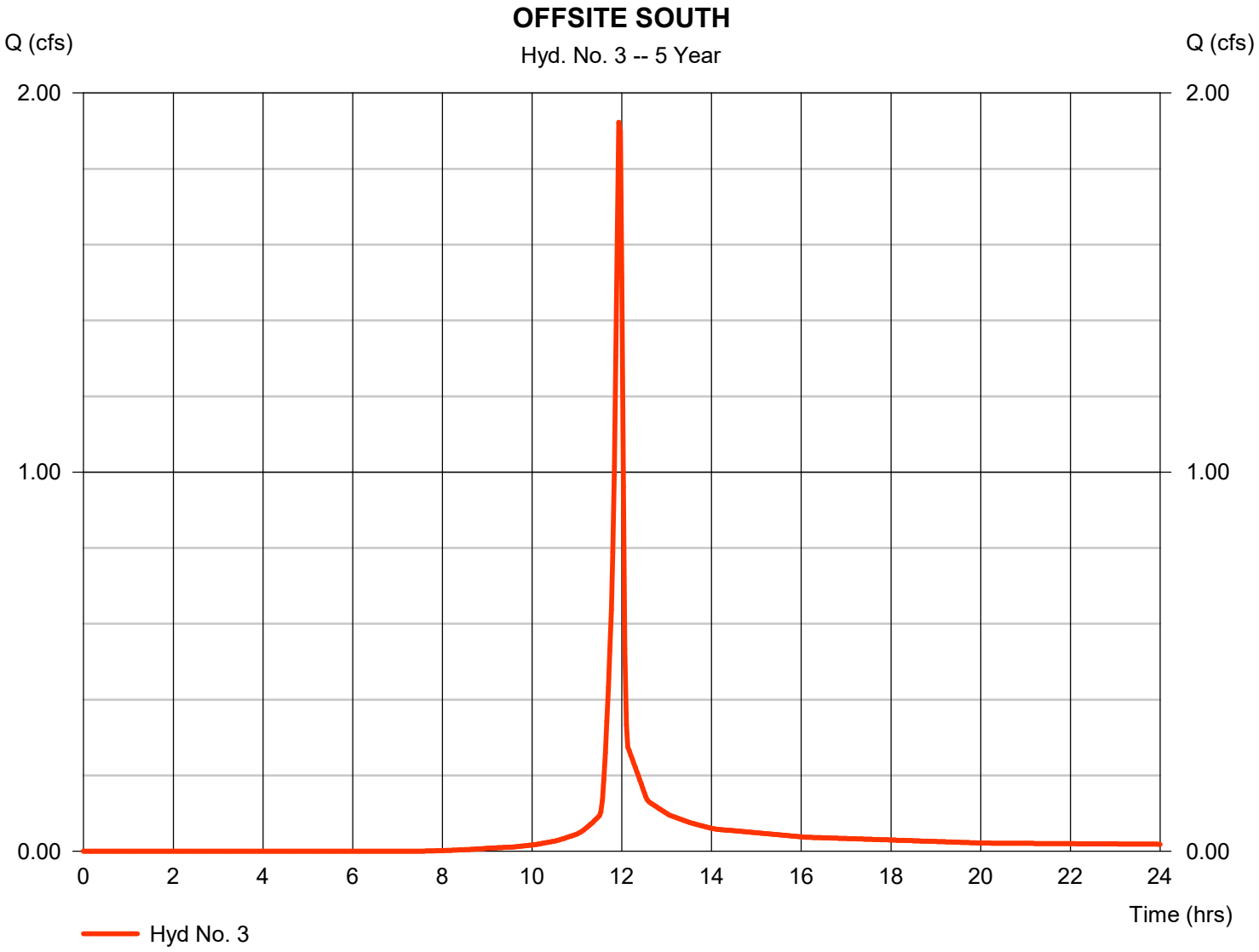


Hydrograph Report

Hyd. No. 3

OFFSITE SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.922 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	3,900 cuft
Drainage area	=	0.540 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

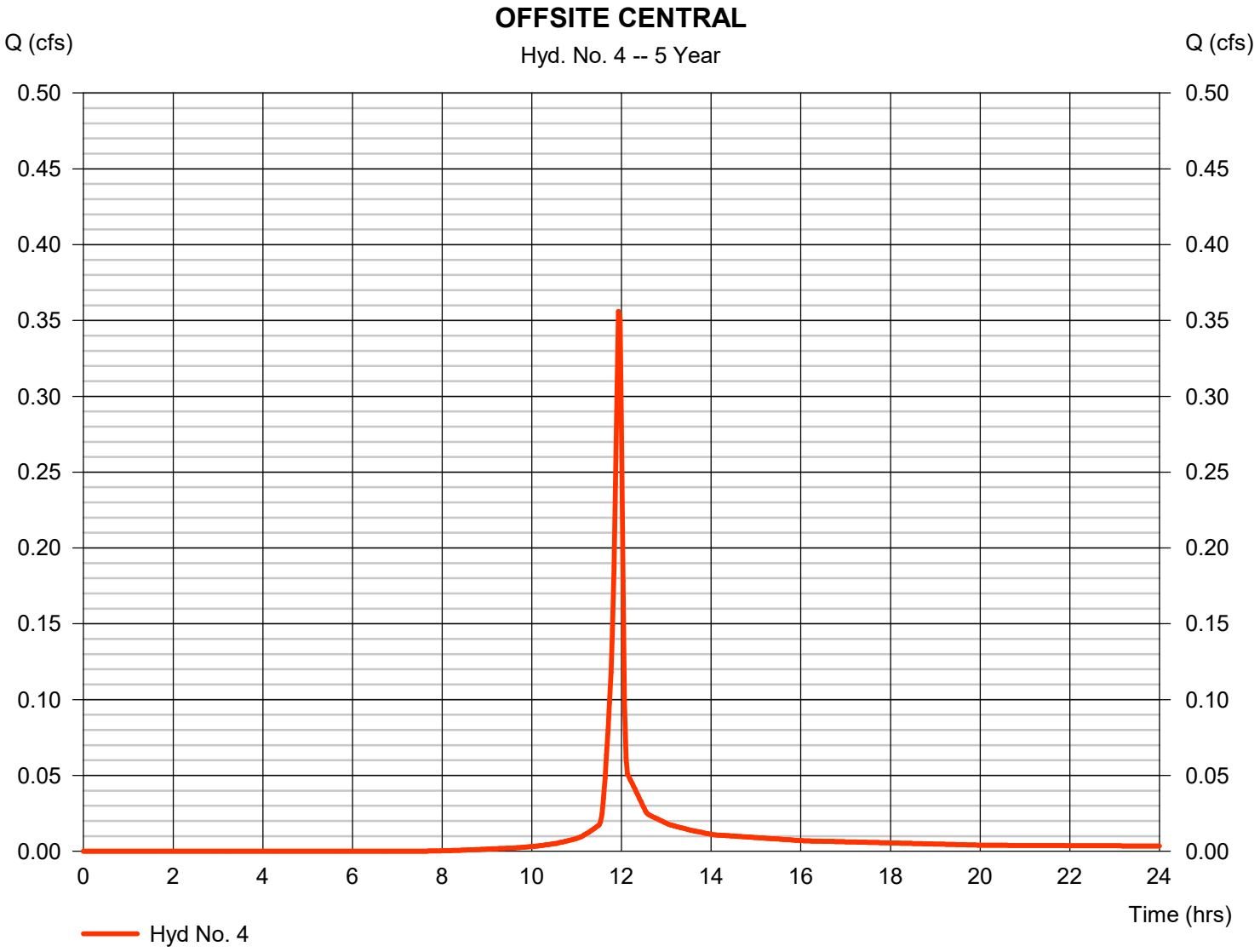


Hydrograph Report

Hyd. No. 4

OFFSITE CENTRAL

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.356 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	722 cuft
Drainage area	=	0.100 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

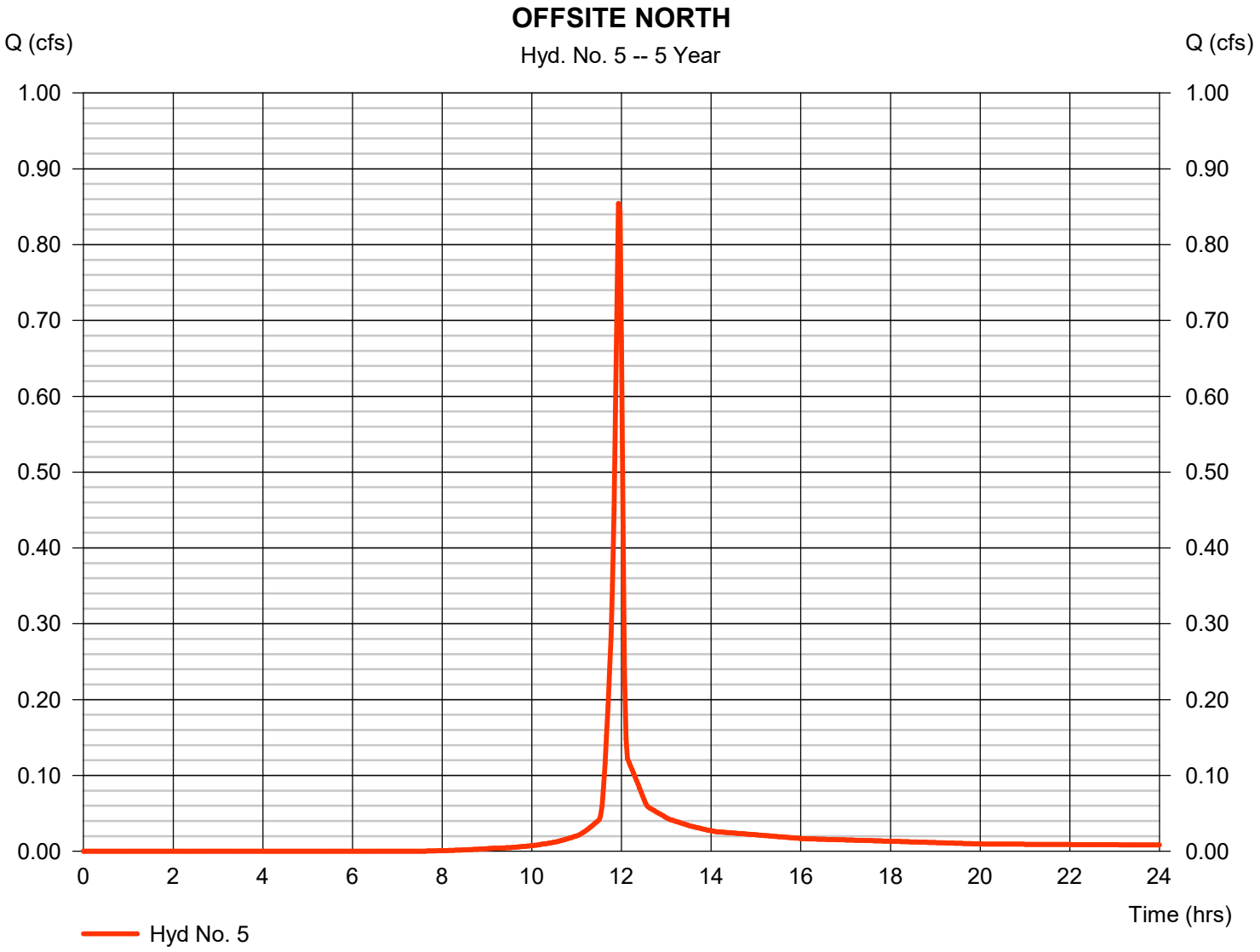


Hydrograph Report

Hyd. No. 5

OFFSITE NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.854 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,733 cuft
Drainage area	=	0.240 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

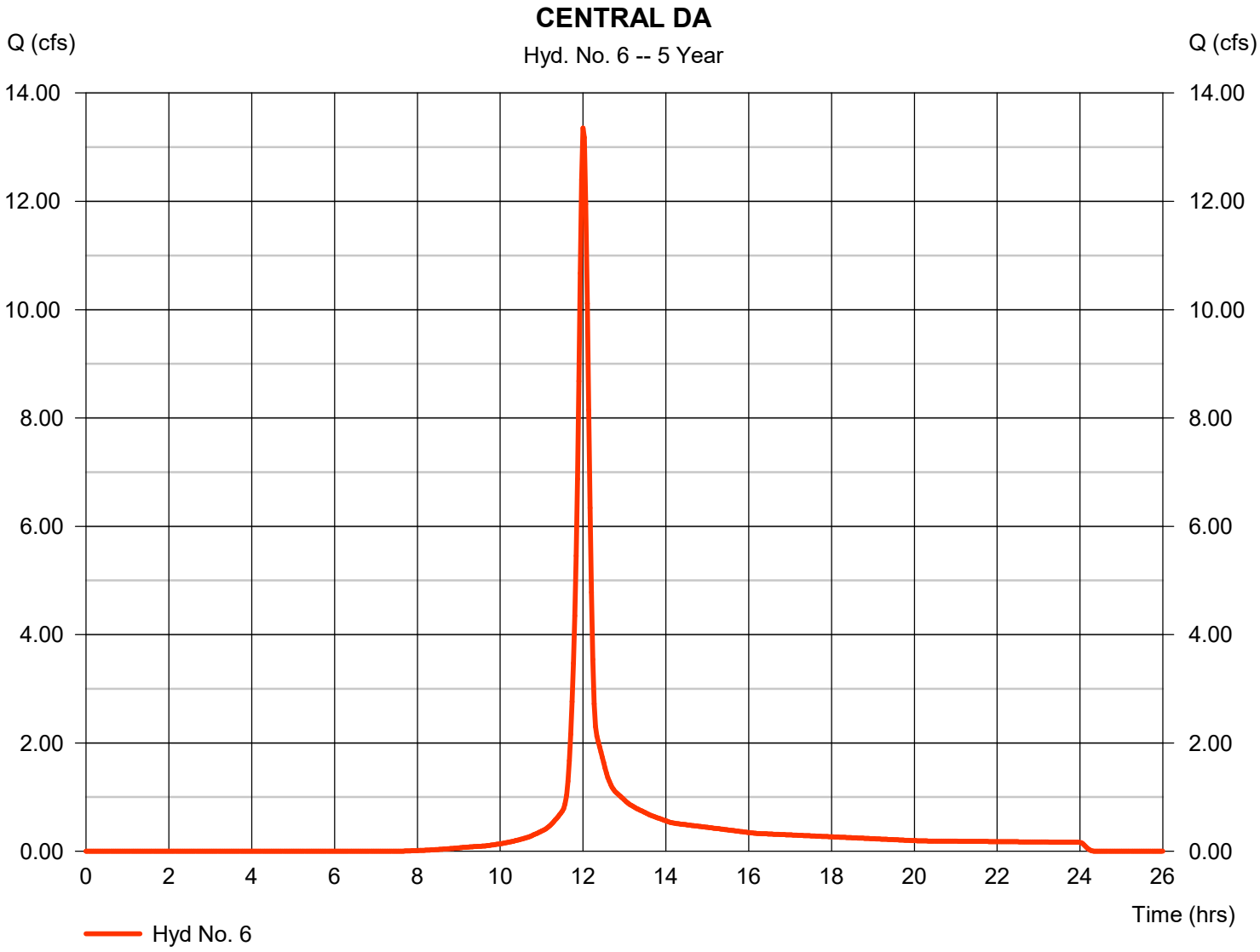


Hydrograph Report

Hyd. No. 6

CENTRAL DA

Hydrograph type	= SCS Runoff	Peak discharge	= 13.36 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 34,636 cuft
Drainage area	= 4.360 ac	Curve number	= 83
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.81 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

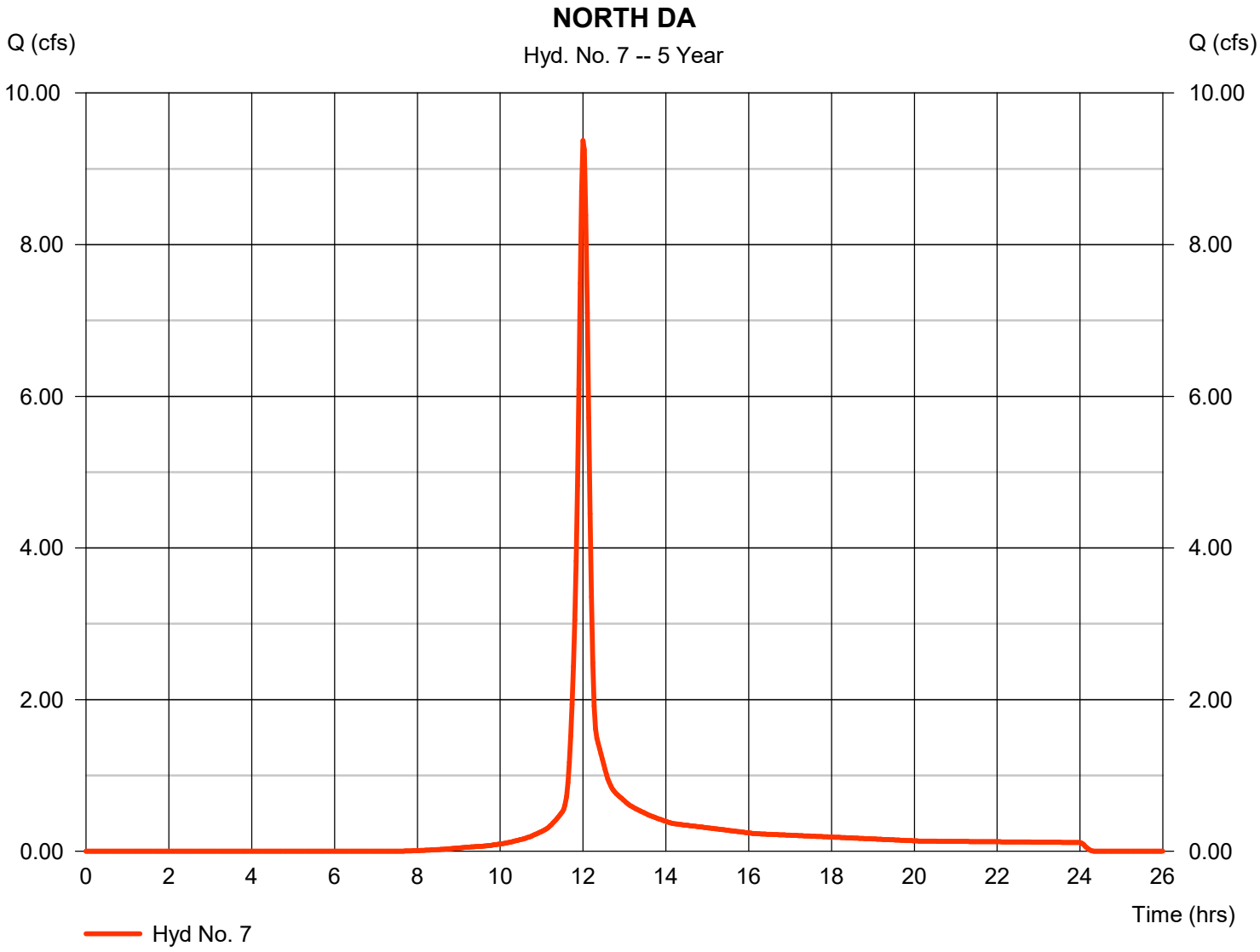


Hydrograph Report

Hyd. No. 7

NORTH DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.373 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	24,309 cuft
Drainage area	=	3.060 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.81 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



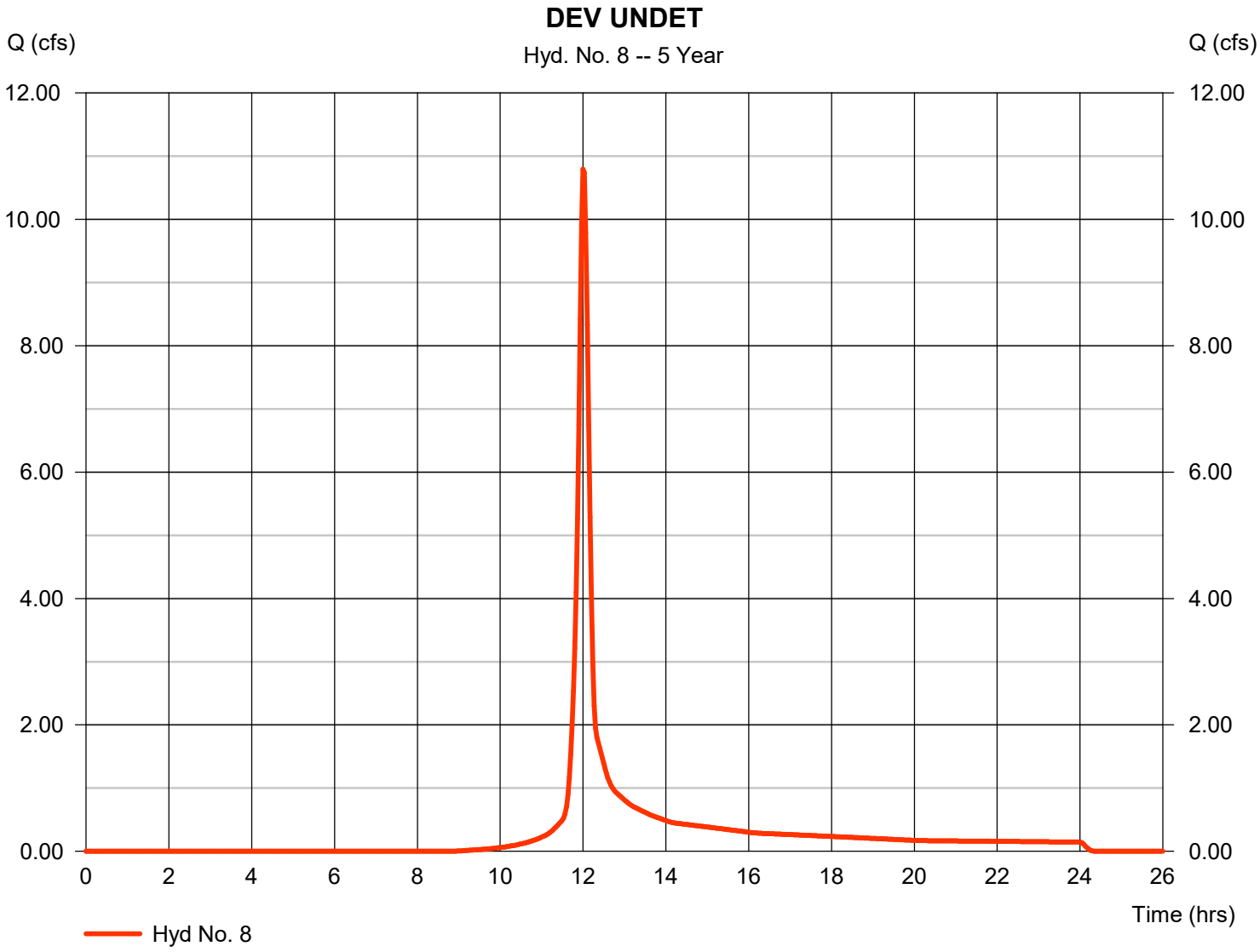
Hydrograph Report

Hyd. No. 8

DEV UNDET

Hydrograph type	= SCS Runoff	Peak discharge	= 10.79 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 28,057 cuft
Drainage area	= 4.140 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 3.81 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(2.460 x 79) + (1.680 x 80)] / 4.140

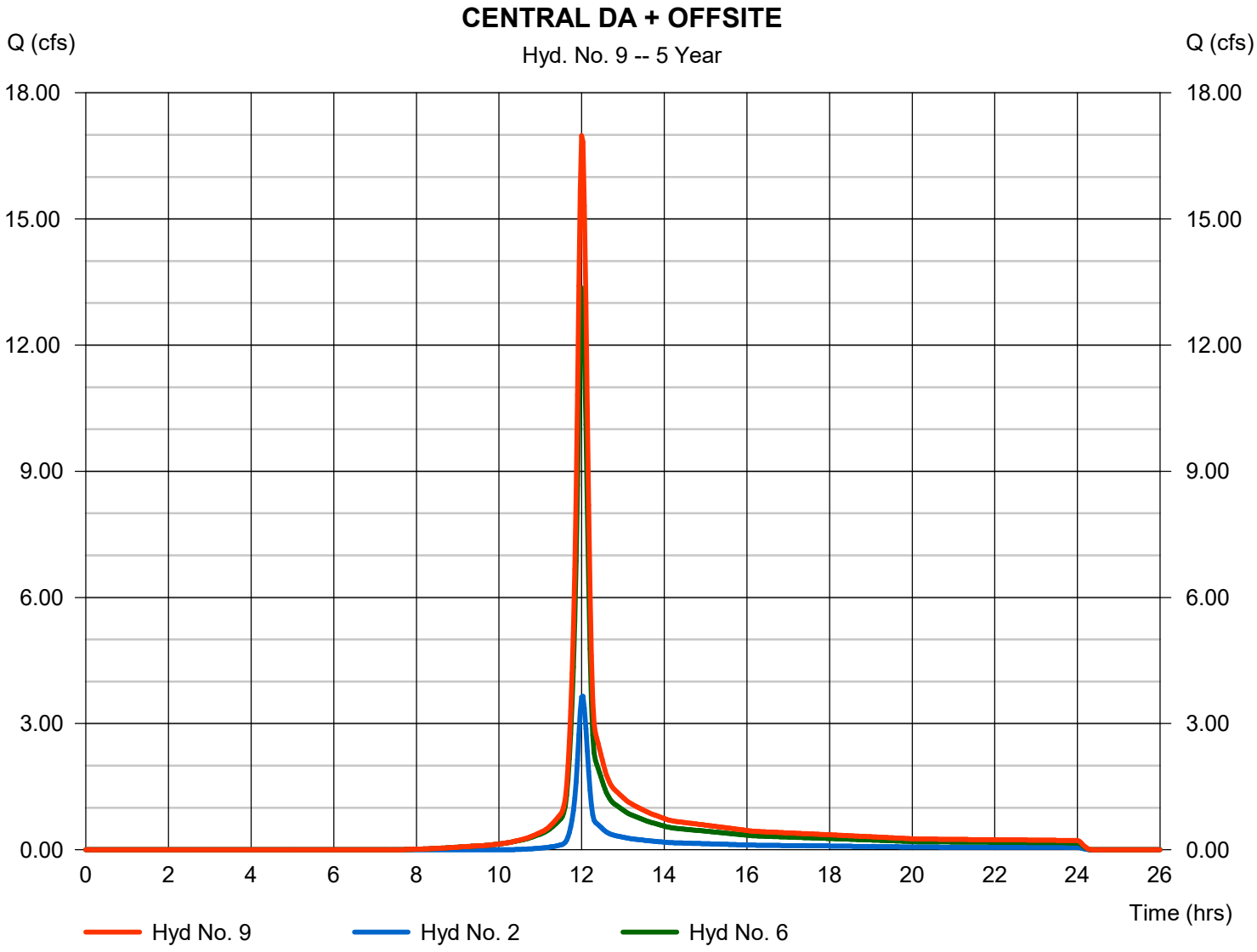


Hydrograph Report

Hyd. No. 9

CENTRAL DA + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 16.98 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 44,244 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 6.120 ac



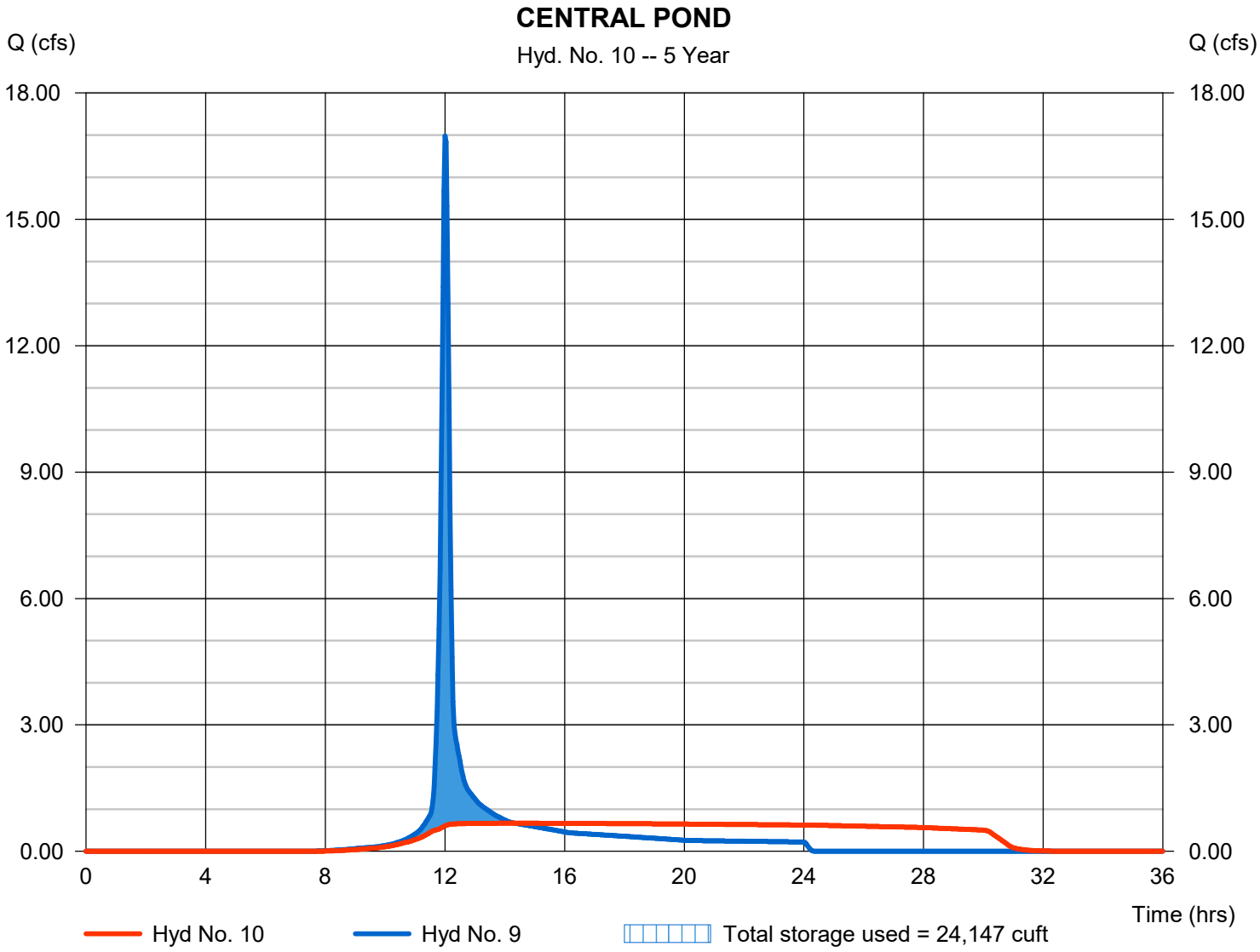
Hydrograph Report

Hyd. No. 10

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.665 cfs
Storm frequency	=	5 yrs	Time to peak	=	14.33 hrs
Time interval	=	2 min	Hyd. volume	=	44,242 cuft
Inflow hyd. No.	=	9 - CENTRAL DA + OFFSITE	Max. Elevation	=	949.72 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	24,147 cuft

Storage Indication method used.

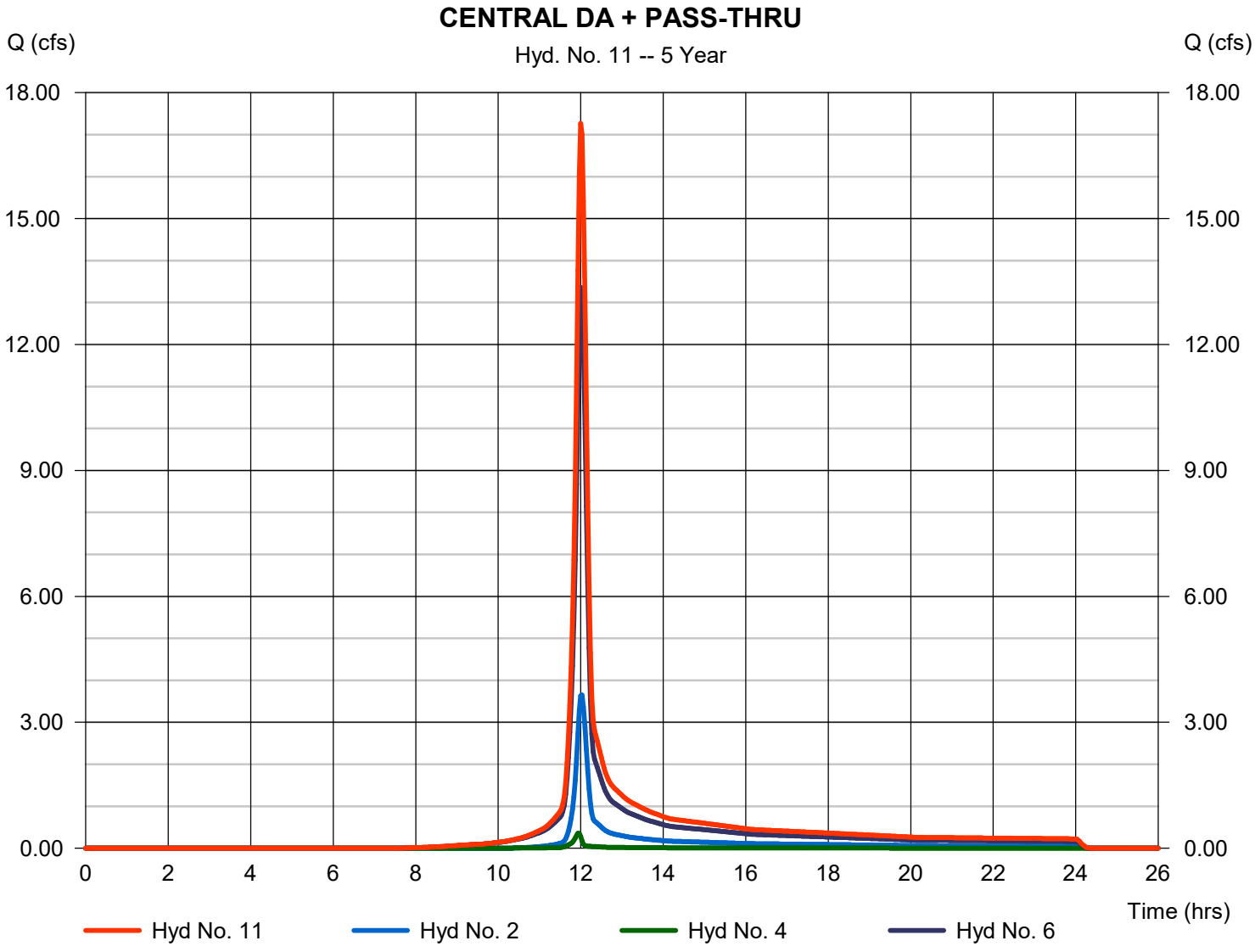


Hydrograph Report

Hyd. No. 11

CENTRAL DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 17.26 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 44,966 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 6.220 ac



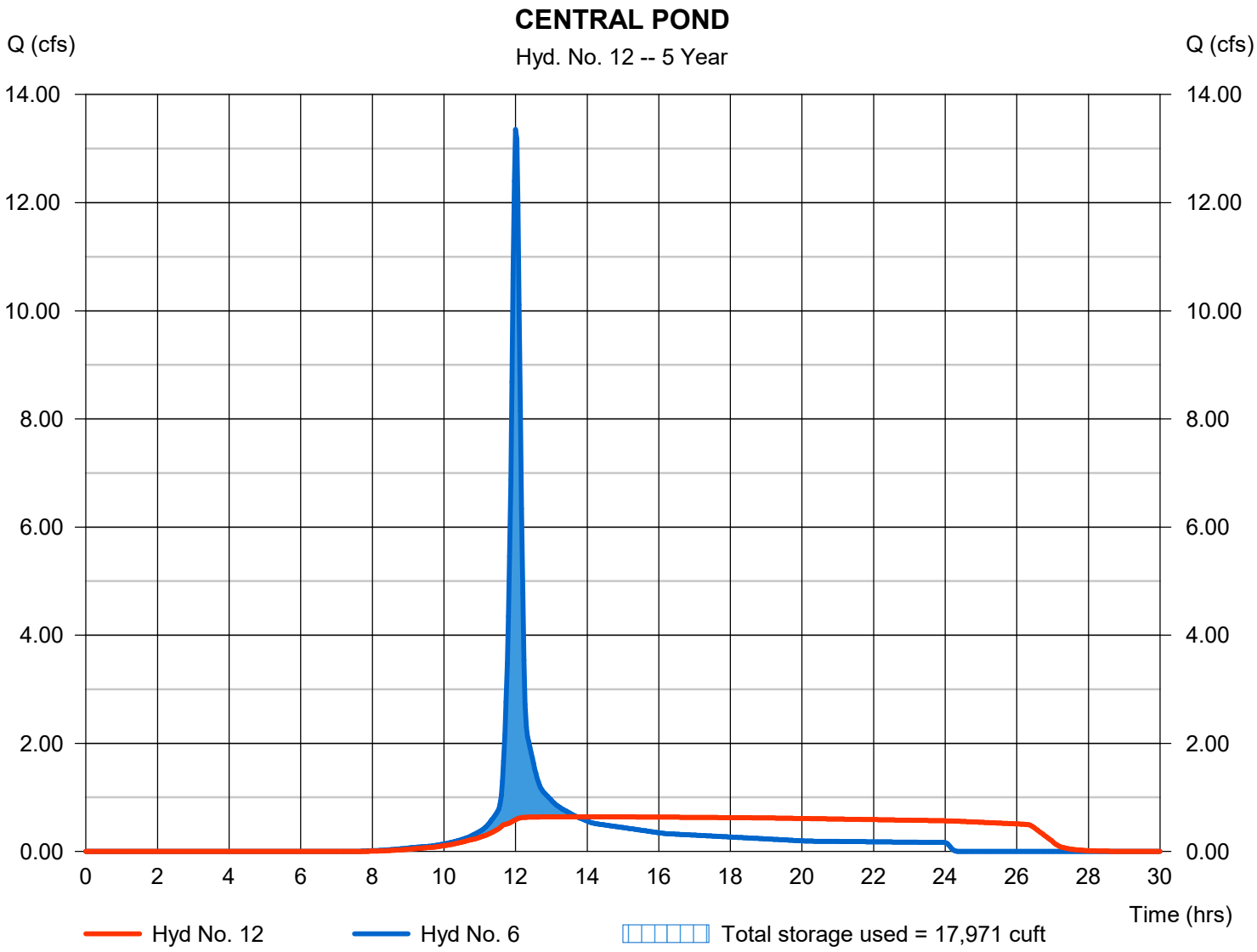
Hydrograph Report

Hyd. No. 12

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.641 cfs
Storm frequency	=	5 yrs	Time to peak	=	13.70 hrs
Time interval	=	2 min	Hyd. volume	=	34,634 cuft
Inflow hyd. No.	=	6 - CENTRAL DA	Max. Elevation	=	948.77 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	17,971 cuft

Storage Indication method used.



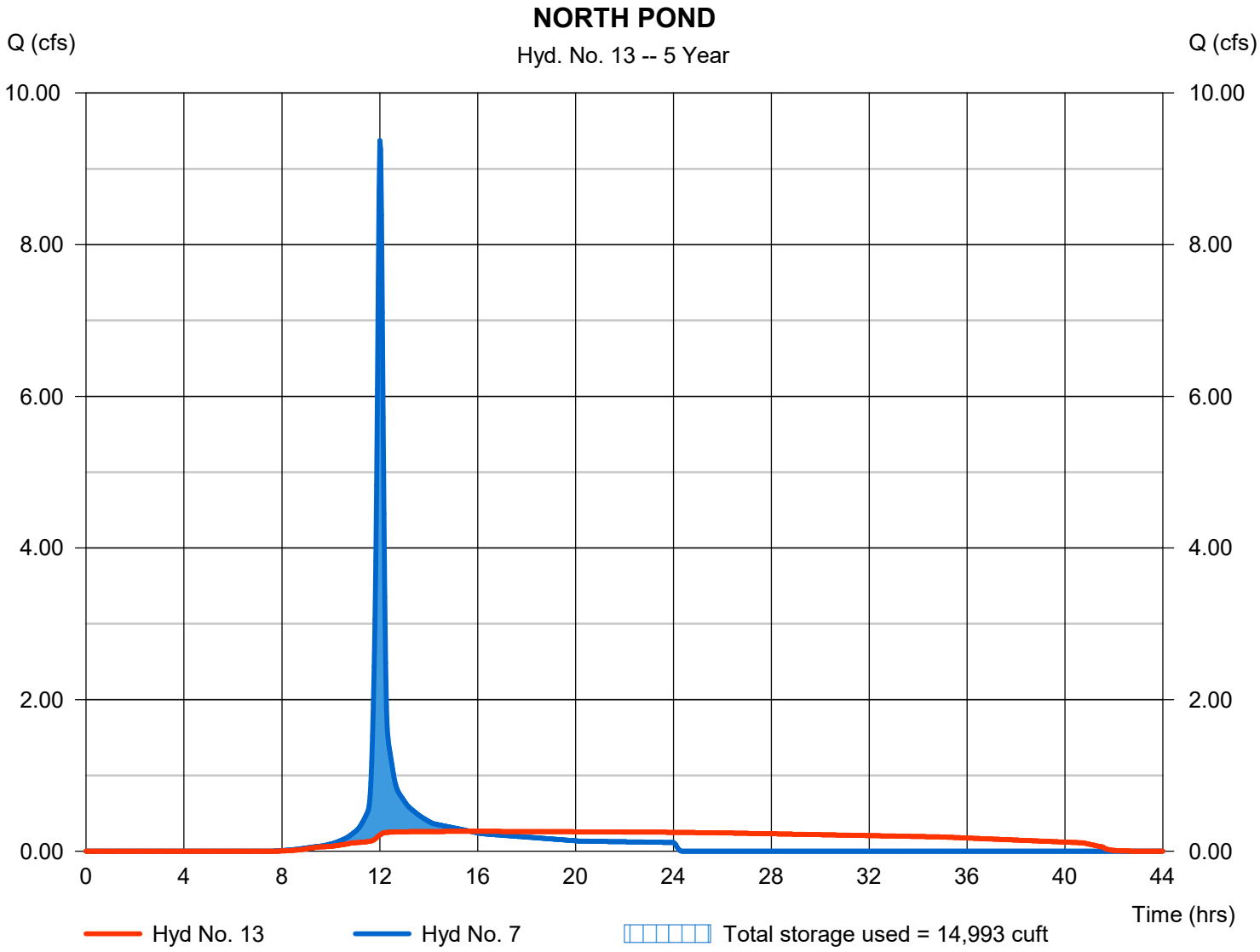
Hydrograph Report

Hyd. No. 13

NORTH POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.262 cfs
Storm frequency	=	5 yrs	Time to peak	=	15.70 hrs
Time interval	=	2 min	Hyd. volume	=	24,307 cuft
Inflow hyd. No.	=	7 - NORTH DA	Max. Elevation	=	940.80 ft
Reservoir name	=	NORTH POND	Max. Storage	=	14,993 cuft

Storage Indication method used.

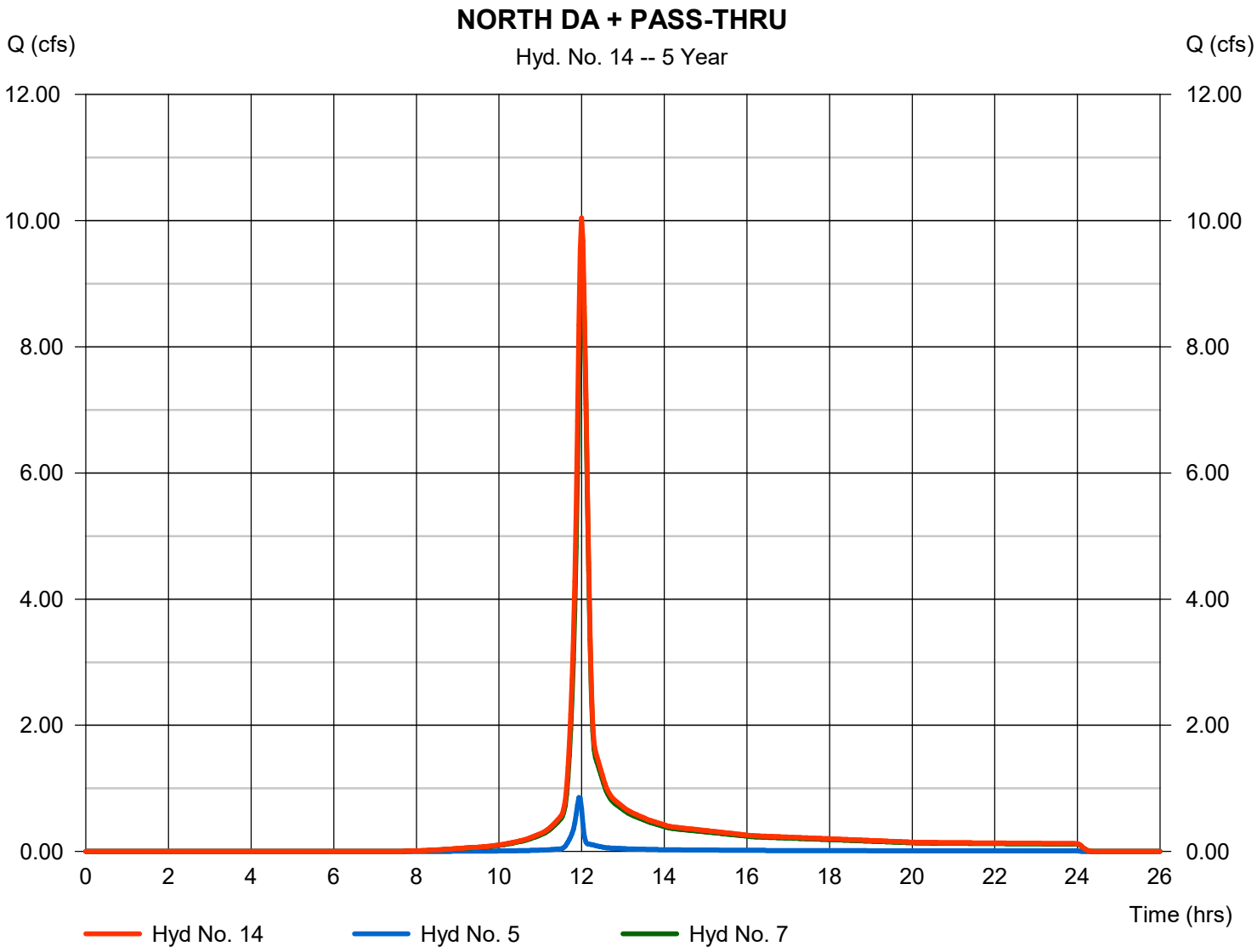


Hydrograph Report

Hyd. No. 14

NORTH DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 10.05 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 26,042 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 3.300 ac



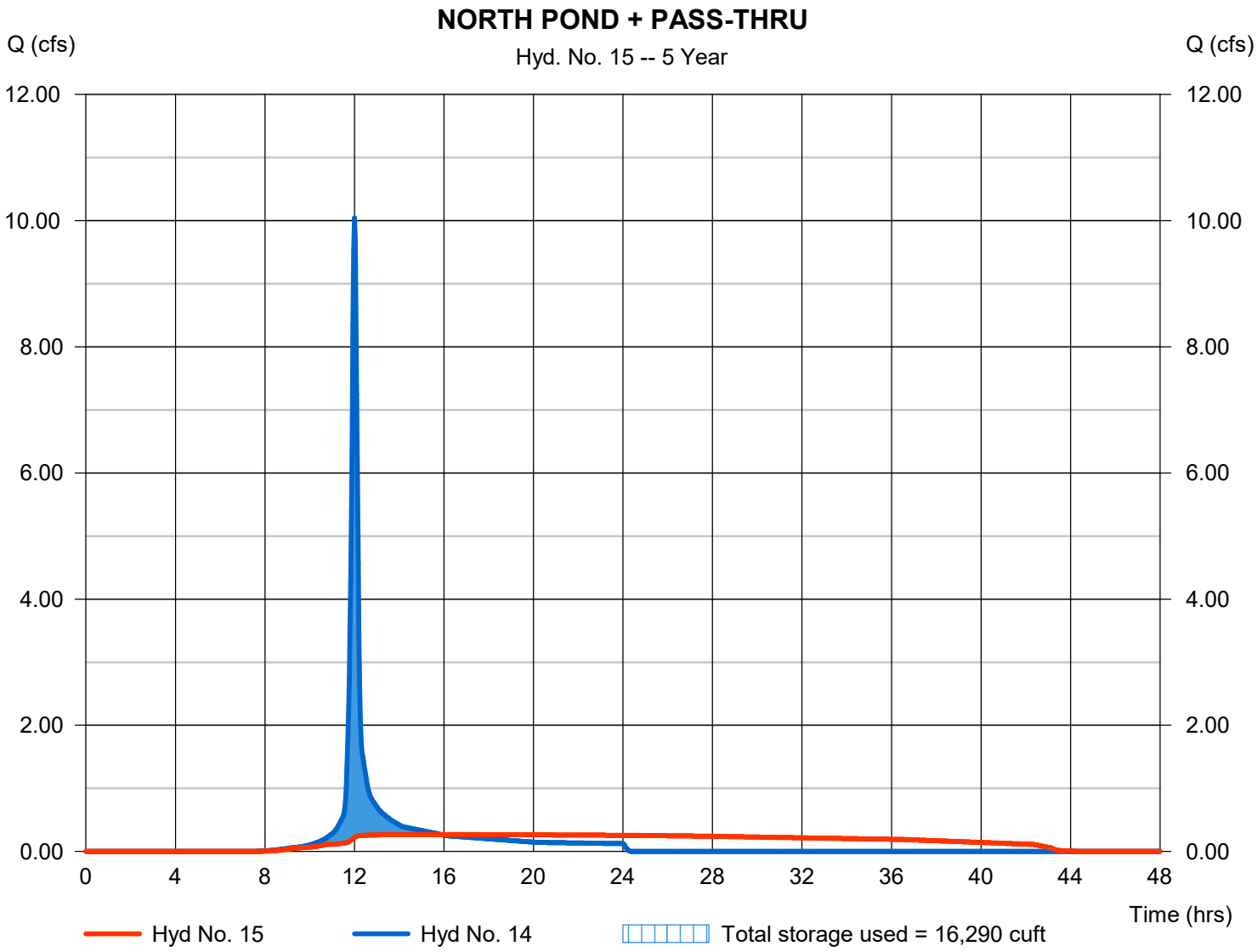
Hydrograph Report

Hyd. No. 15

NORTH POND + PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.267 cfs
Storm frequency	=	5 yrs	Time to peak	=	15.90 hrs
Time interval	=	2 min	Hyd. volume	=	26,040 cuft
Inflow hyd. No.	=	14 - NORTH DA + PASS-THRU	Max. Elevation	=	941.03 ft
Reservoir name	=	NORTH POND	Max. Storage	=	16,290 cuft

Storage Indication method used.



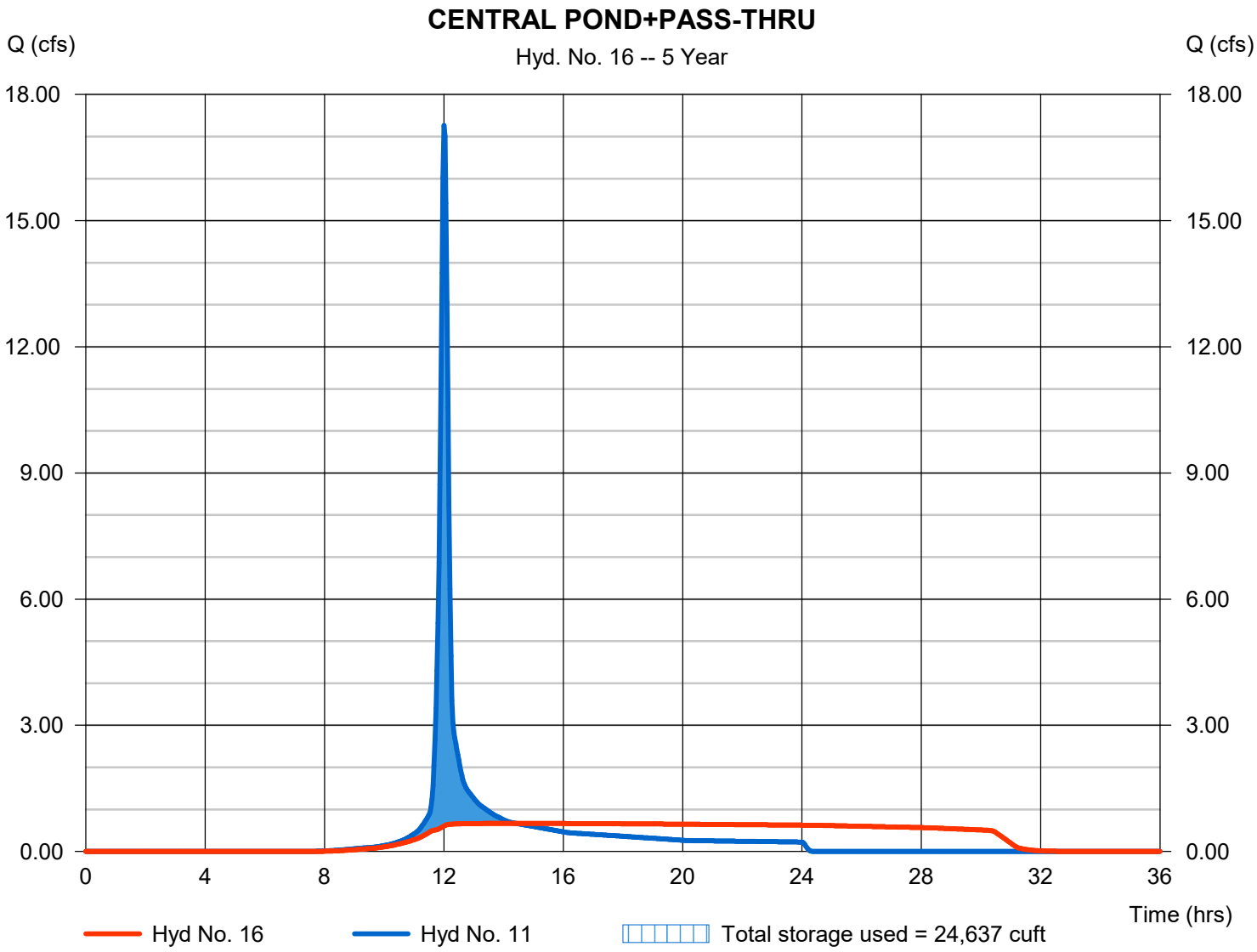
Hydrograph Report

Hyd. No. 16

CENTRAL POND+PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.667 cfs
Storm frequency	=	5 yrs	Time to peak	=	14.43 hrs
Time interval	=	2 min	Hyd. volume	=	44,965 cuft
Inflow hyd. No.	=	11 - CENTRAL DA + PASS-THRU	Max. Elevation	=	949.80 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	24,637 cuft

Storage Indication method used.

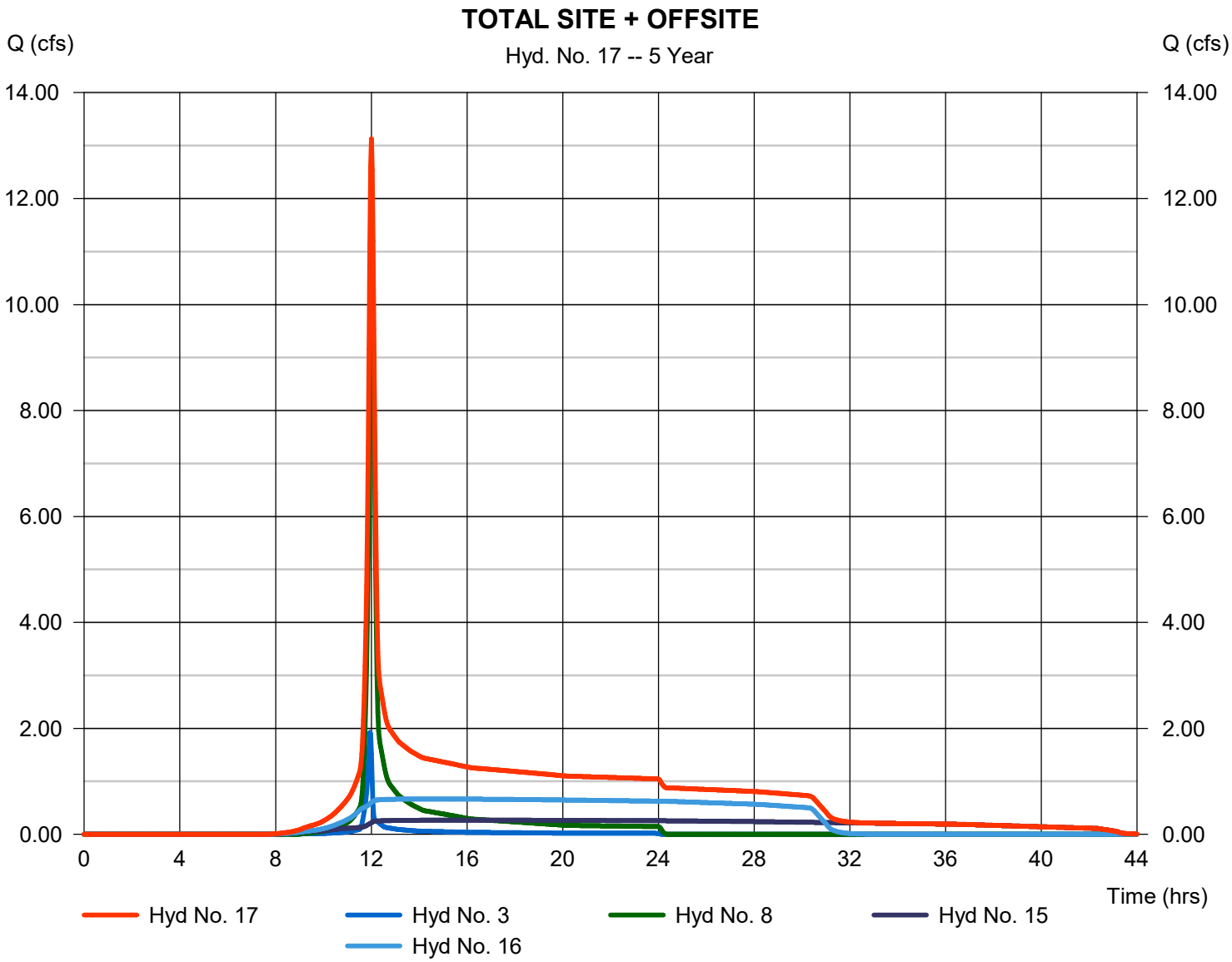


Hydrograph Report

Hyd. No. 17

TOTAL SITE + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 13.13 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 102,962 cuft
Inflow hyds.	= 3, 8, 15, 16	Contrib. drain. area	= 4.680 ac

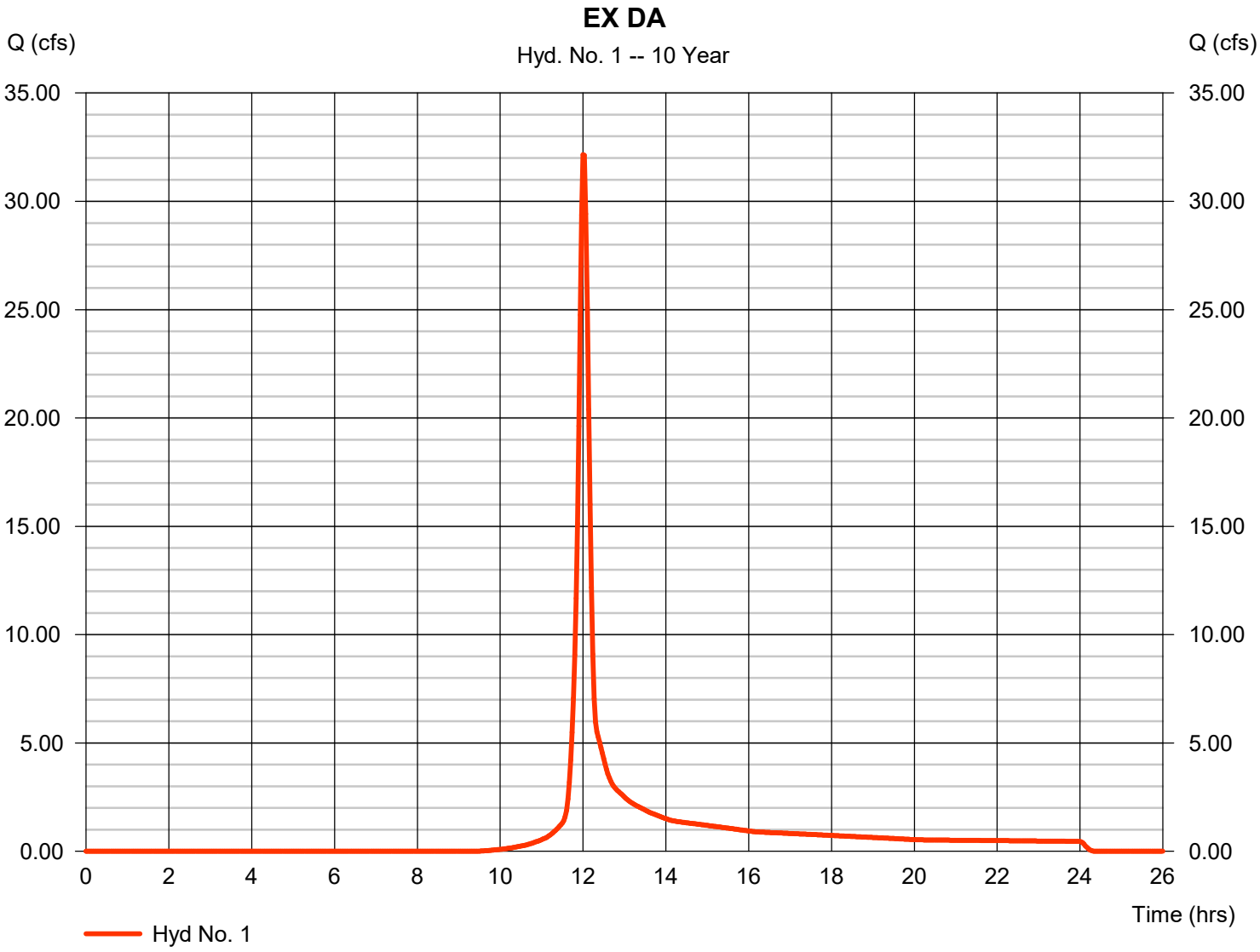


Hydrograph Report

Hyd. No. 1

EX DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	32.15 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	84,023 cuft
Drainage area	=	11.560 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.60 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

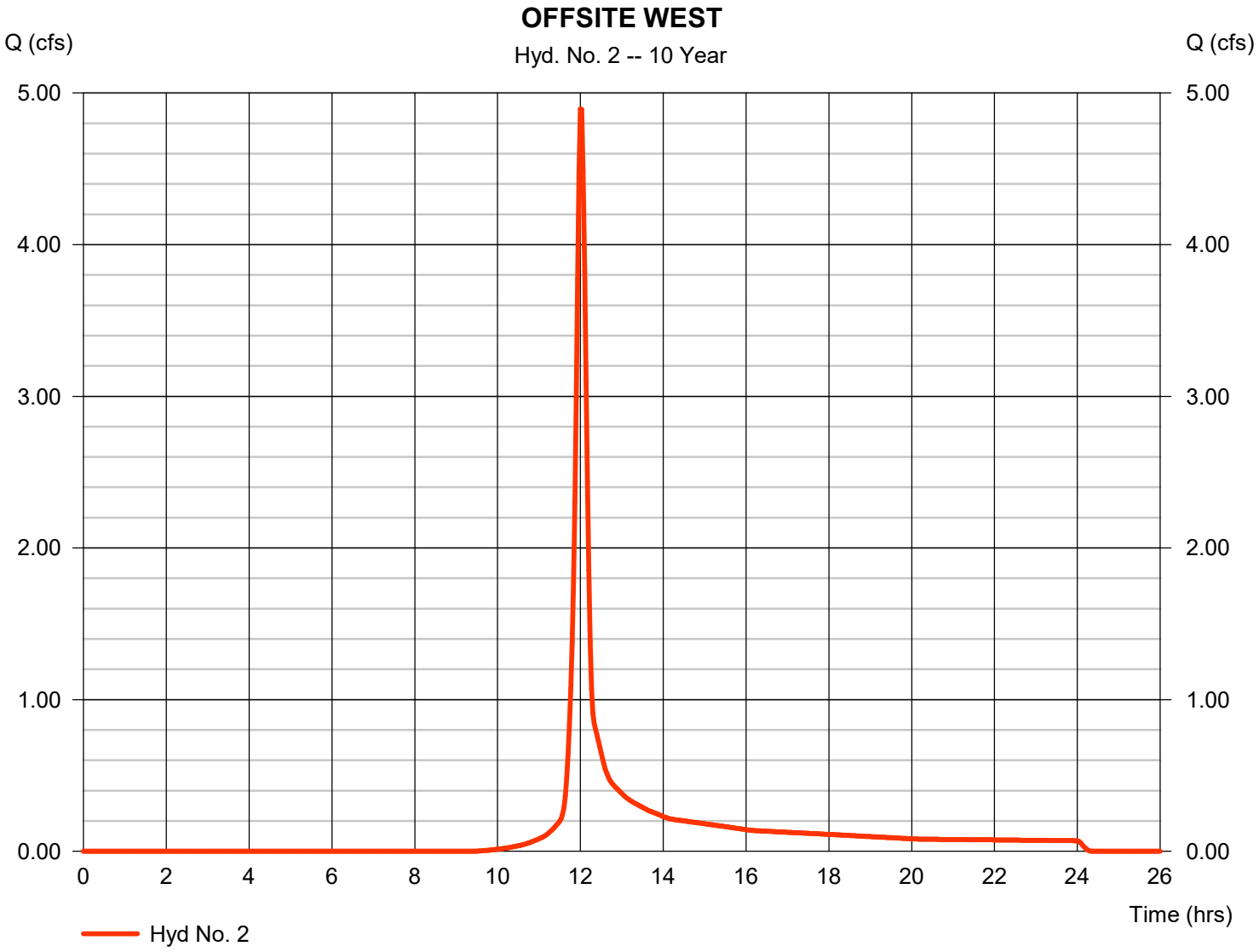


Hydrograph Report

Hyd. No. 2

OFFSITE WEST

Hydrograph type	= SCS Runoff	Peak discharge	= 4.895 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 12,792 cuft
Drainage area	= 1.760 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.10 min
Total precip.	= 4.46 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

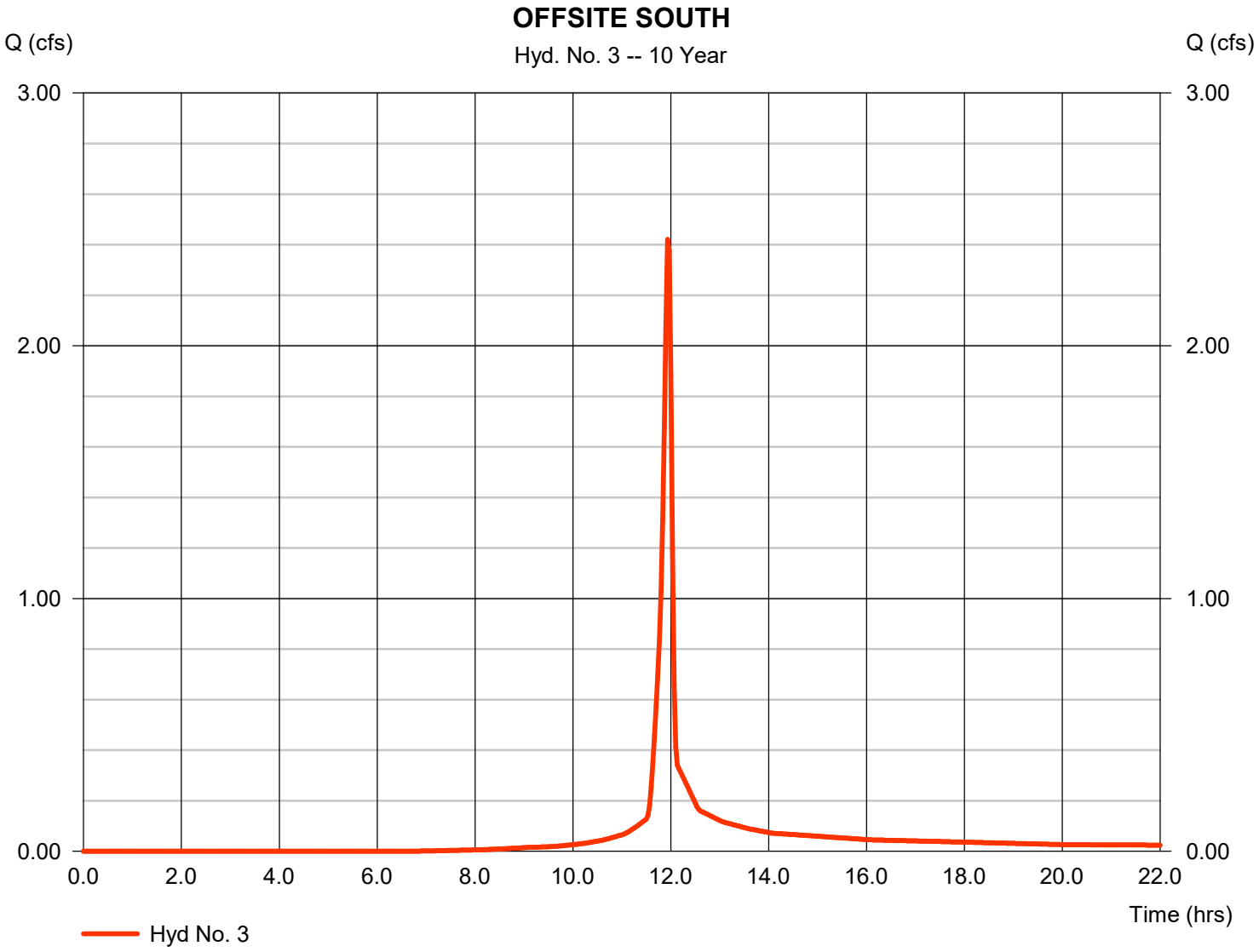


Hydrograph Report

Hyd. No. 3

OFFSITE SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.421 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	4,943 cuft
Drainage area	=	0.540 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

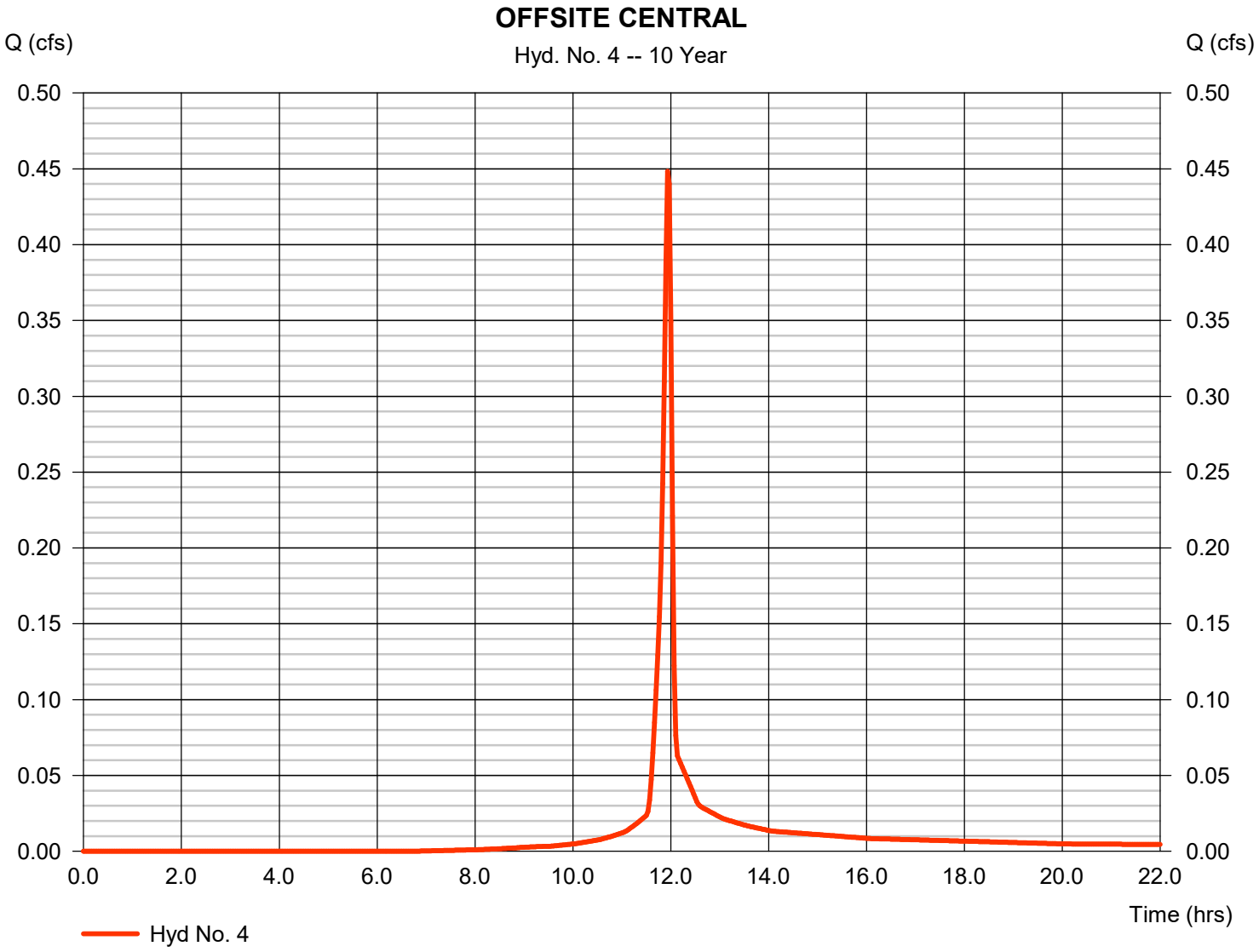


Hydrograph Report

Hyd. No. 4

OFFSITE CENTRAL

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.448 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	915 cuft
Drainage area	=	0.100 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

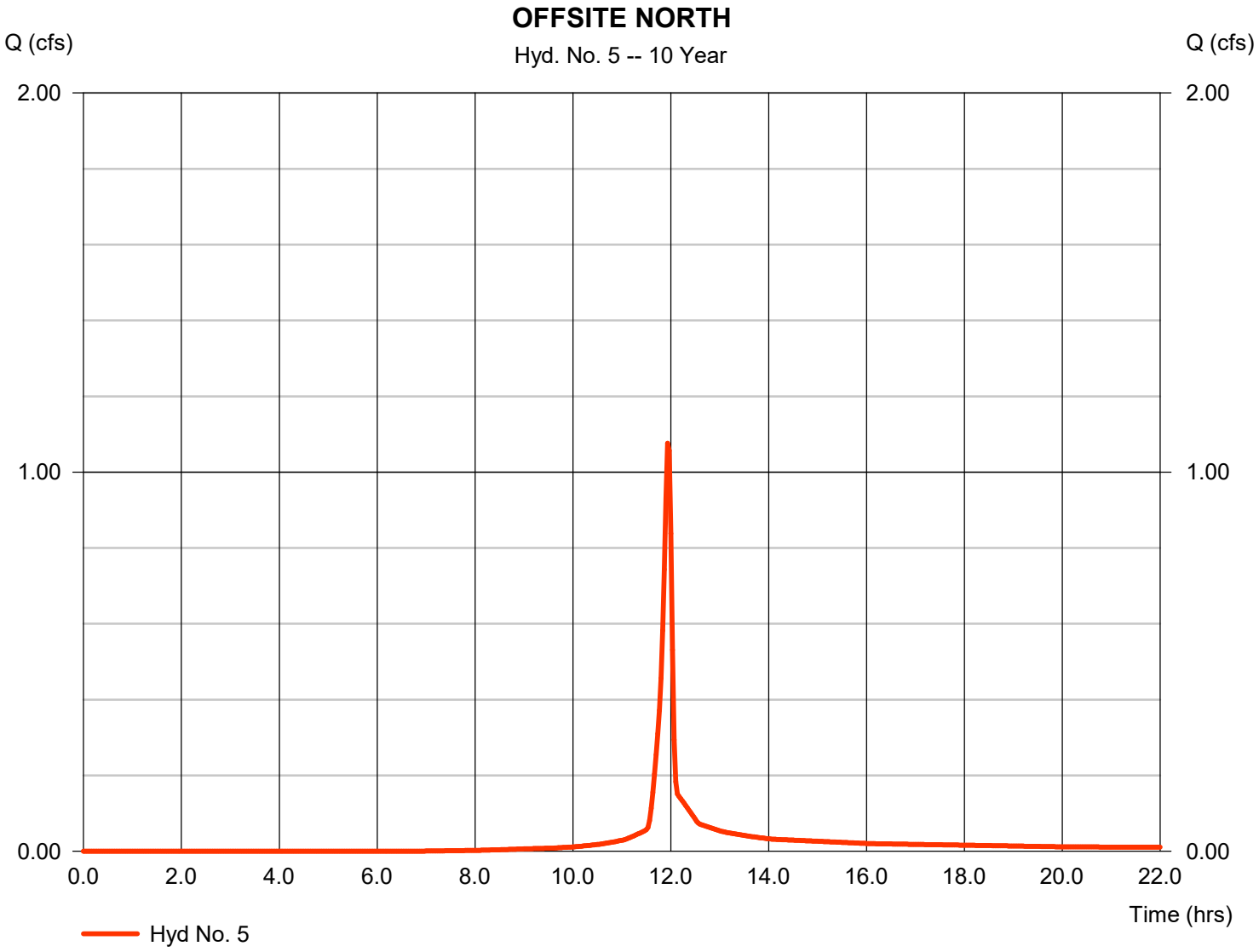


Hydrograph Report

Hyd. No. 5

OFFSITE NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.076 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	2,197 cuft
Drainage area	=	0.240 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

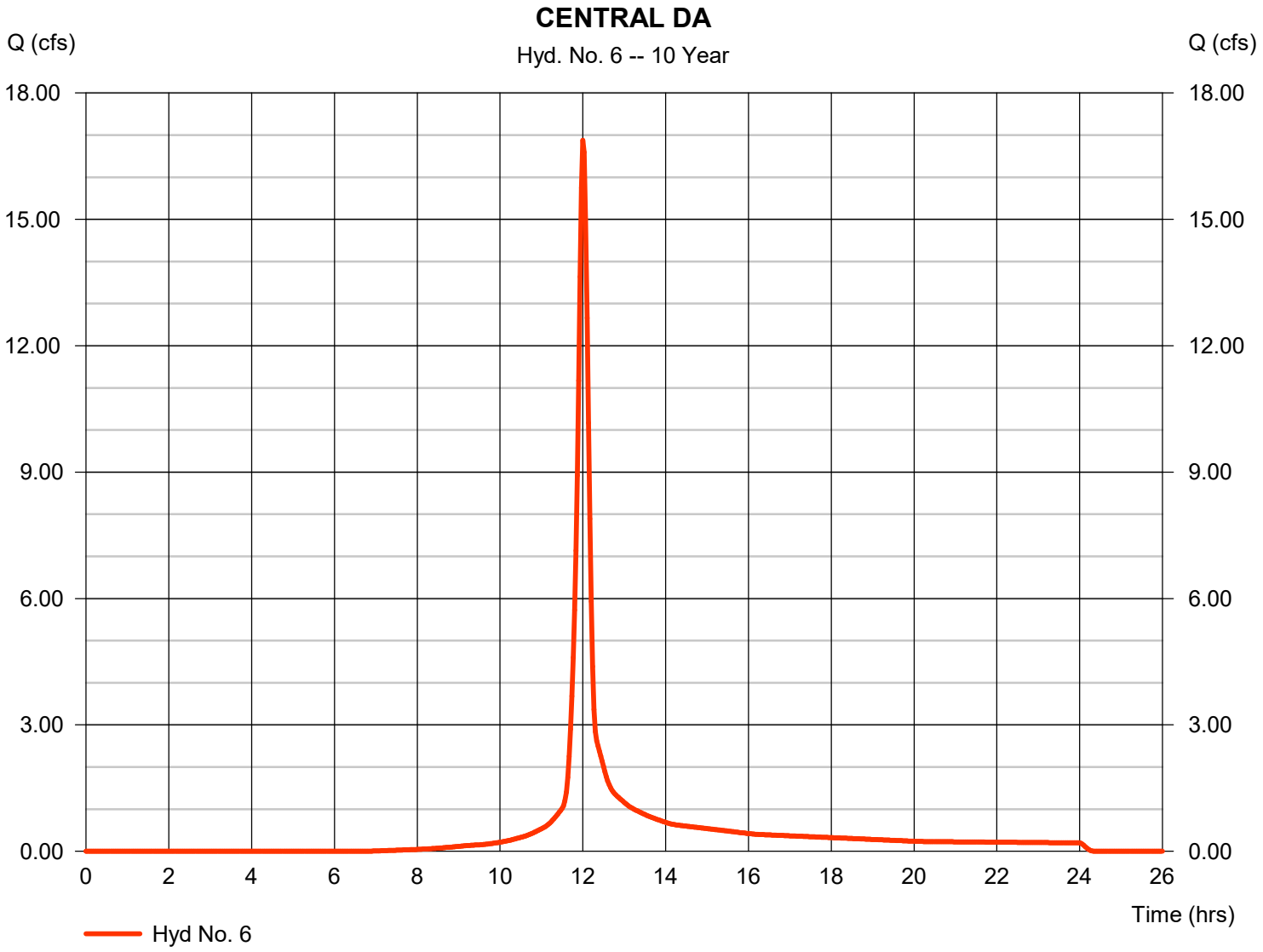


Hydrograph Report

Hyd. No. 6

CENTRAL DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.88 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	43,905 cuft
Drainage area	=	4.360 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

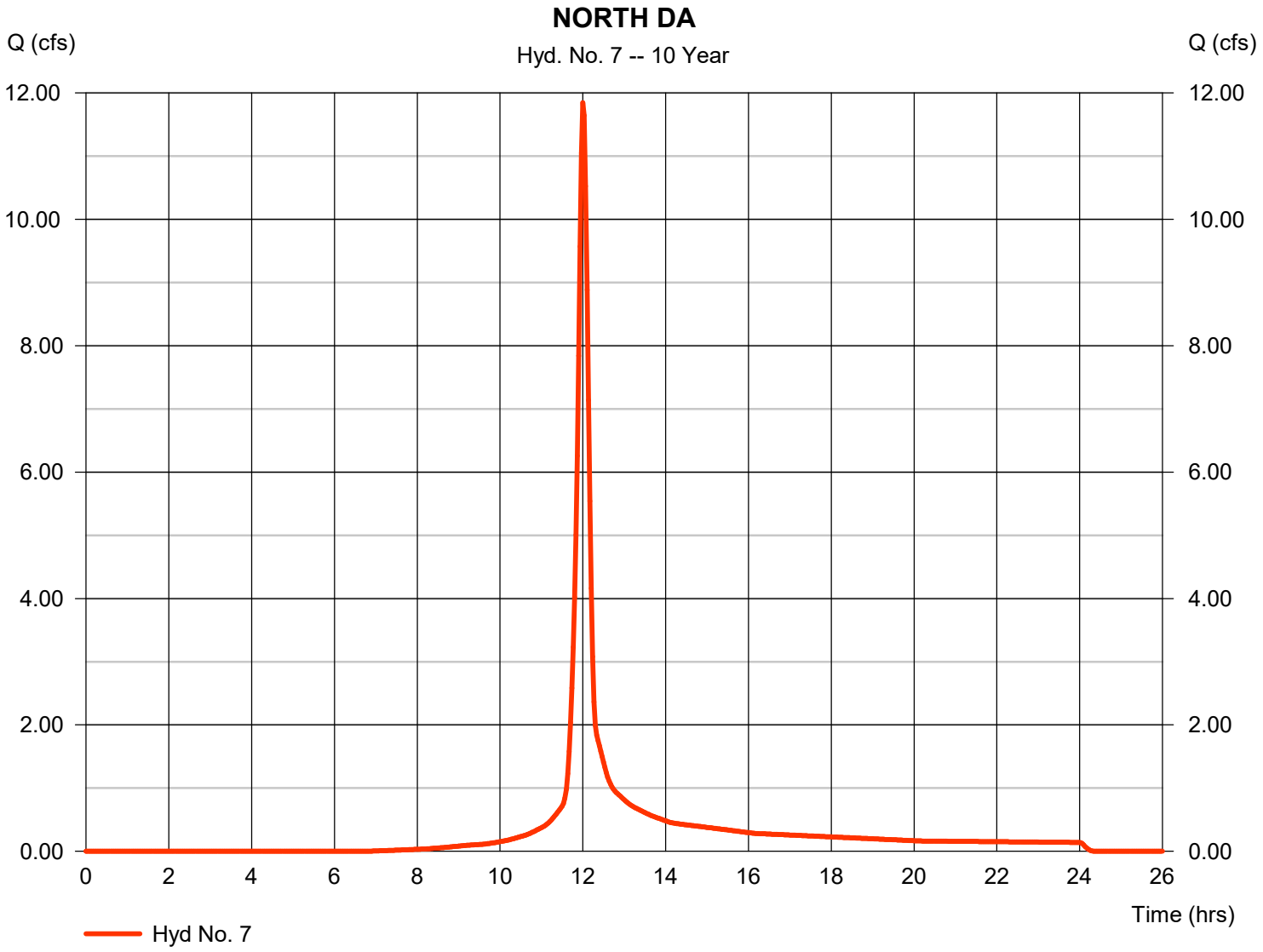


Hydrograph Report

Hyd. No. 7

NORTH DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	11.85 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	30,814 cuft
Drainage area	=	3.060 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



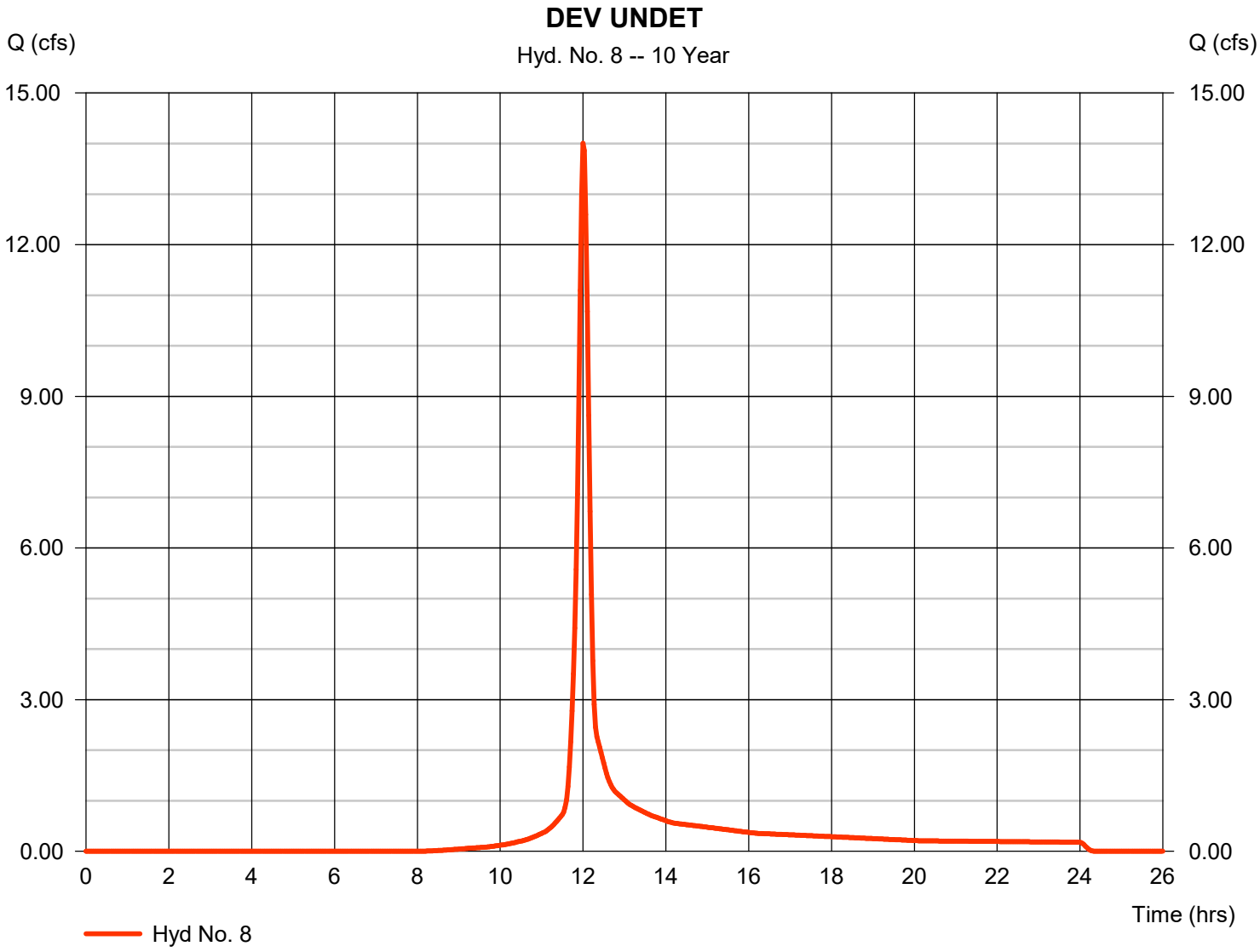
Hydrograph Report

Hyd. No. 8

DEV UNDET

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.01 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	36,310 cuft
Drainage area	=	4.140 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.46 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.460 x 79) + (1.680 x 80)] / 4.140

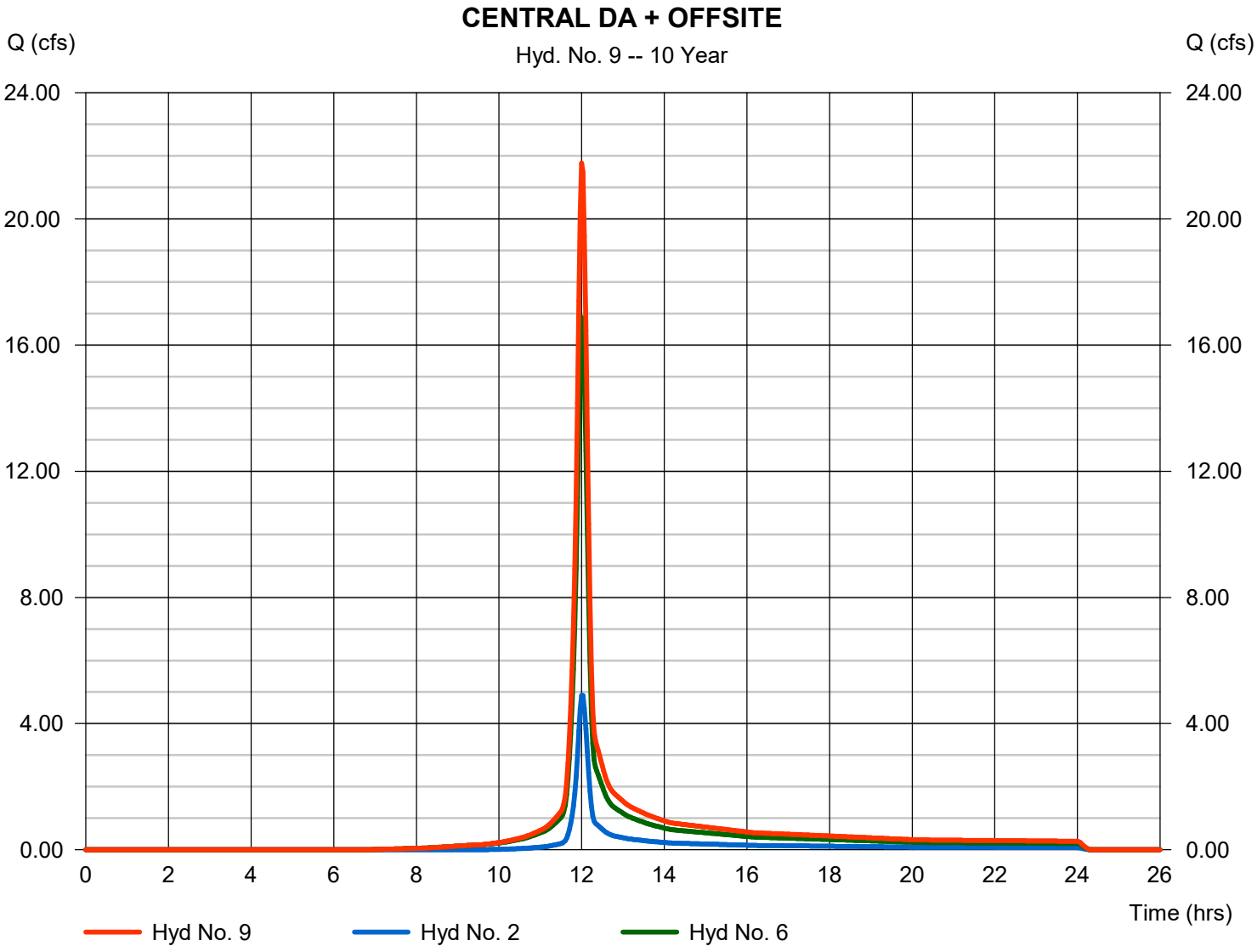


Hydrograph Report

Hyd. No. 9

CENTRAL DA + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 21.77 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 56,698 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 6.120 ac



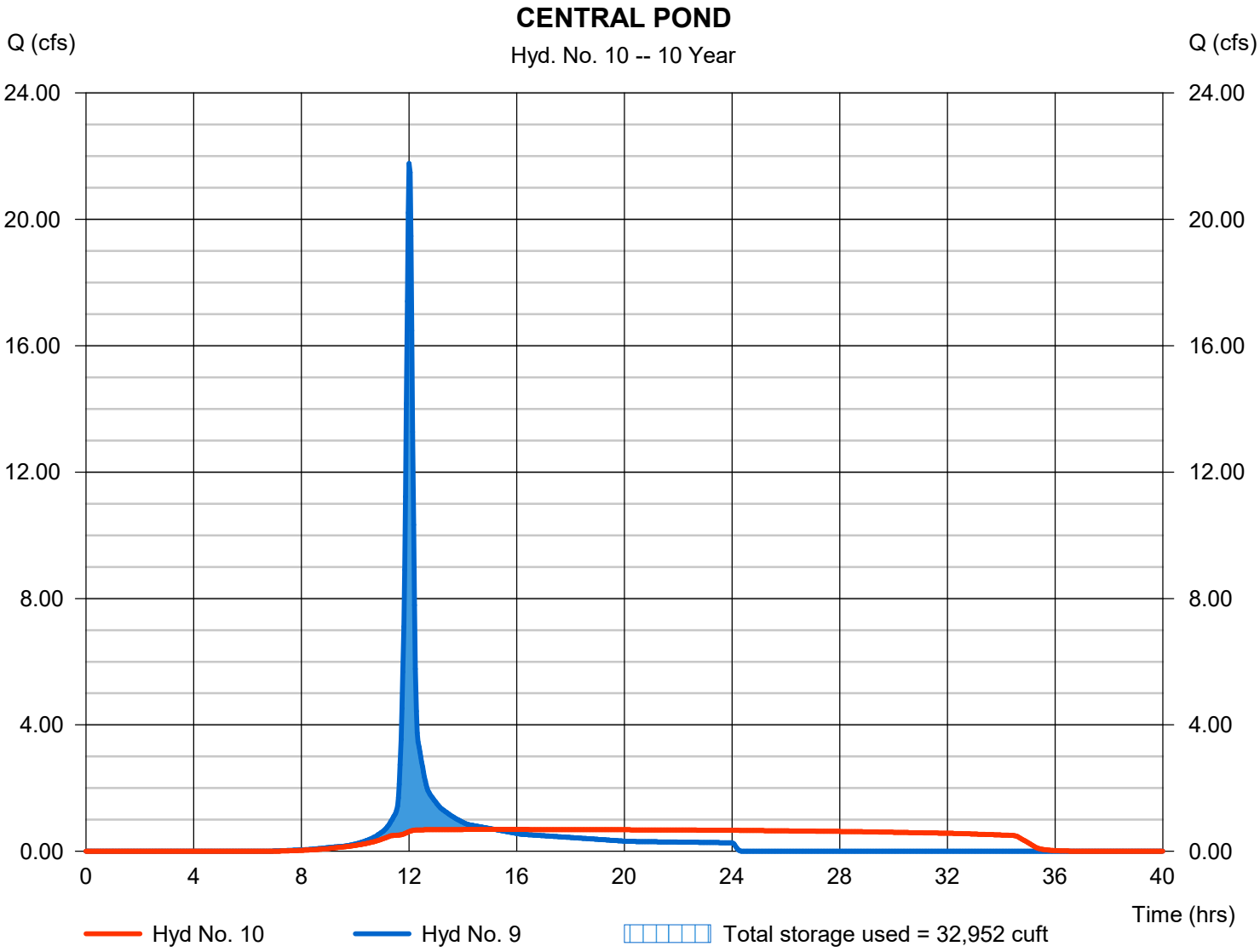
Hydrograph Report

Hyd. No. 10

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.688 cfs
Storm frequency	=	10 yrs	Time to peak	=	15.20 hrs
Time interval	=	2 min	Hyd. volume	=	56,696 cuft
Inflow hyd. No.	=	9 - CENTRAL DA + OFFSITE	Max. Elevation	=	950.68 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	32,952 cuft

Storage Indication method used.

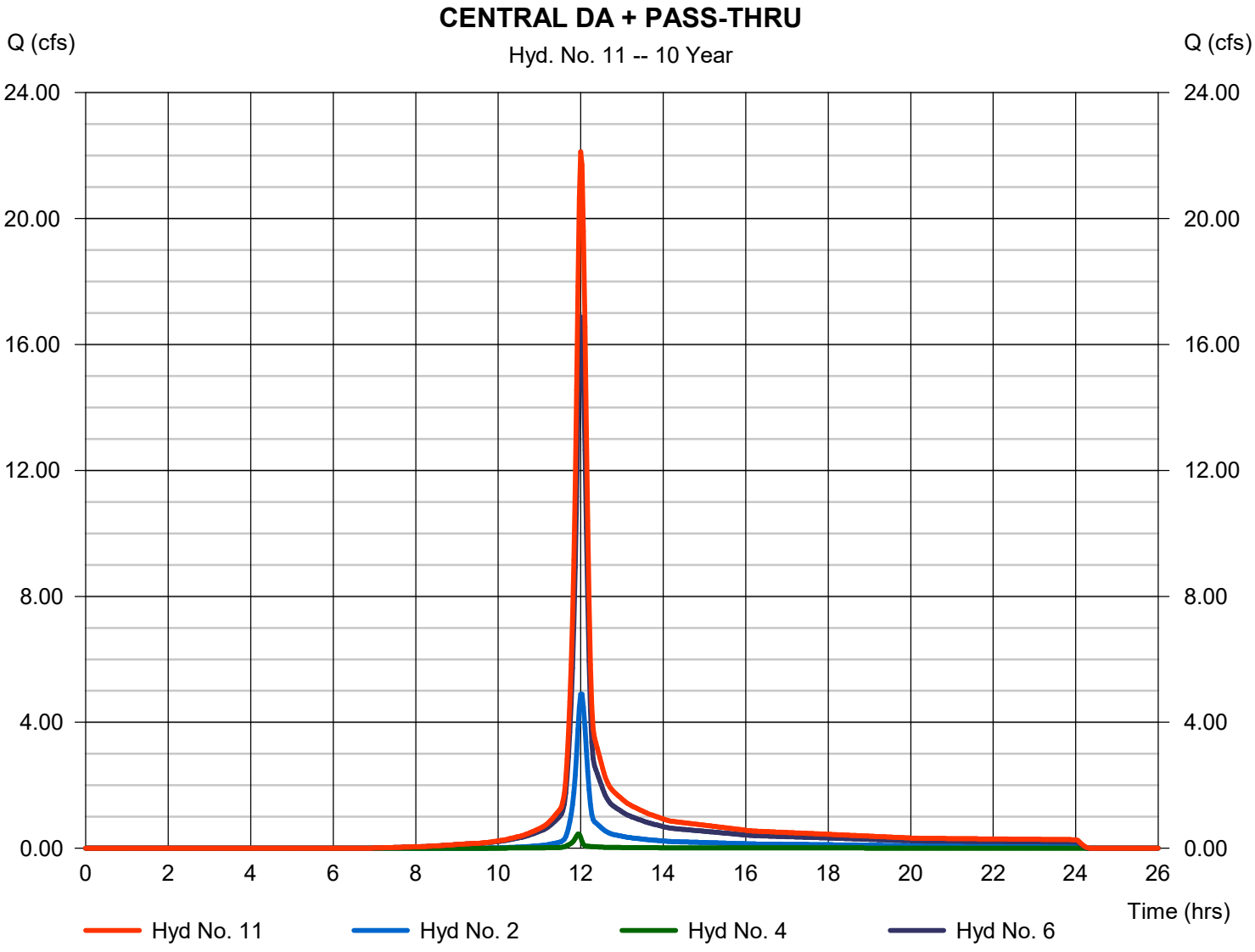


Hydrograph Report

Hyd. No. 11

CENTRAL DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 22.12 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 57,613 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 6.220 ac



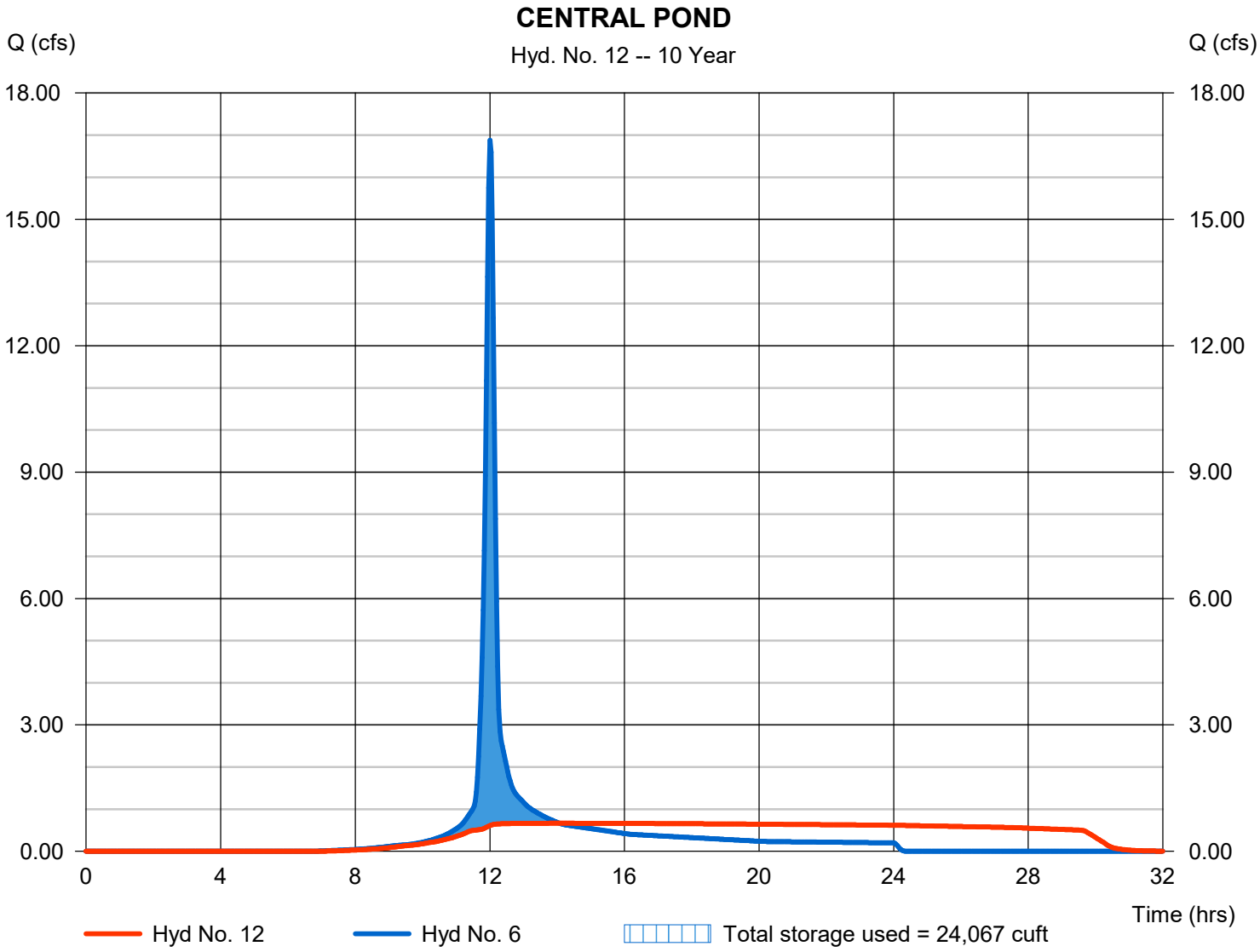
Hydrograph Report

Hyd. No. 12

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.664 cfs
Storm frequency	=	10 yrs	Time to peak	=	14.07 hrs
Time interval	=	2 min	Hyd. volume	=	43,904 cuft
Inflow hyd. No.	=	6 - CENTRAL DA	Max. Elevation	=	949.71 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	24,067 cuft

Storage Indication method used.



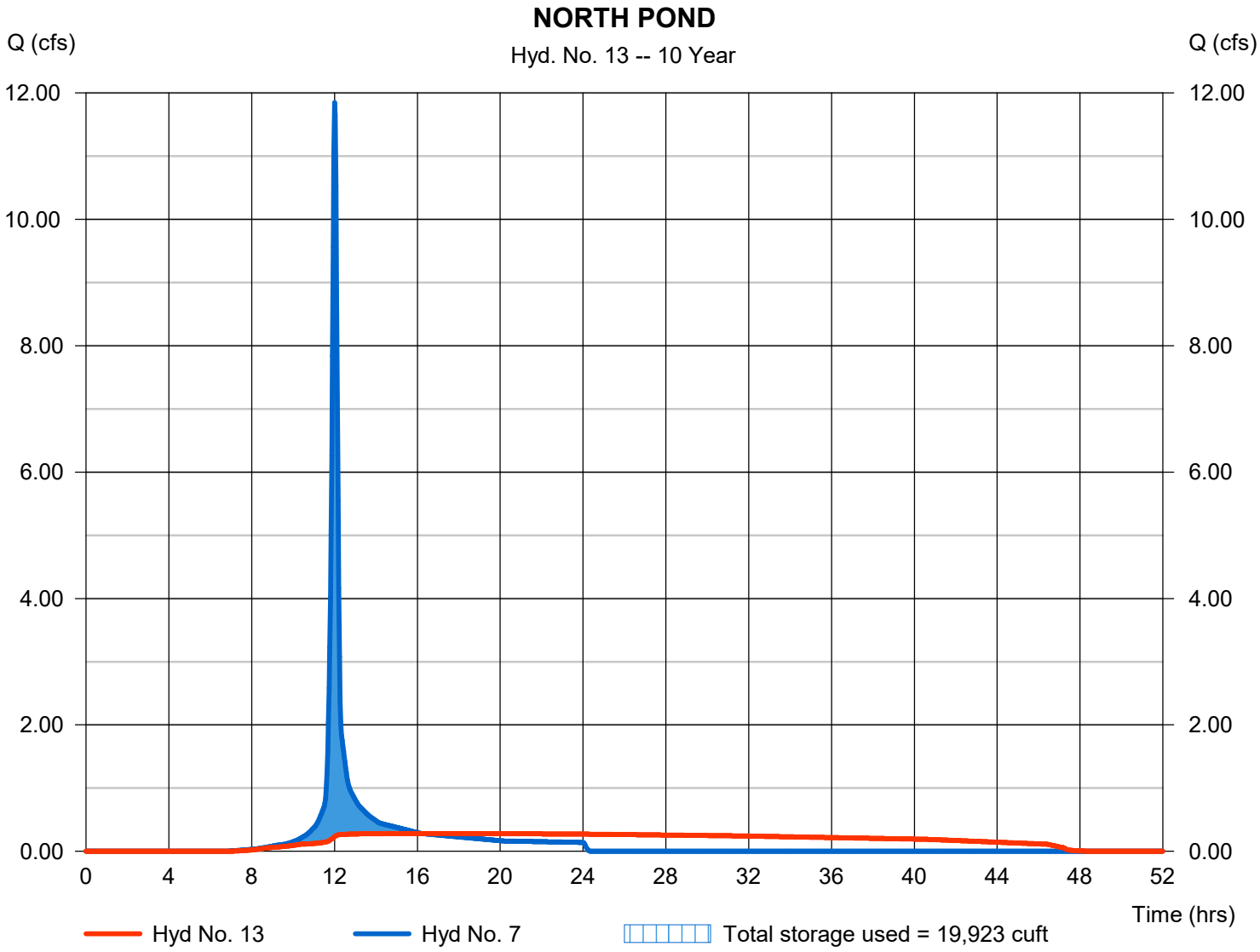
Hydrograph Report

Hyd. No. 13

NORTH POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.281 cfs
Storm frequency	=	10 yrs	Time to peak	=	16.23 hrs
Time interval	=	2 min	Hyd. volume	=	30,813 cuft
Inflow hyd. No.	=	7 - NORTH DA	Max. Elevation	=	941.68 ft
Reservoir name	=	NORTH POND	Max. Storage	=	19,923 cuft

Storage Indication method used.

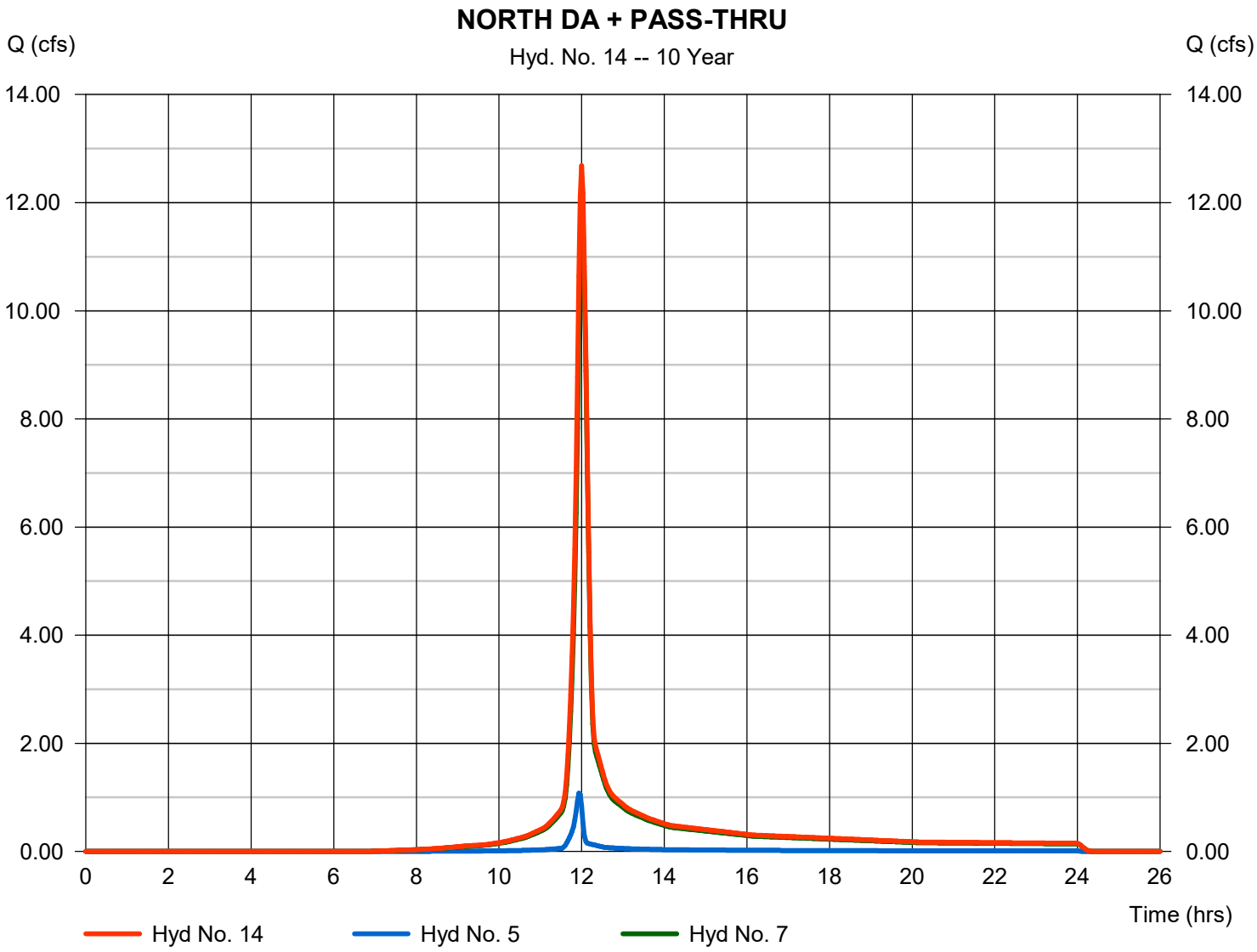


Hydrograph Report

Hyd. No. 14

NORTH DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 12.68 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 33,011 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 3.300 ac



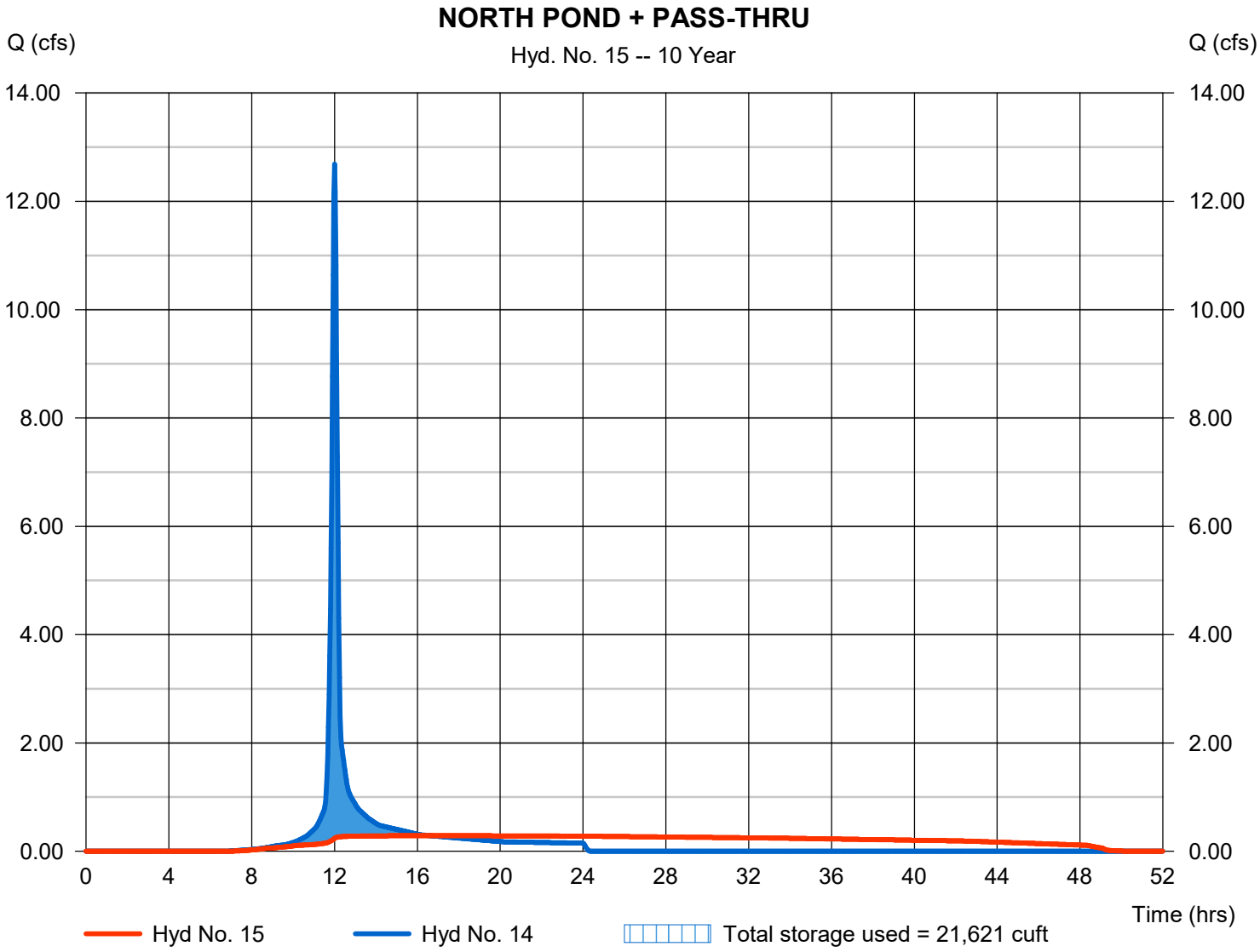
Hydrograph Report

Hyd. No. 15

NORTH POND + PASS-THRU

Hydrograph type	= Reservoir	Peak discharge	= 0.287 cfs
Storm frequency	= 10 yrs	Time to peak	= 16.63 hrs
Time interval	= 2 min	Hyd. volume	= 33,010 cuft
Inflow hyd. No.	= 14 - NORTH DA + PASS-THRU	Max. Elevation	= 941.98 ft
Reservoir name	= NORTH POND	Max. Storage	= 21,621 cuft

Storage Indication method used.



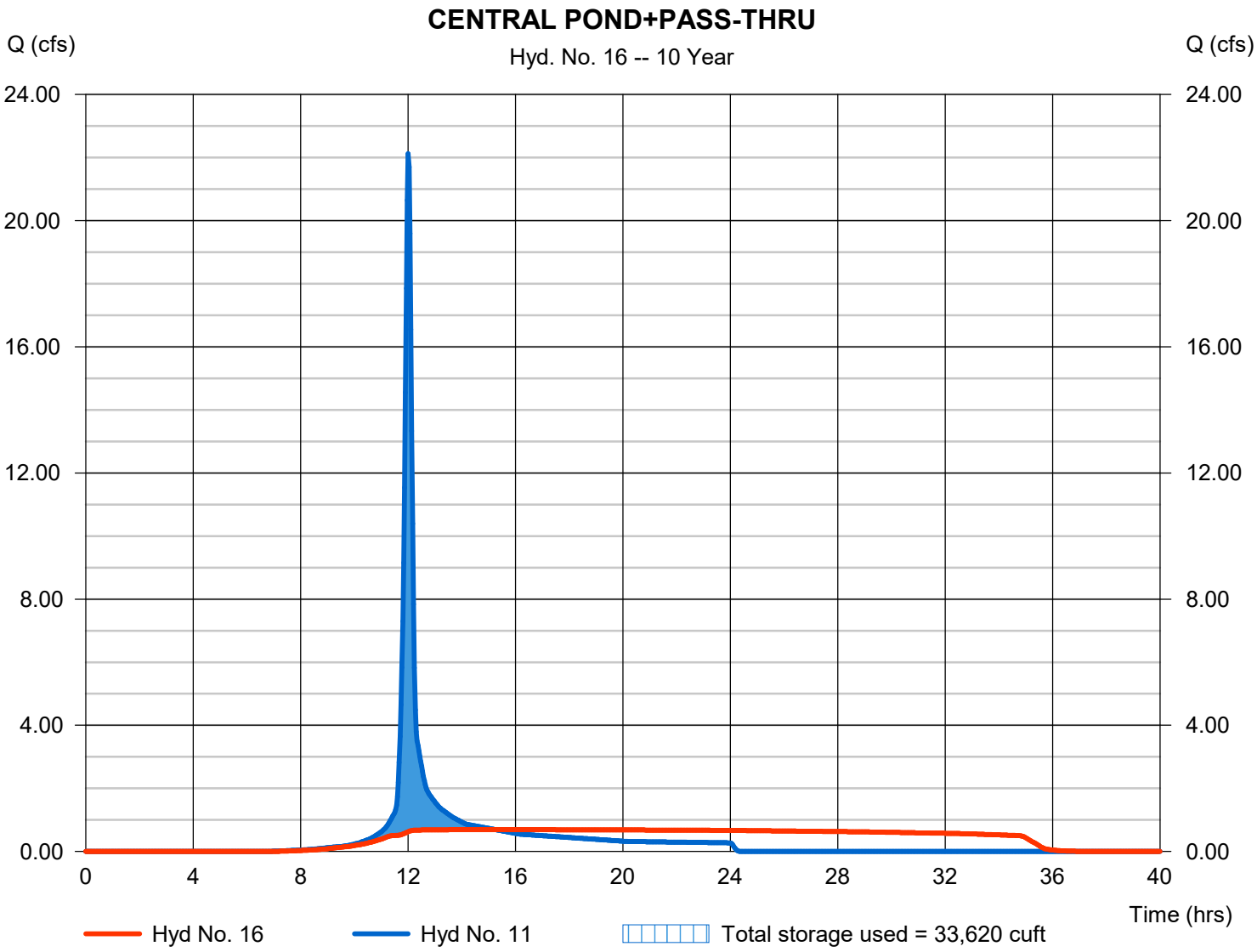
Hydrograph Report

Hyd. No. 16

CENTRAL POND+PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.690 cfs
Storm frequency	=	10 yrs	Time to peak	=	15.27 hrs
Time interval	=	2 min	Hyd. volume	=	57,612 cuft
Inflow hyd. No.	=	11 - CENTRAL DA + PASS-THRU	Max. Elevation	=	950.75 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	33,620 cuft

Storage Indication method used.

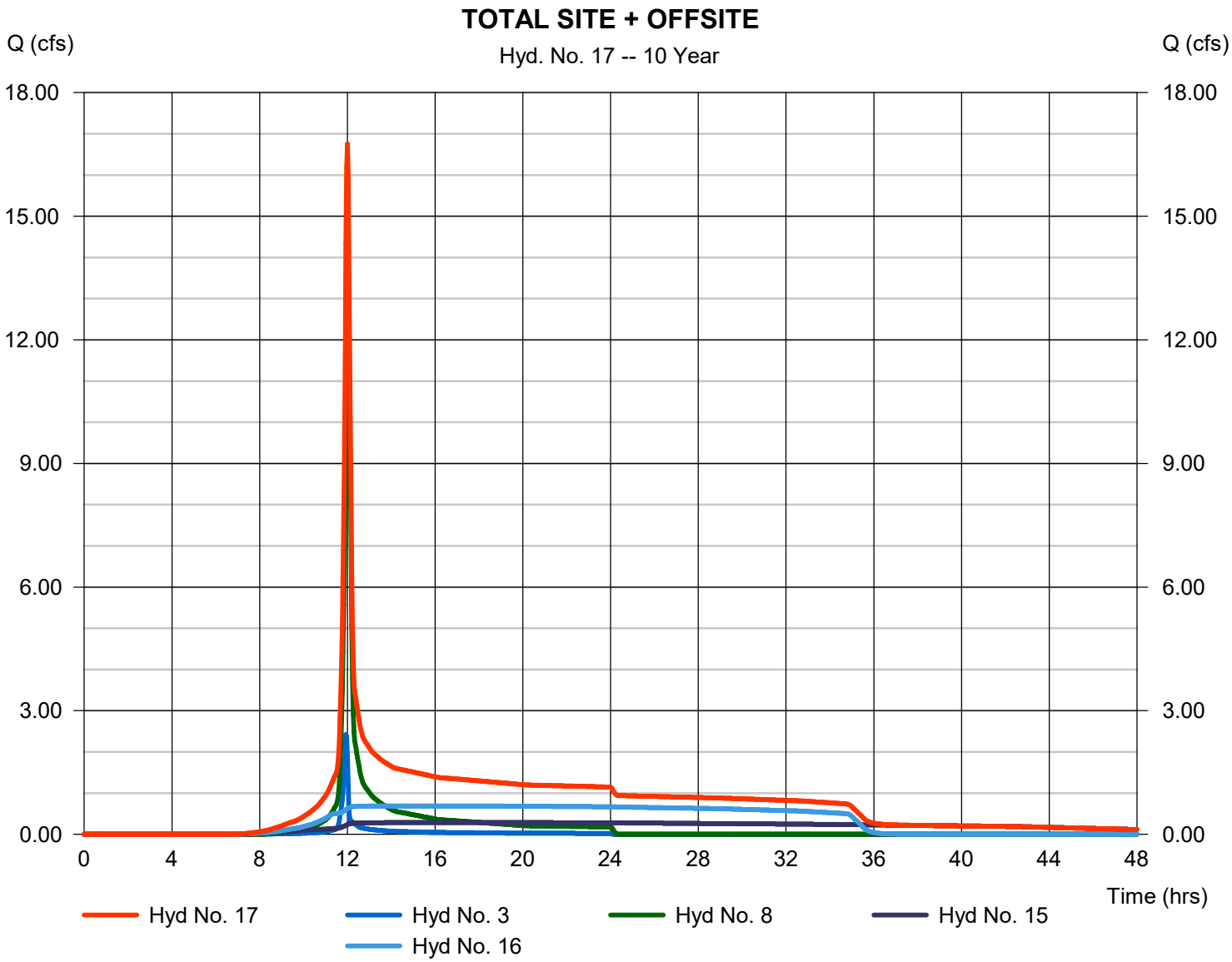


Hydrograph Report

Hyd. No. 17

TOTAL SITE + OFFSITE

Hydrograph type	=	Combine	Peak discharge	=	16.76 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	131,876 cuft
Inflow hyds.	=	3, 8, 15, 16	Contrib. drain. area	=	4.680 ac

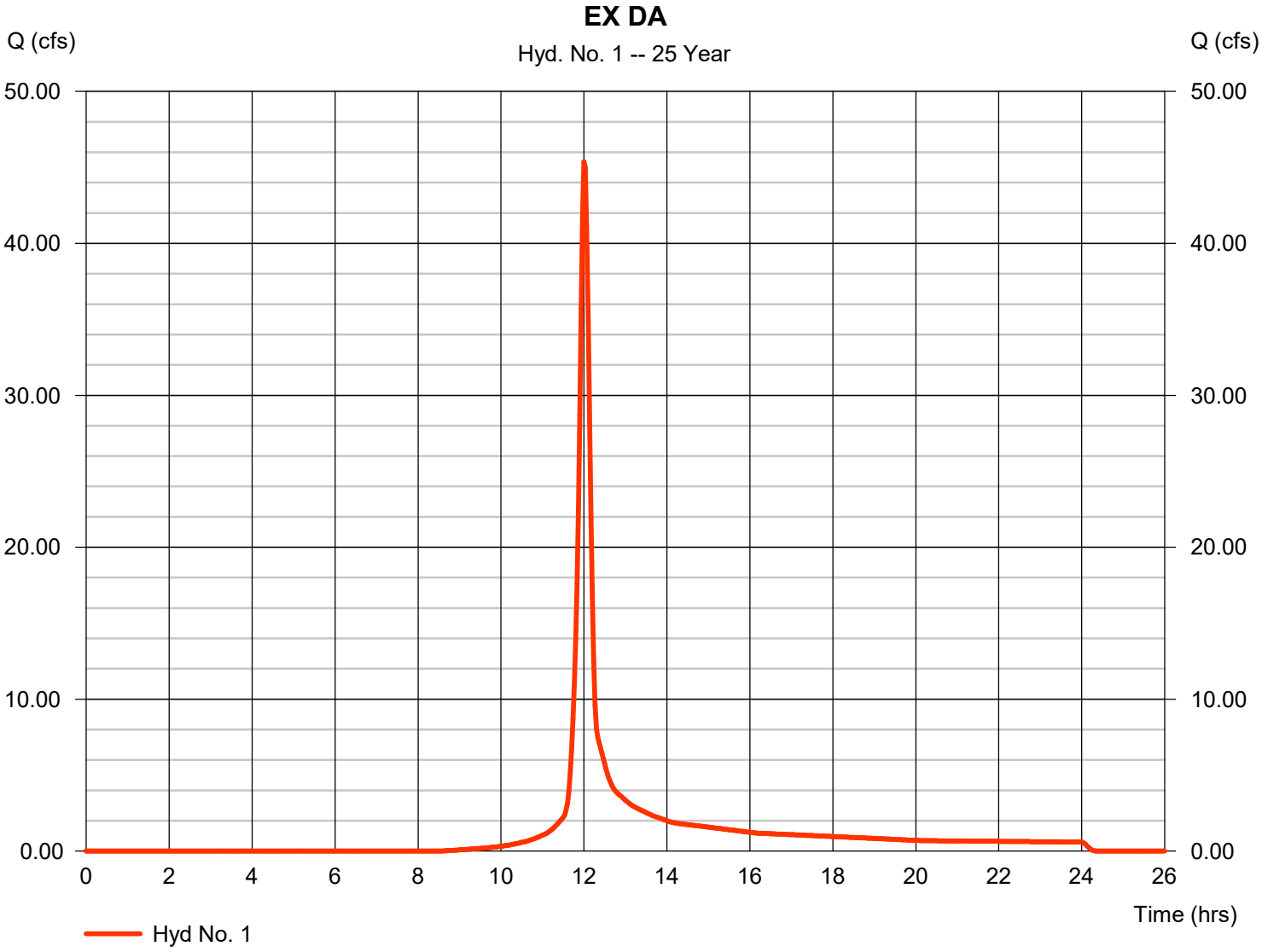


Hydrograph Report

Hyd. No. 1

EX DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	45.37 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	117,704 cuft
Drainage area	=	11.560 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.60 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

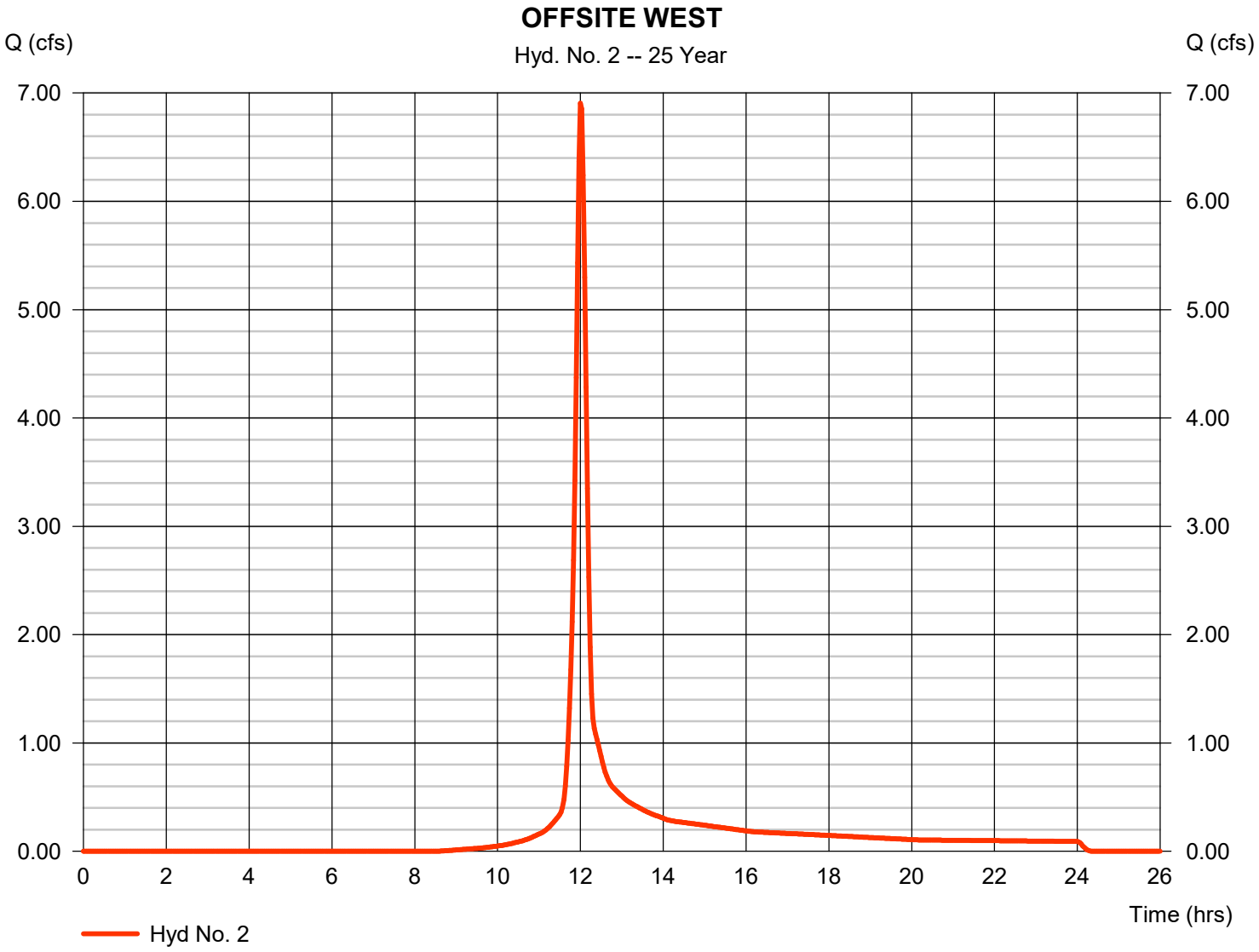


Hydrograph Report

Hyd. No. 2

OFFSITE WEST

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.907 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	17,920 cuft
Drainage area	=	1.760 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.10 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

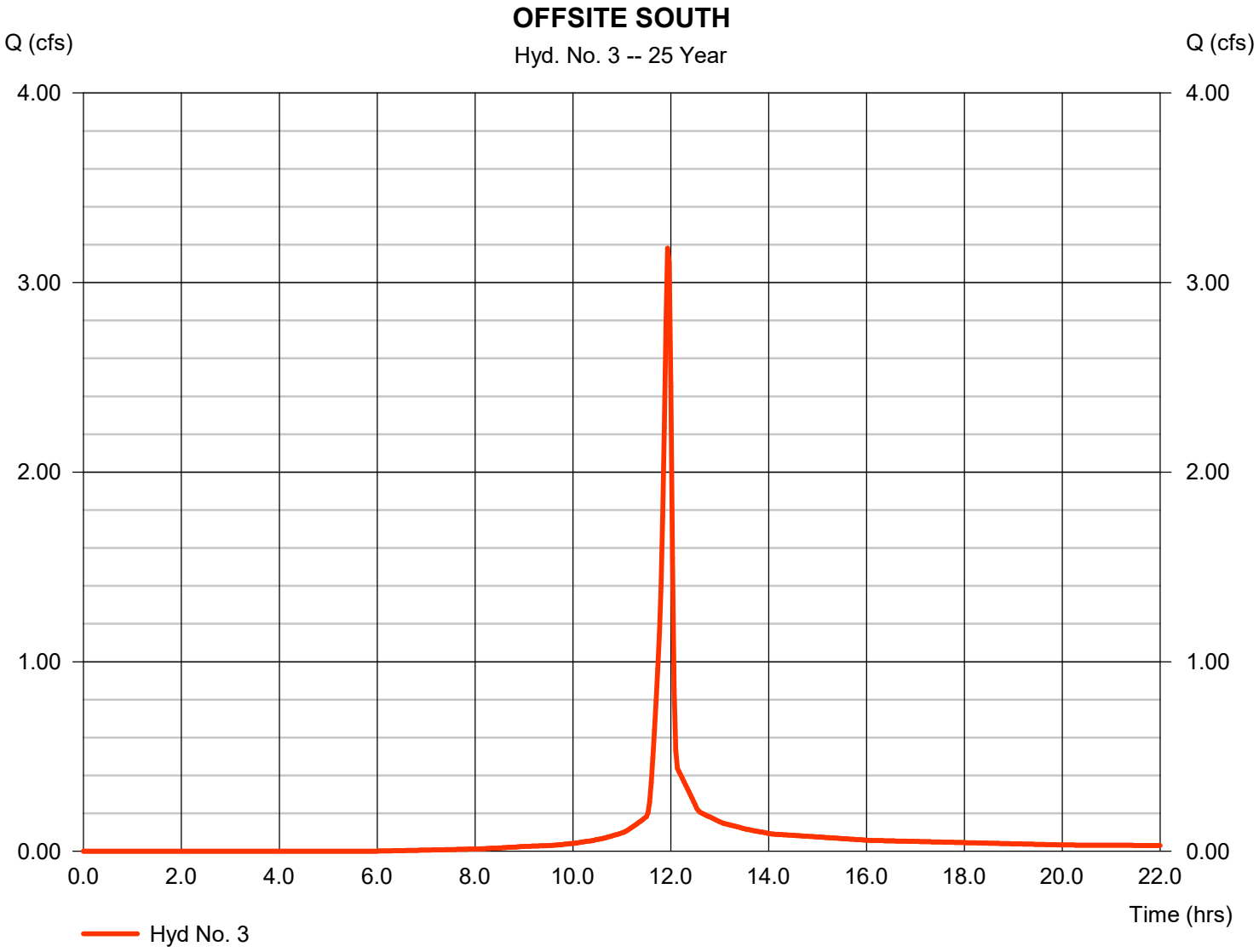


Hydrograph Report

Hyd. No. 3

OFFSITE SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.181 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	6,569 cuft
Drainage area	=	0.540 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

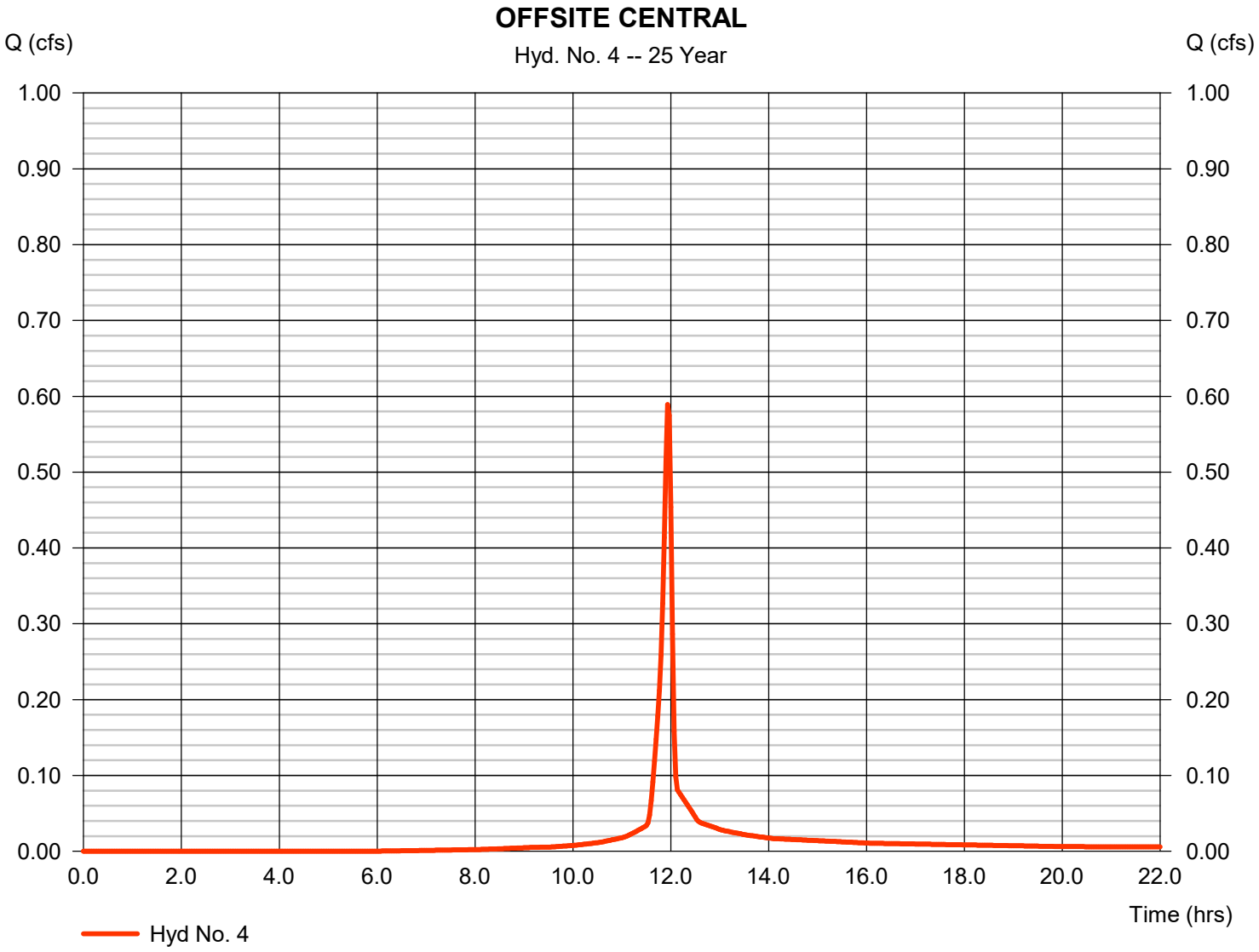


Hydrograph Report

Hyd. No. 4

OFFSITE CENTRAL

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.589 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,217 cuft
Drainage area	=	0.100 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

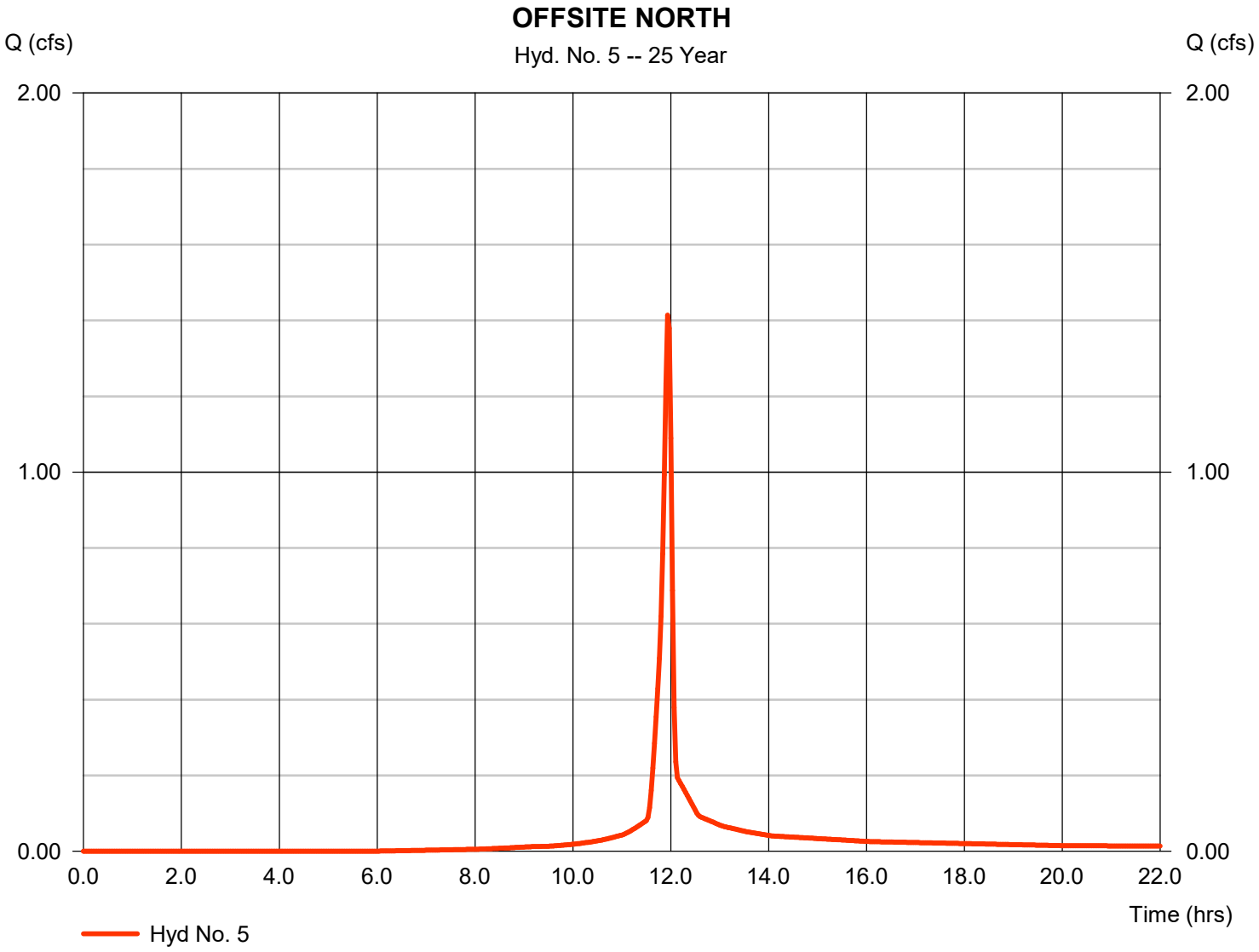


Hydrograph Report

Hyd. No. 5

OFFSITE NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.414 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	2,920 cuft
Drainage area	=	0.240 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

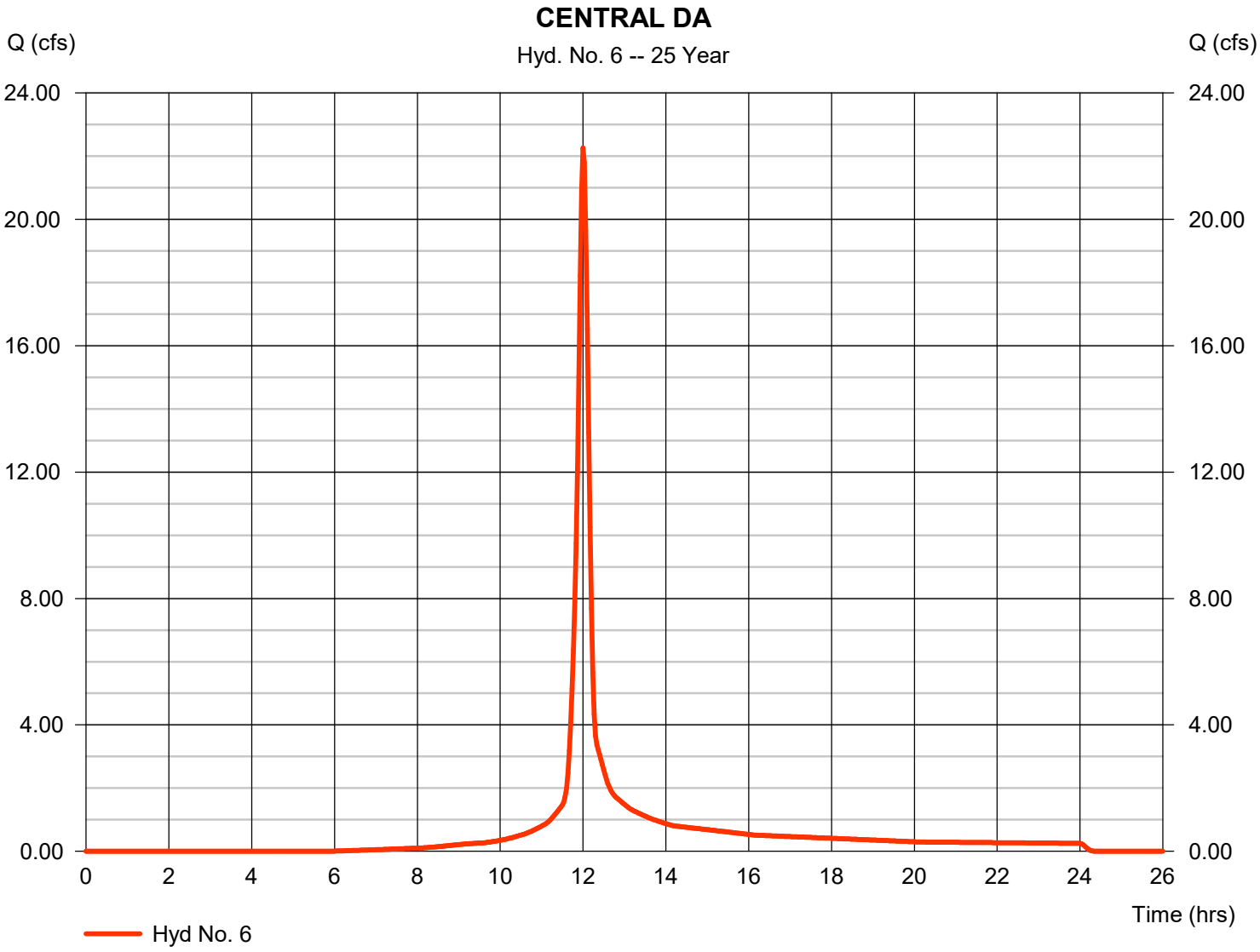


Hydrograph Report

Hyd. No. 6

CENTRAL DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.27 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	58,346 cuft
Drainage area	=	4.360 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

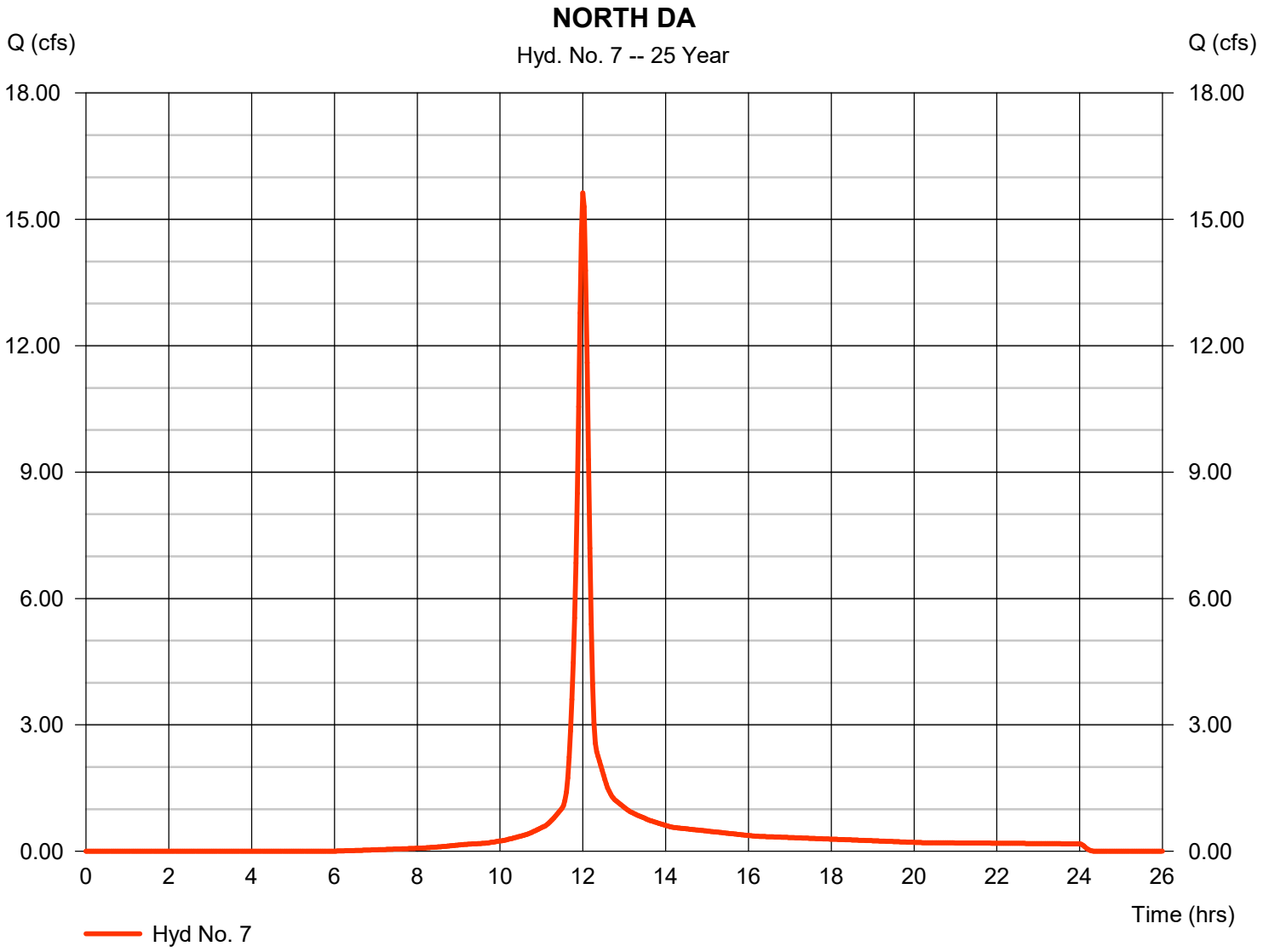


Hydrograph Report

Hyd. No. 7

NORTH DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.63 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	40,949 cuft
Drainage area	=	3.060 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



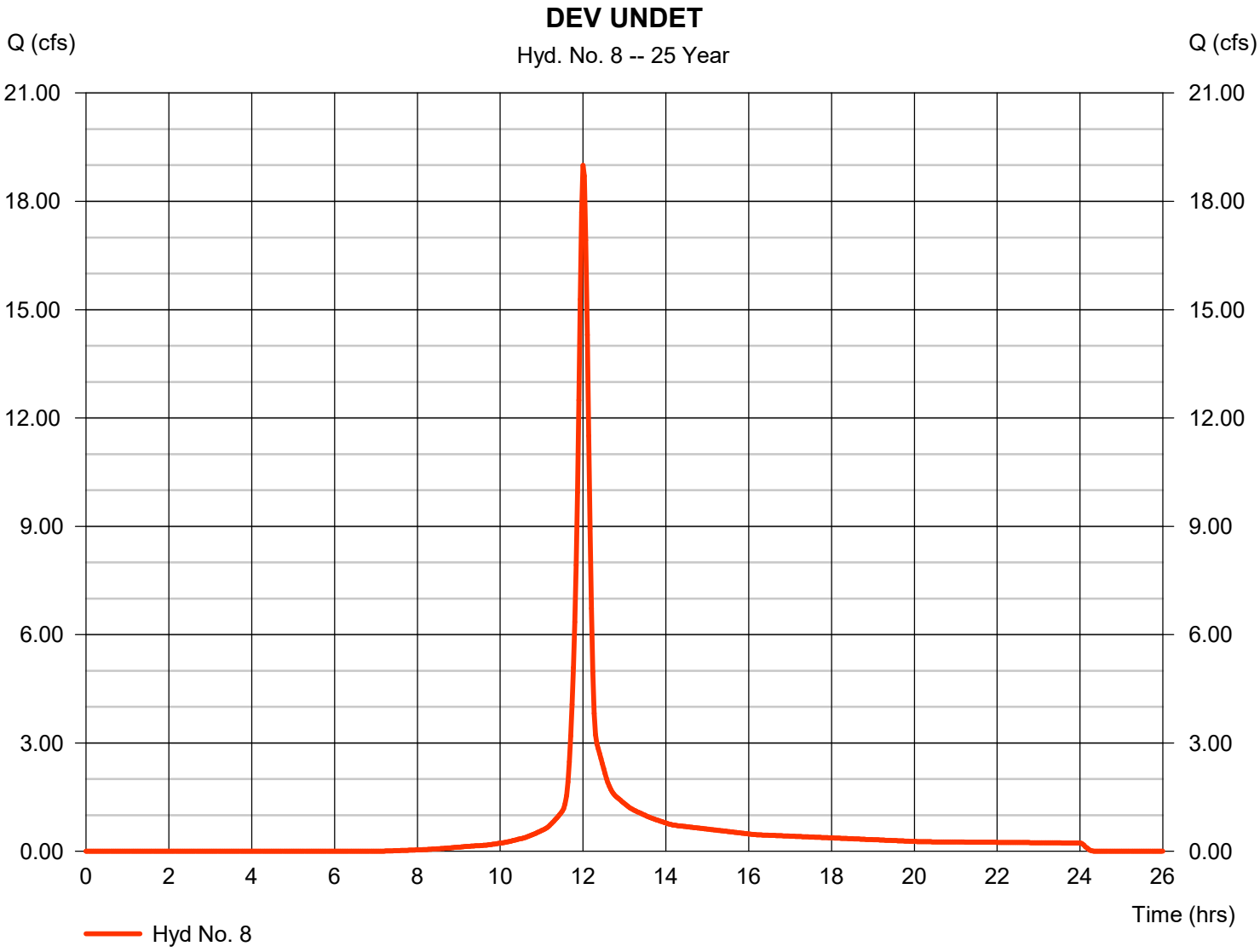
Hydrograph Report

Hyd. No. 8

DEV UNDET

Hydrograph type	= SCS Runoff	Peak discharge	= 19.00 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 49,345 cuft
Drainage area	= 4.140 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.44 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(2.460 x 79) + (1.680 x 80)] / 4.140

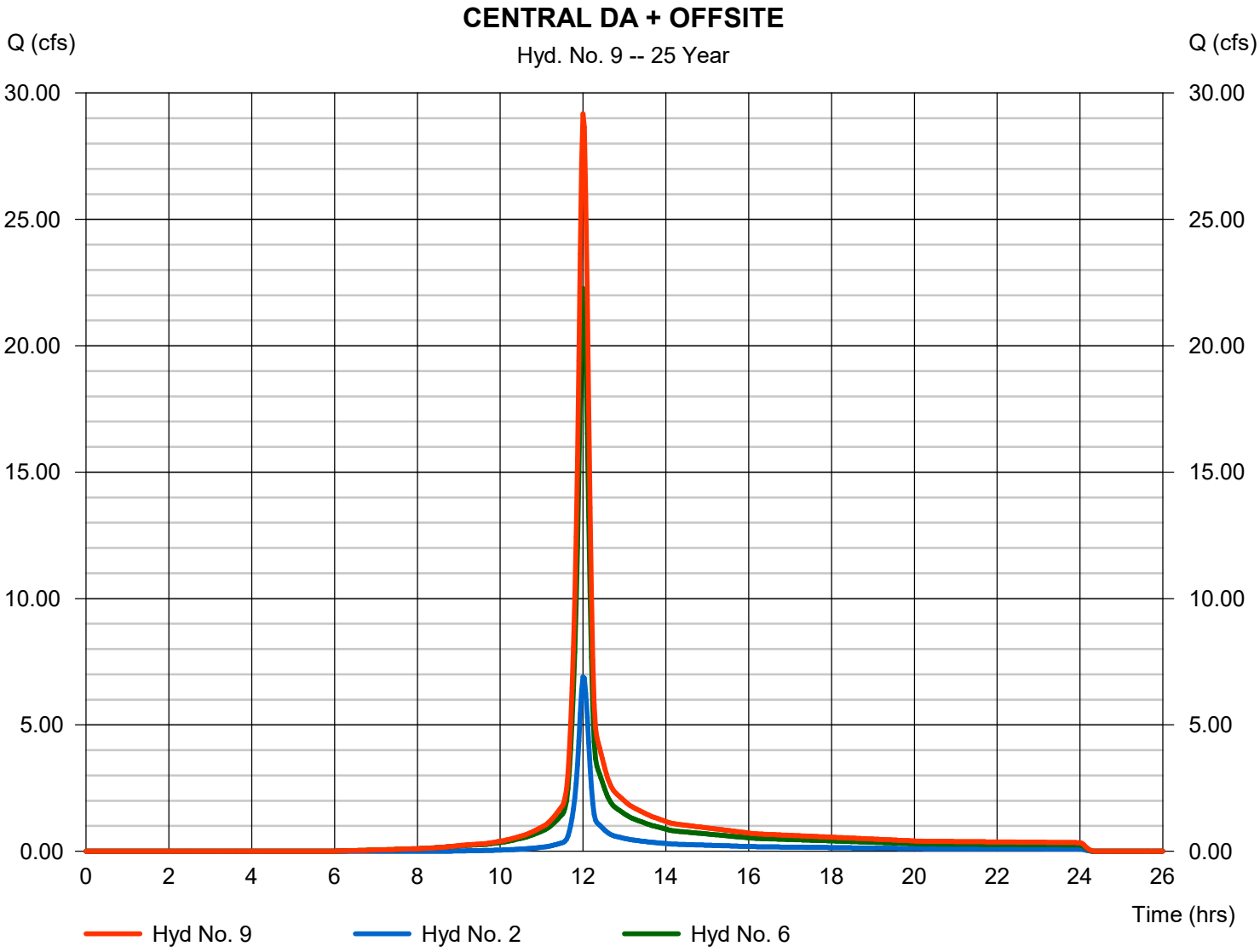


Hydrograph Report

Hyd. No. 9

CENTRAL DA + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 29.17 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 76,266 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 6.120 ac



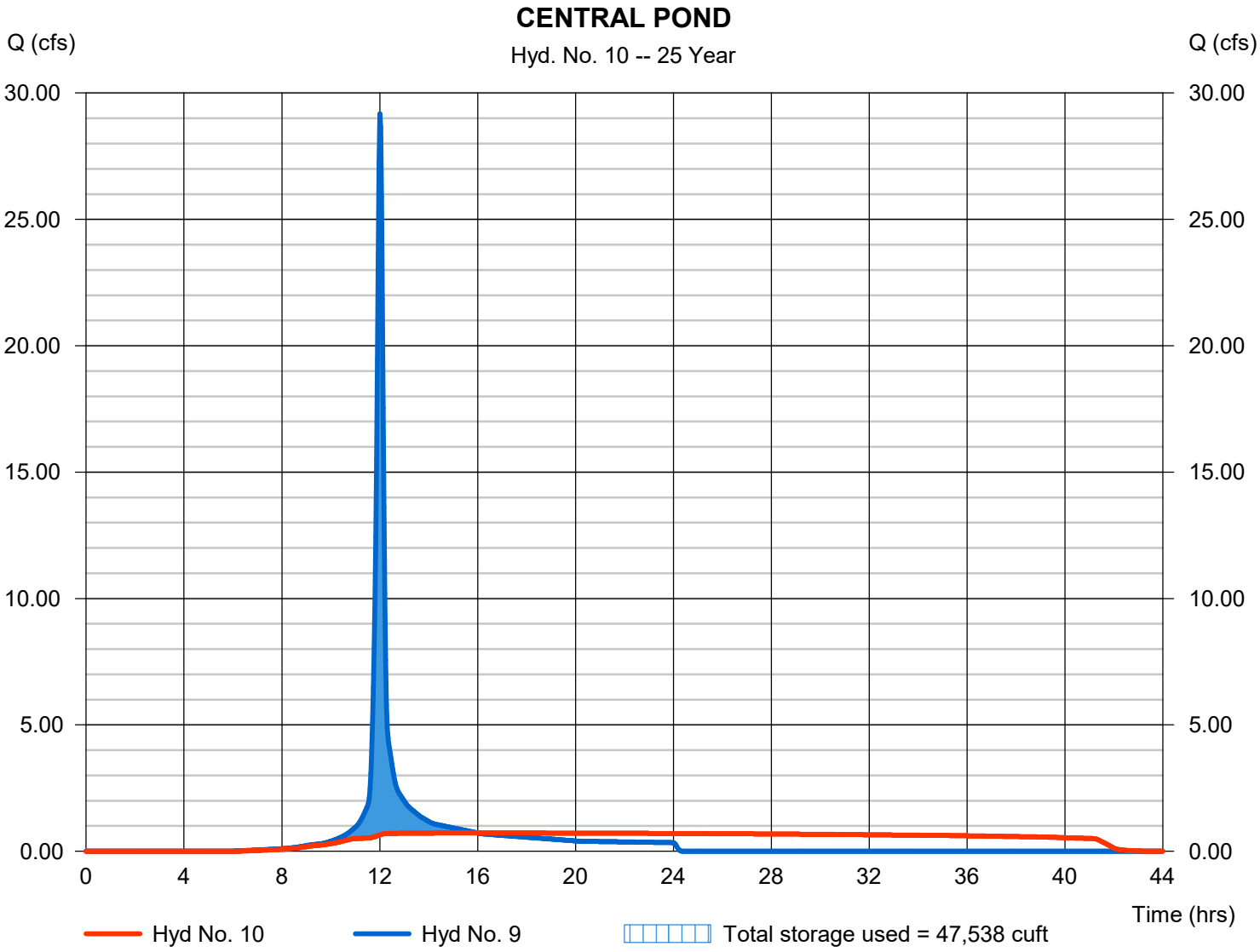
Hydrograph Report

Hyd. No. 10

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.721 cfs
Storm frequency	=	25 yrs	Time to peak	=	16.00 hrs
Time interval	=	2 min	Hyd. volume	=	76,265 cuft
Inflow hyd. No.	=	9 - CENTRAL DA + OFFSITE	Max. Elevation	=	952.07 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	47,538 cuft

Storage Indication method used.

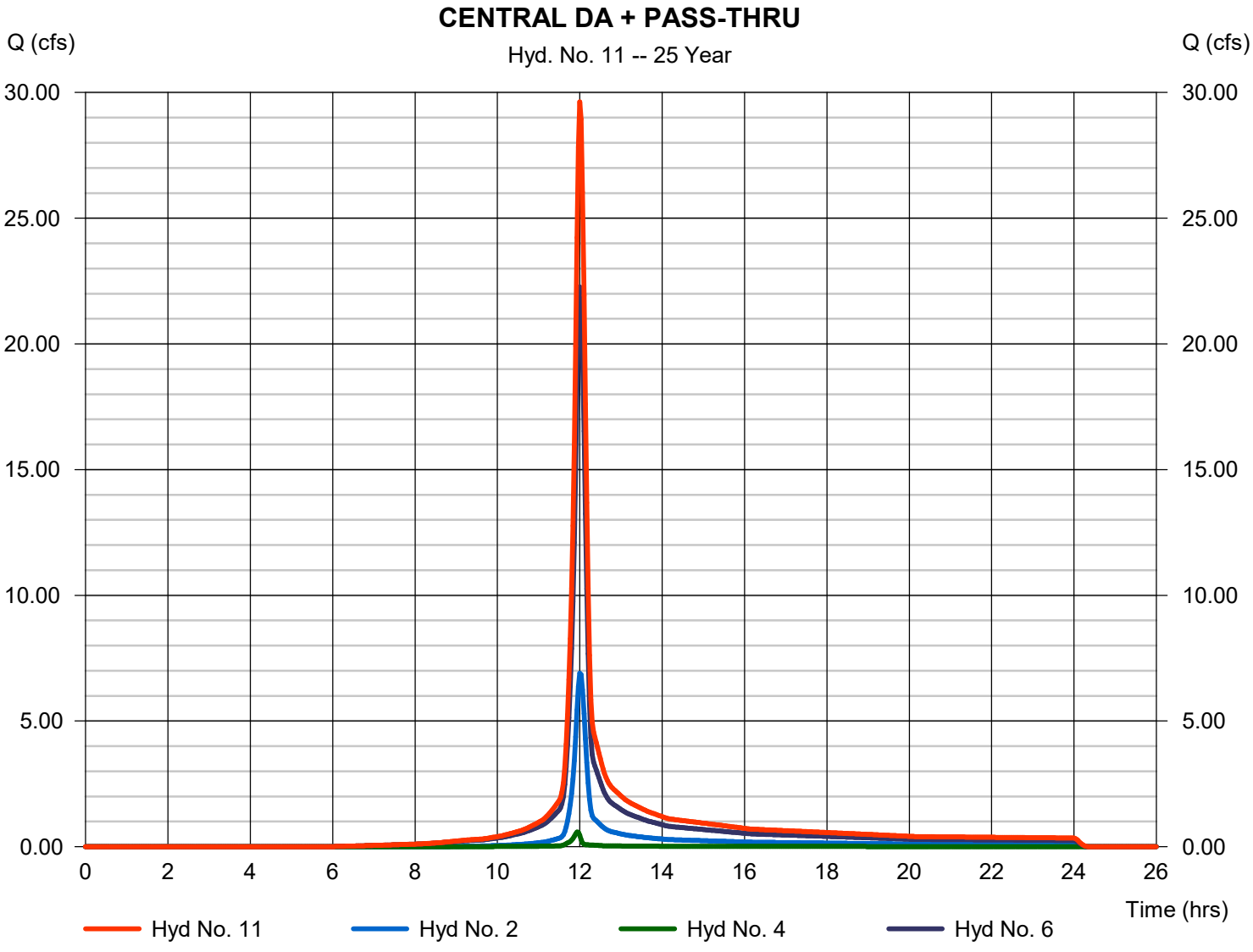


Hydrograph Report

Hyd. No. 11

CENTRAL DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 29.63 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 77,483 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 6.220 ac



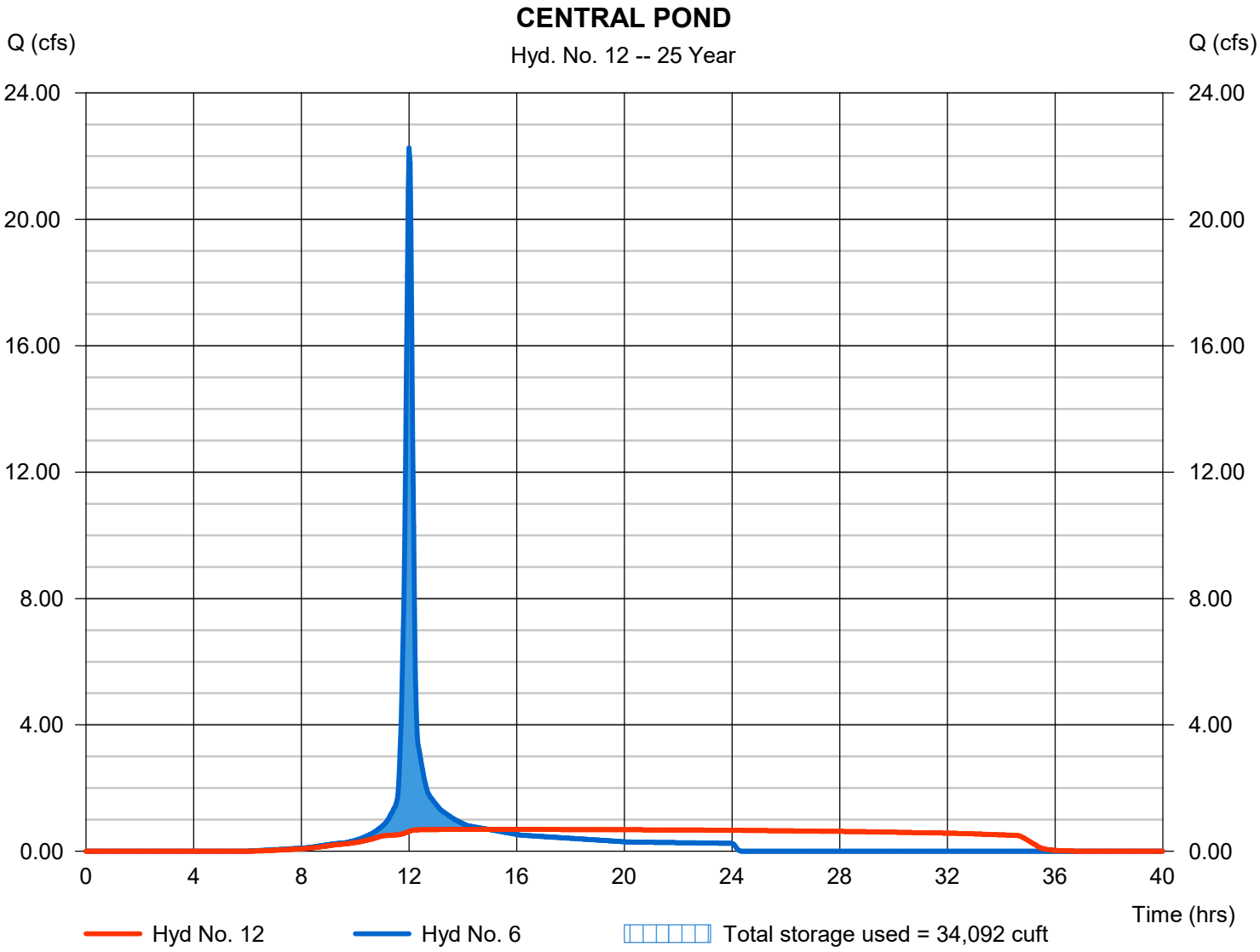
Hydrograph Report

Hyd. No. 12

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.691 cfs
Storm frequency	=	25 yrs	Time to peak	=	14.97 hrs
Time interval	=	2 min	Hyd. volume	=	58,344 cuft
Inflow hyd. No.	=	6 - CENTRAL DA	Max. Elevation	=	950.79 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	34,092 cuft

Storage Indication method used.



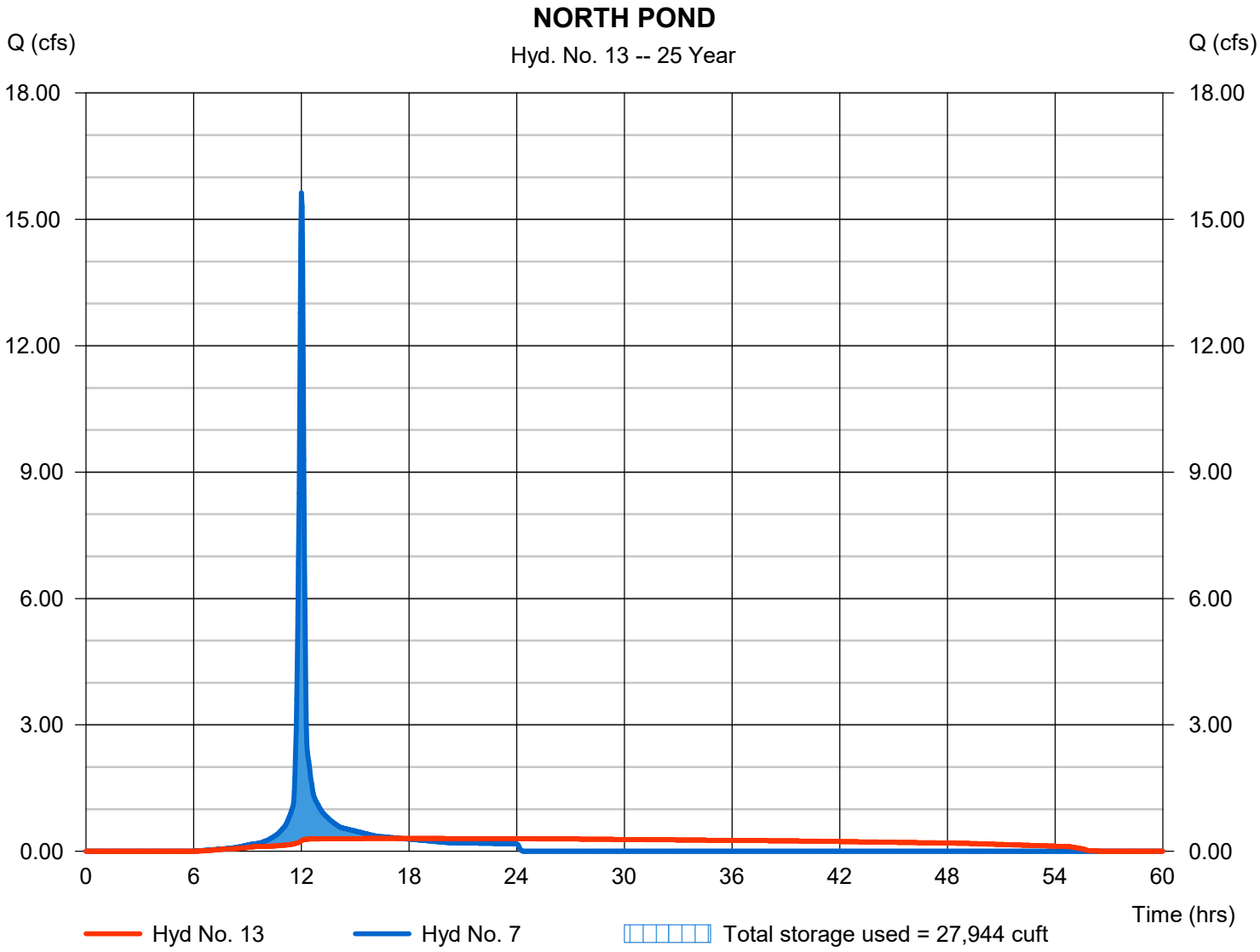
Hydrograph Report

Hyd. No. 13

NORTH POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.303 cfs
Storm frequency	=	25 yrs	Time to peak	=	17.60 hrs
Time interval	=	2 min	Hyd. volume	=	40,948 cuft
Inflow hyd. No.	=	7 - NORTH DA	Max. Elevation	=	942.79 ft
Reservoir name	=	NORTH POND	Max. Storage	=	27,944 cuft

Storage Indication method used.

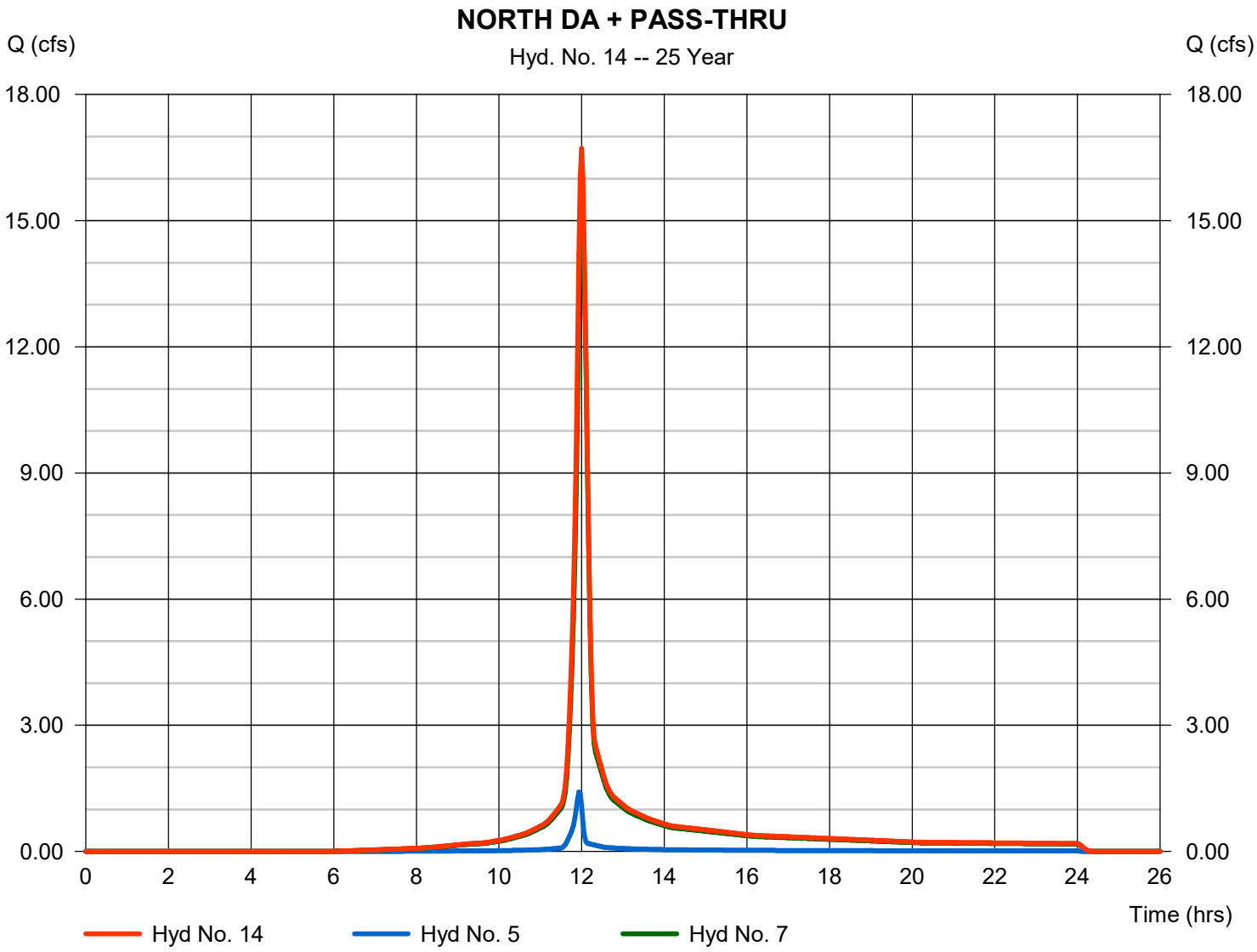


Hydrograph Report

Hyd. No. 14

NORTH DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 16.72 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 43,869 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 3.300 ac



Hydrograph Report

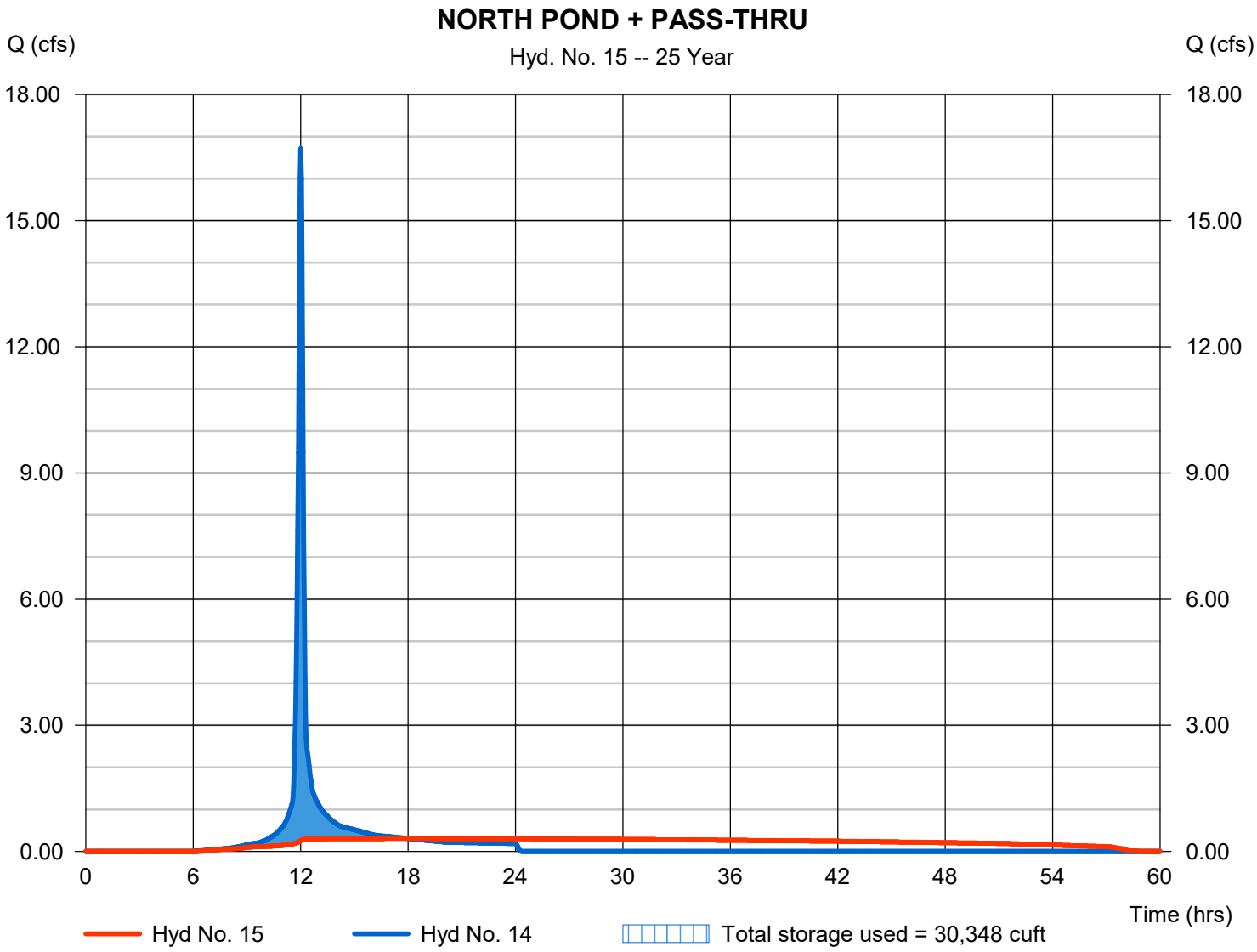
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 15

NORTH POND + PASS-THRU

Hydrograph type	= Reservoir	Peak discharge	= 0.309 cfs
Storm frequency	= 25 yrs	Time to peak	= 17.97 hrs
Time interval	= 2 min	Hyd. volume	= 43,867 cuft
Inflow hyd. No.	= 14 - NORTH DA + PASS-THRU	Max. Elevation	= 943.09 ft
Reservoir name	= NORTH POND	Max. Storage	= 30,348 cuft

Storage Indication method used.



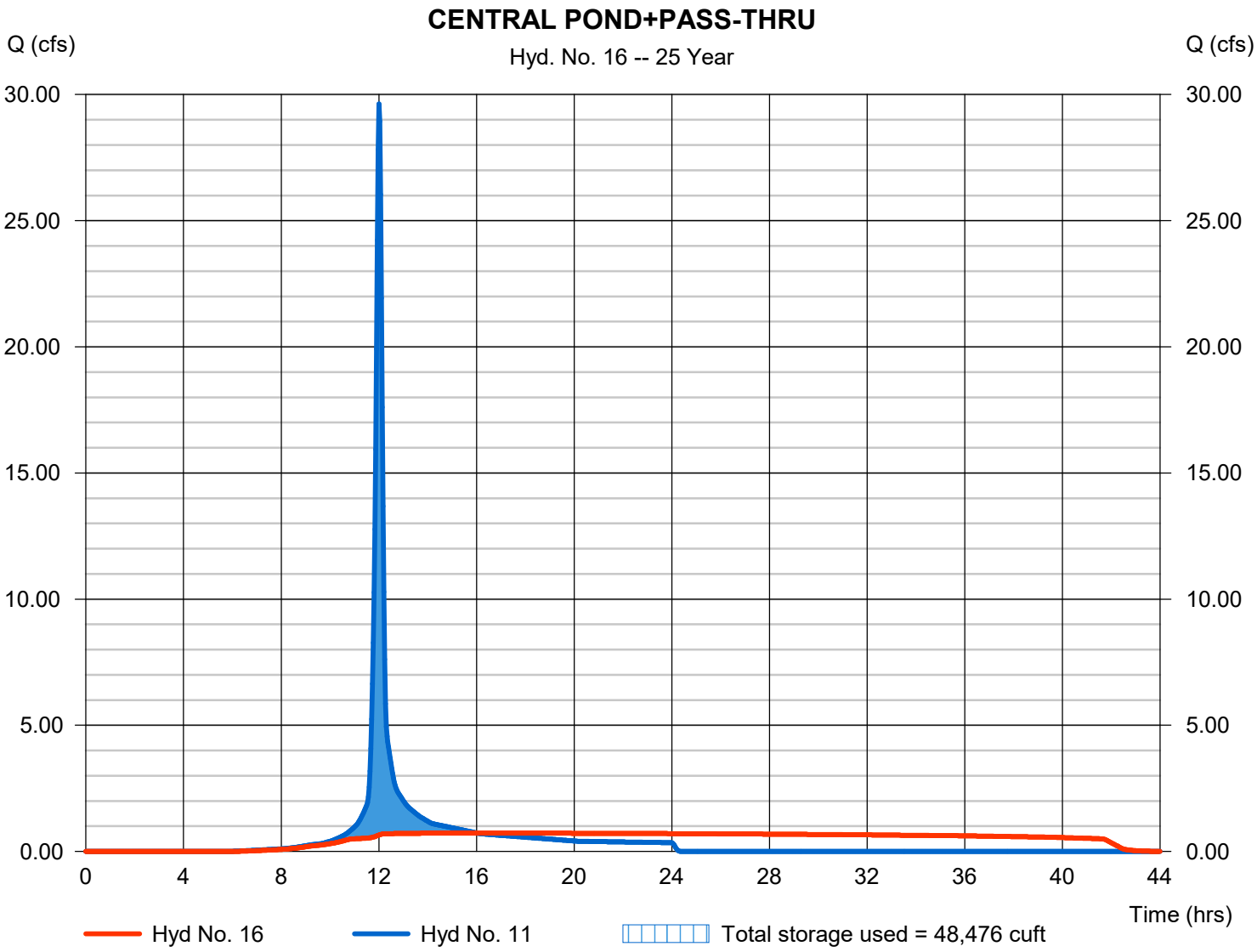
Hydrograph Report

Hyd. No. 16

CENTRAL POND+PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.722 cfs
Storm frequency	=	25 yrs	Time to peak	=	16.03 hrs
Time interval	=	2 min	Hyd. volume	=	77,481 cuft
Inflow hyd. No.	=	11 - CENTRAL DA + PASS-THRU	Max. Elevation	=	952.13 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	48,476 cuft

Storage Indication method used.

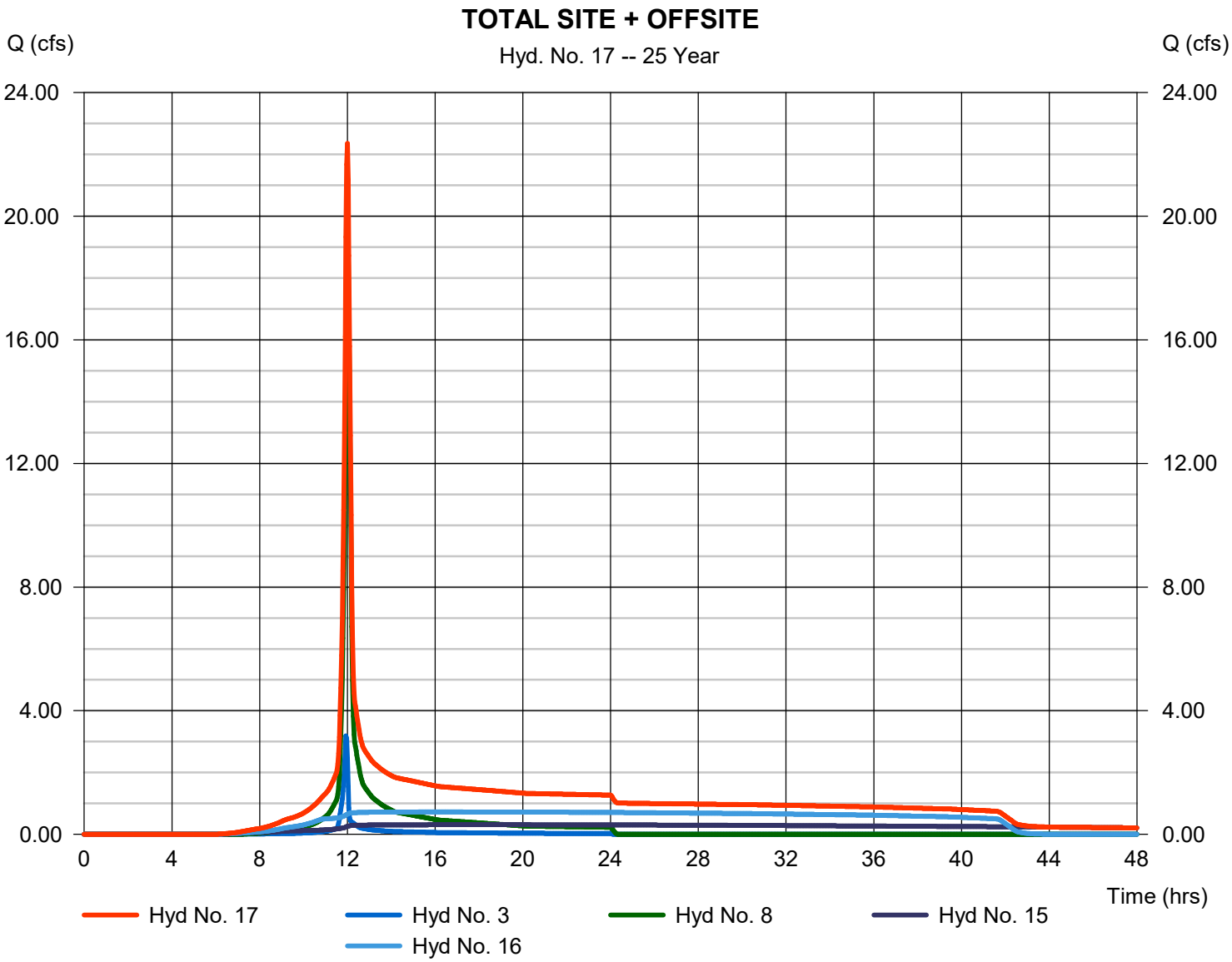


Hydrograph Report

Hyd. No. 17

TOTAL SITE + OFFSITE

Hydrograph type	=	Combine	Peak discharge	=	22.36 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	177,263 cuft
Inflow hyds.	=	3, 8, 15, 16	Contrib. drain. area	=	4.680 ac

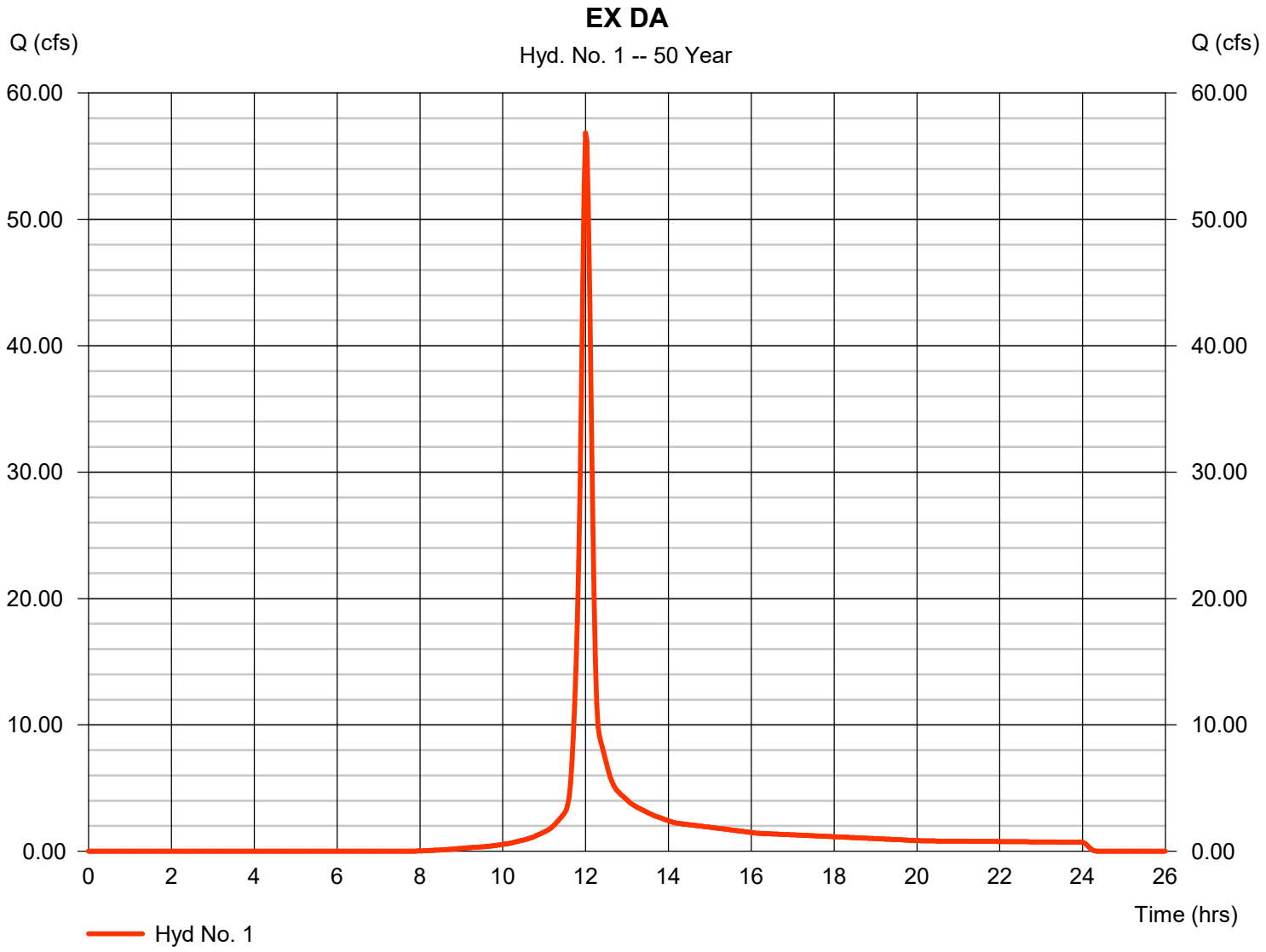


Hydrograph Report

Hyd. No. 1

EX DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	56.83 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	147,336 cuft
Drainage area	=	11.560 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.60 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

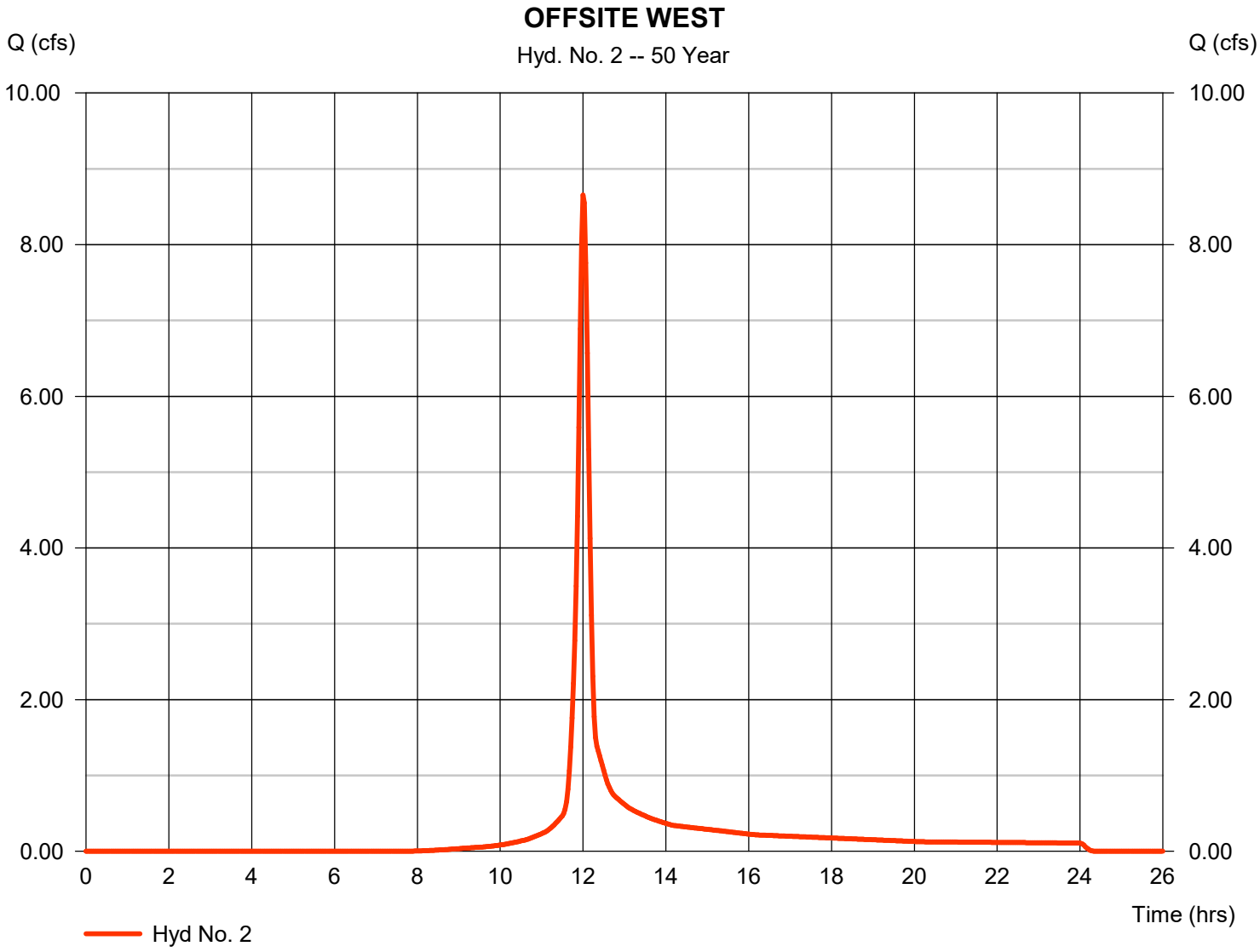


Hydrograph Report

Hyd. No. 2

OFFSITE WEST

Hydrograph type	= SCS Runoff	Peak discharge	= 8.652 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 22,432 cuft
Drainage area	= 1.760 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.10 min
Total precip.	= 6.26 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

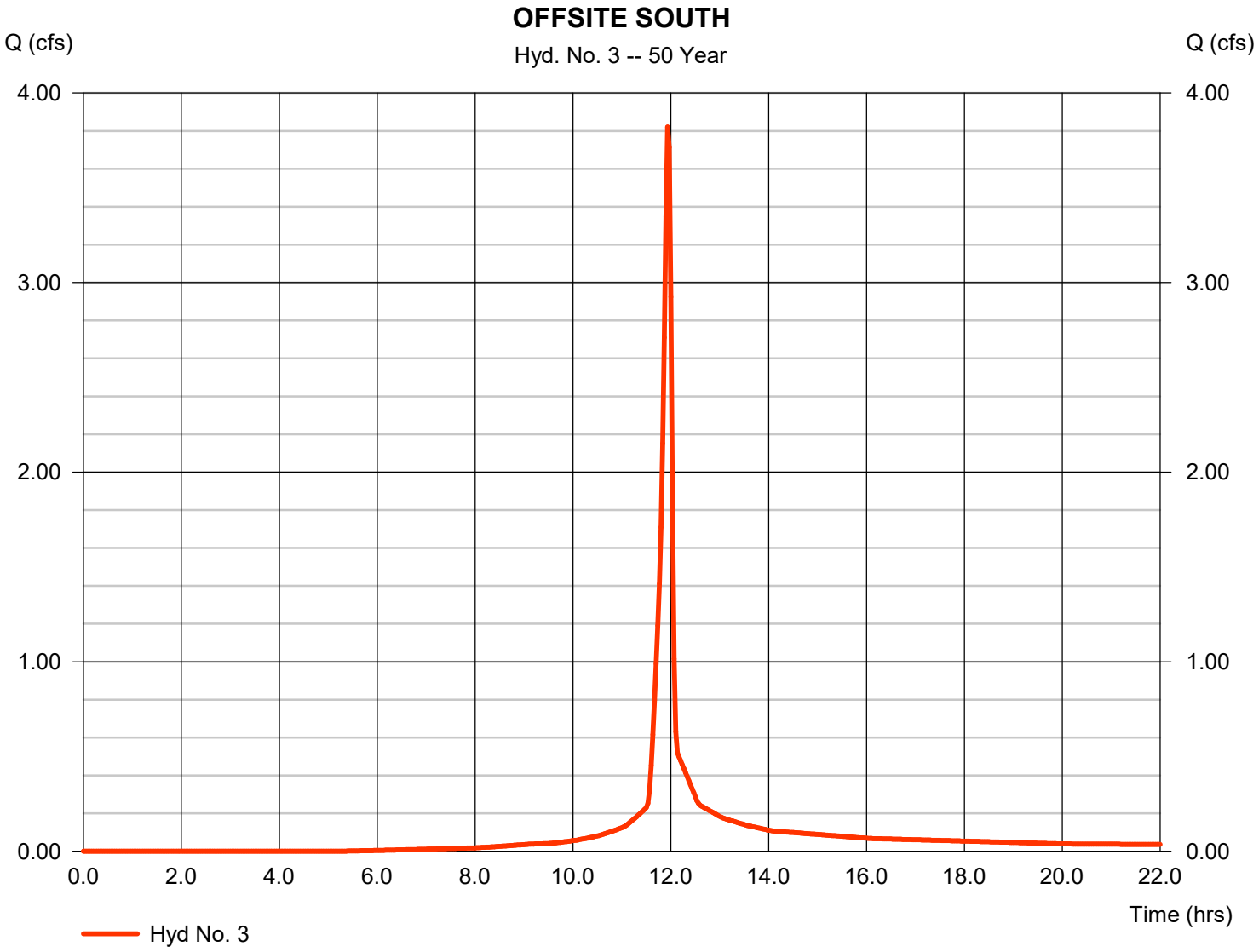


Hydrograph Report

Hyd. No. 3

OFFSITE SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.821 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	7,963 cuft
Drainage area	=	0.540 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

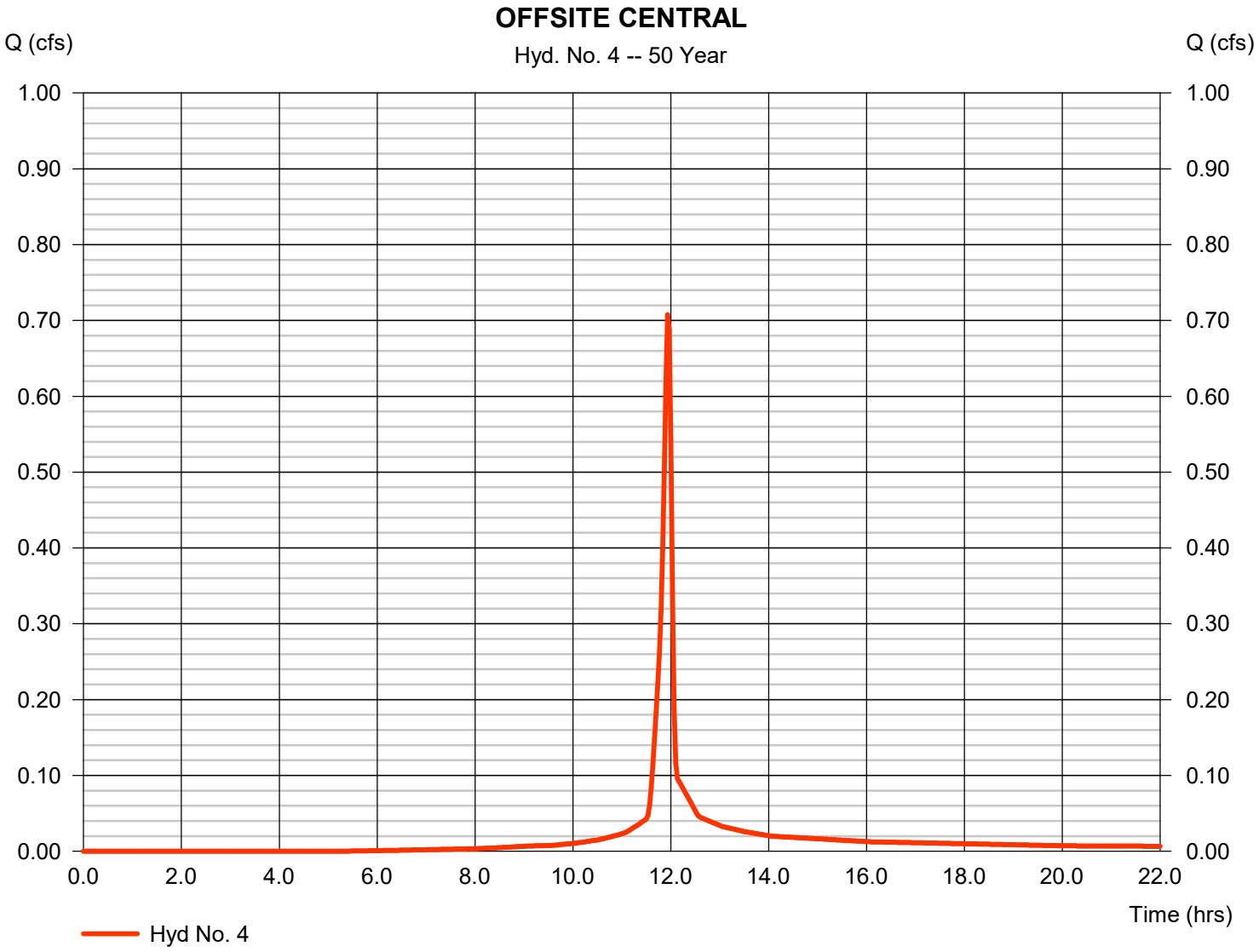


Hydrograph Report

Hyd. No. 4

OFFSITE CENTRAL

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.708 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,475 cuft
Drainage area	=	0.100 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

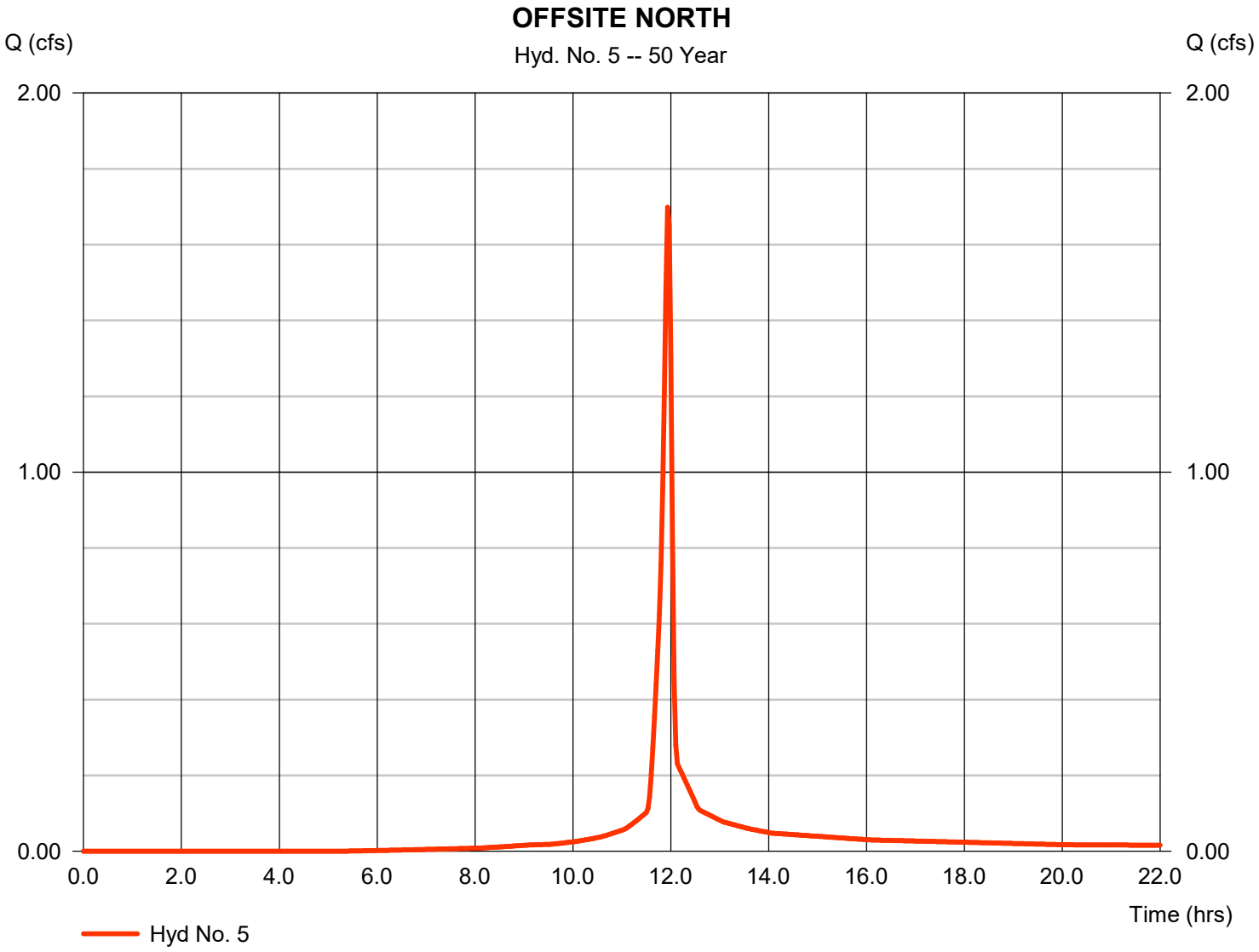


Hydrograph Report

Hyd. No. 5

OFFSITE NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.698 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	3,539 cuft
Drainage area	=	0.240 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

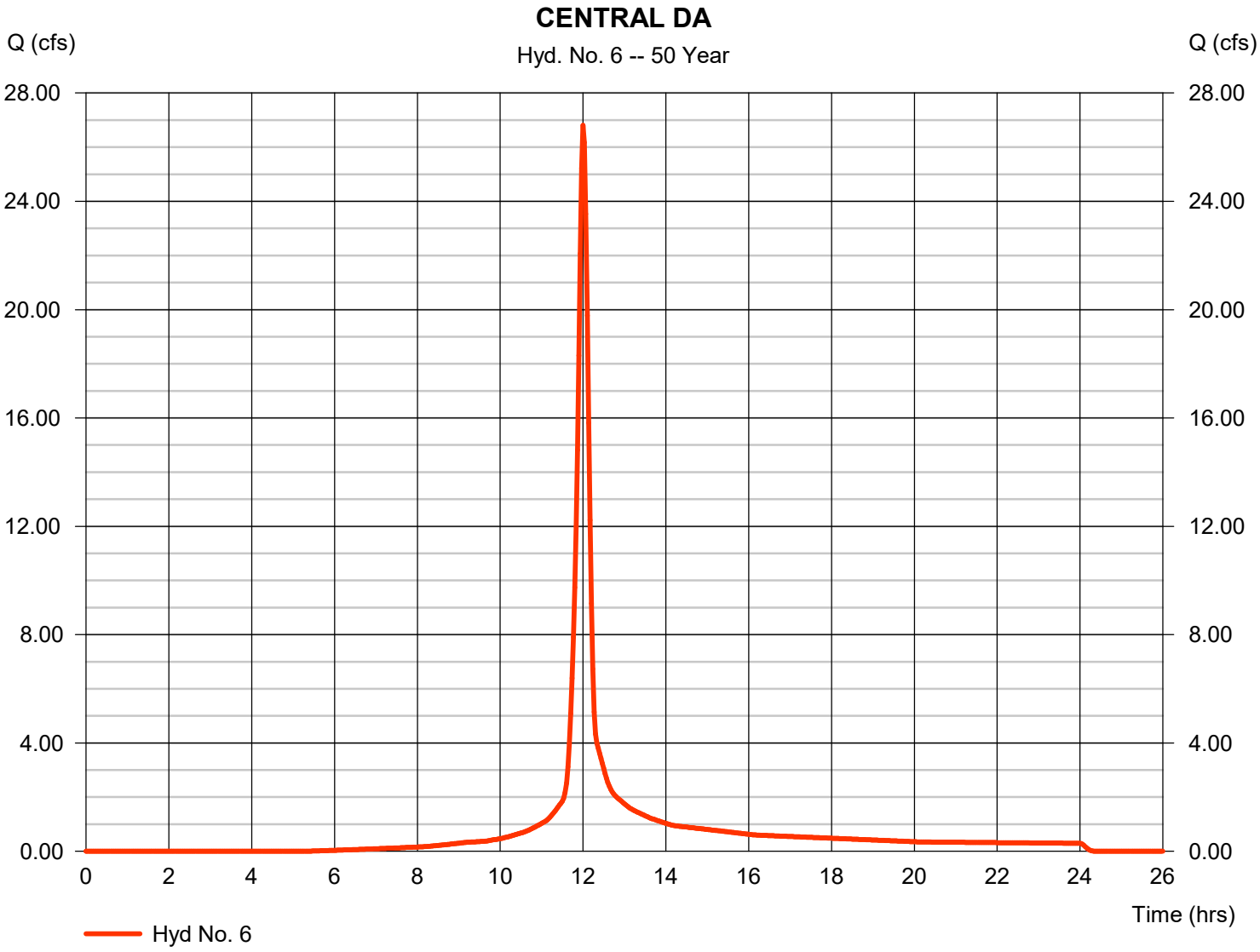


Hydrograph Report

Hyd. No. 6

CENTRAL DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	26.80 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	70,725 cuft
Drainage area	=	4.360 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

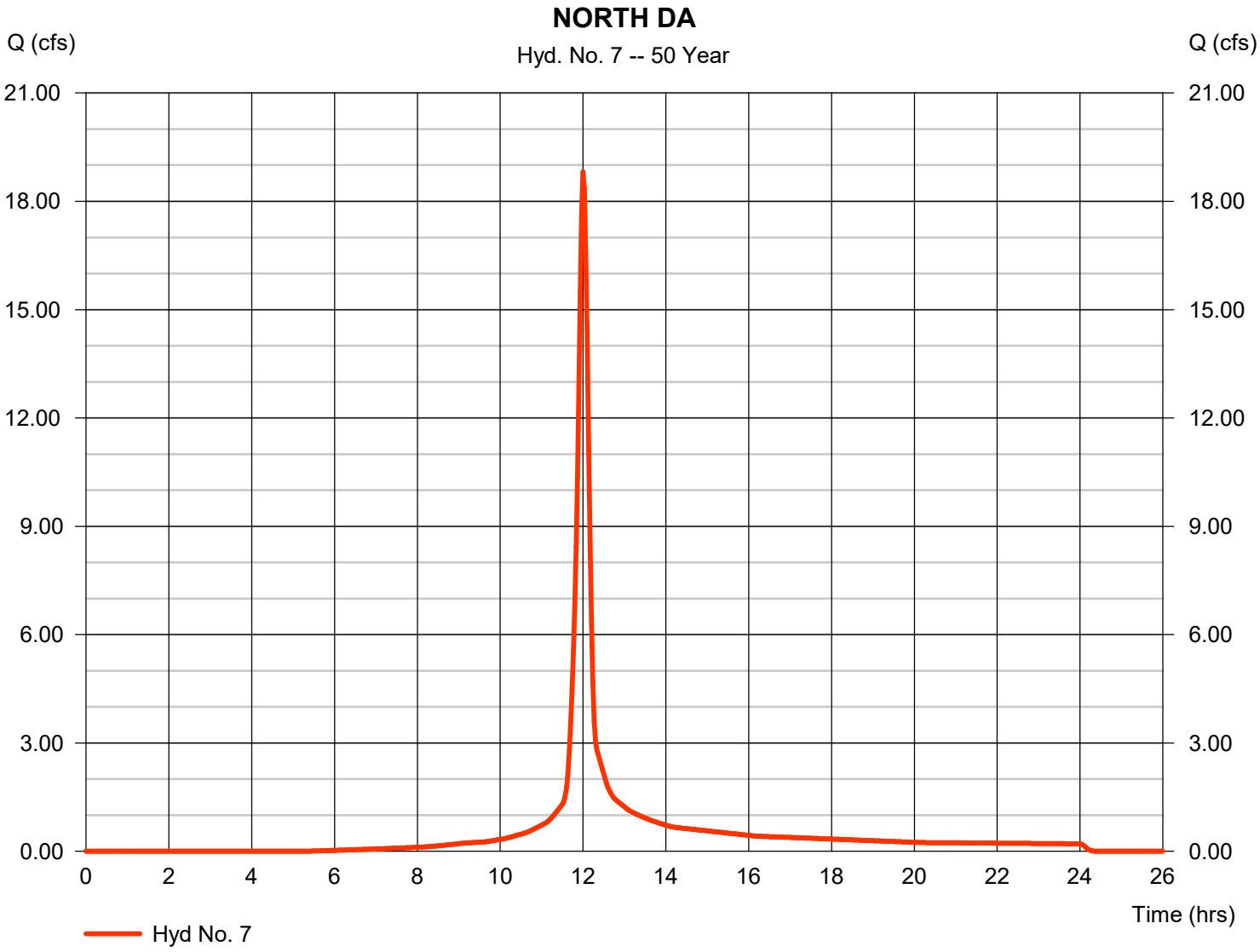


Hydrograph Report

Hyd. No. 7

NORTH DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	18.81 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	49,637 cuft
Drainage area	=	3.060 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



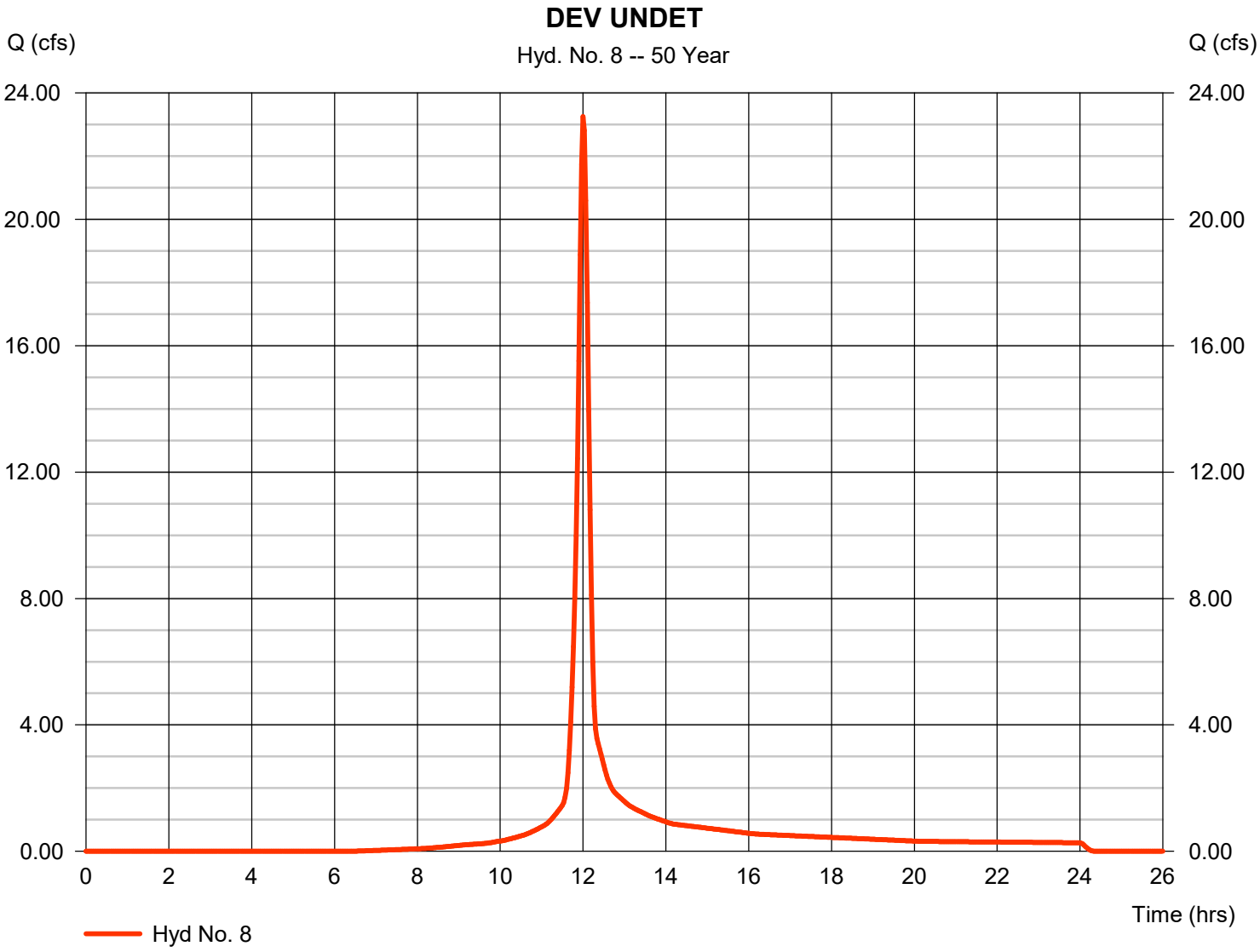
Hydrograph Report

Hyd. No. 8

DEV UNDET

Hydrograph type	=	SCS Runoff	Peak discharge	=	23.25 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	60,638 cuft
Drainage area	=	4.140 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.26 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(2.460 x 79) + (1.680 x 80)] / 4.140

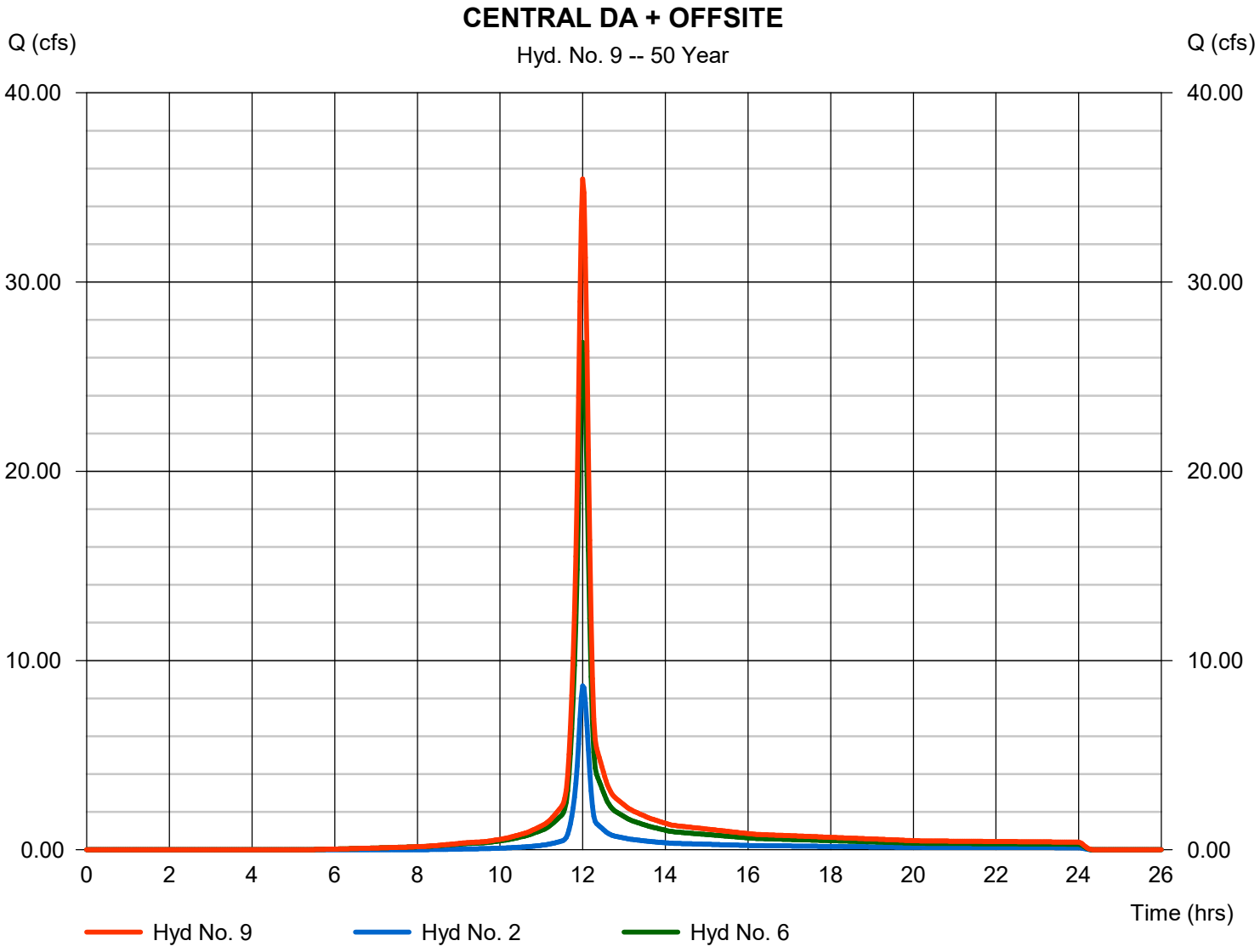


Hydrograph Report

Hyd. No. 9

CENTRAL DA + OFFSITE

Hydrograph type	=	Combine	Peak discharge	=	35.46 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	93,157 cuft
Inflow hyds.	=	2, 6	Contrib. drain. area	=	6.120 ac



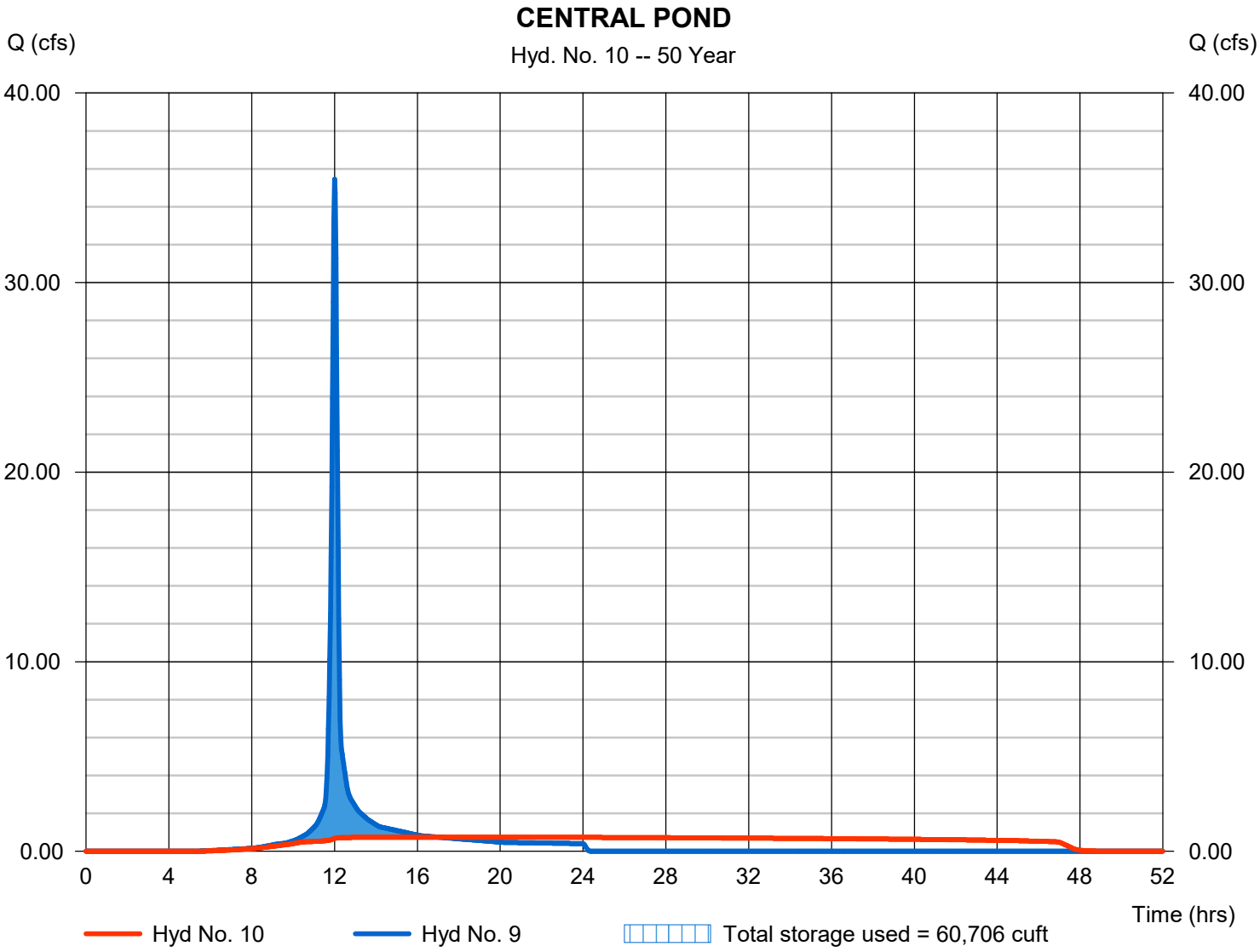
Hydrograph Report

Hyd. No. 10

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.740 cfs
Storm frequency	=	50 yrs	Time to peak	=	17.03 hrs
Time interval	=	2 min	Hyd. volume	=	93,156 cuft
Inflow hyd. No.	=	9 - CENTRAL DA + OFFSITE	Max. Elevation	=	952.93 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	60,706 cuft

Storage Indication method used.

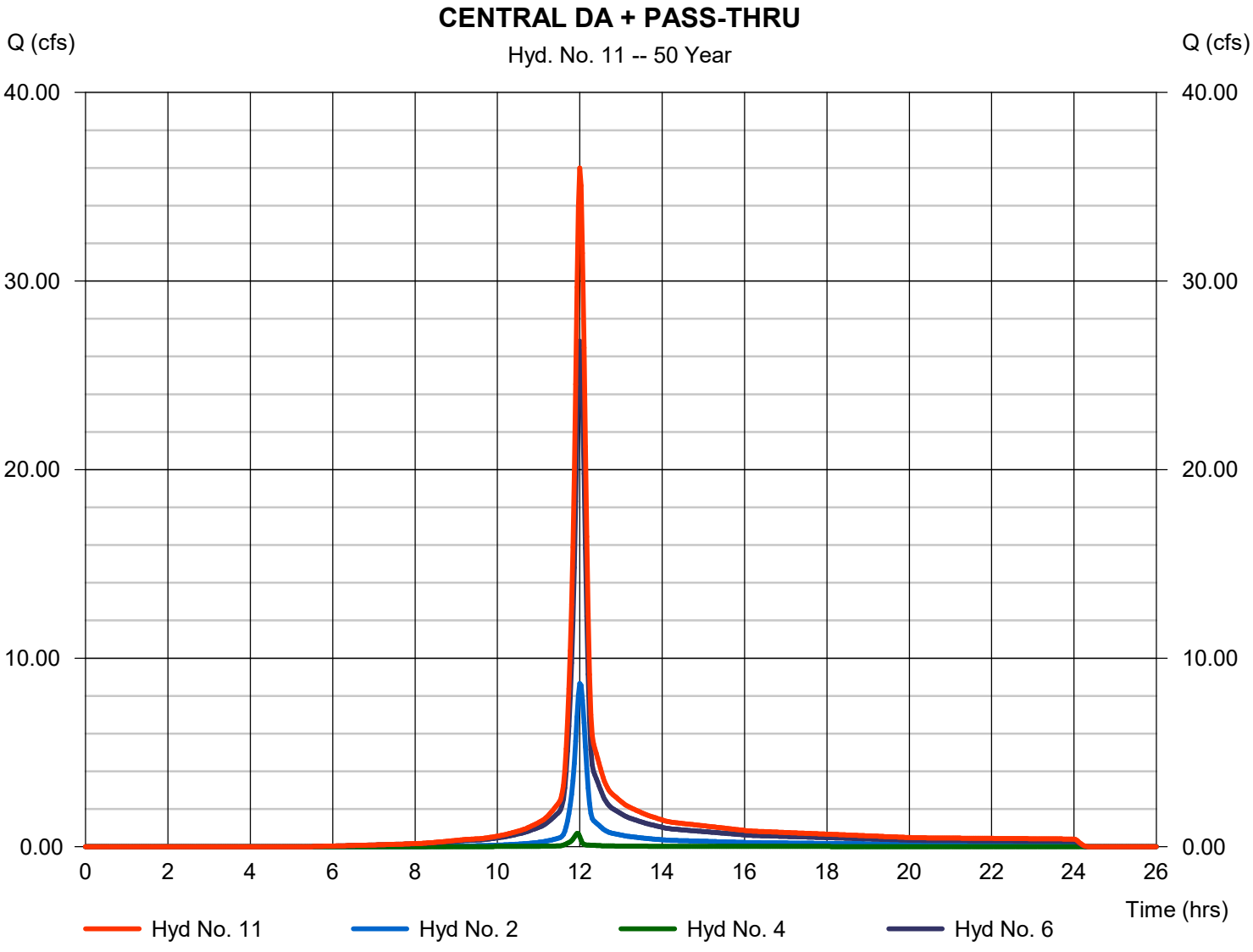


Hydrograph Report

Hyd. No. 11

CENTRAL DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 36.00 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 94,632 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 6.220 ac



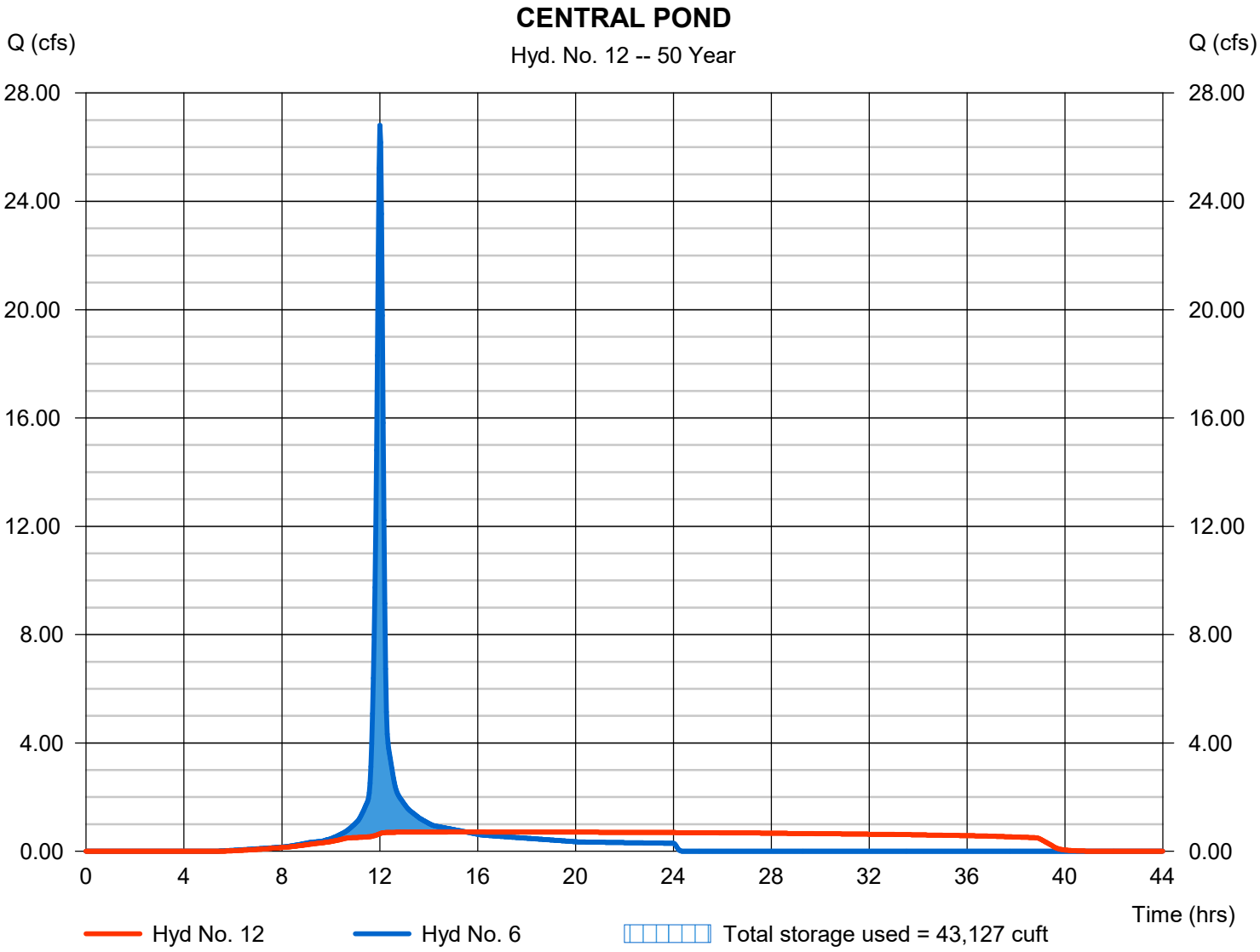
Hydrograph Report

Hyd. No. 12

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.712 cfs
Storm frequency	=	50 yrs	Time to peak	=	15.53 hrs
Time interval	=	2 min	Hyd. volume	=	70,724 cuft
Inflow hyd. No.	=	6 - CENTRAL DA	Max. Elevation	=	951.68 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	43,127 cuft

Storage Indication method used.



Hydrograph Report

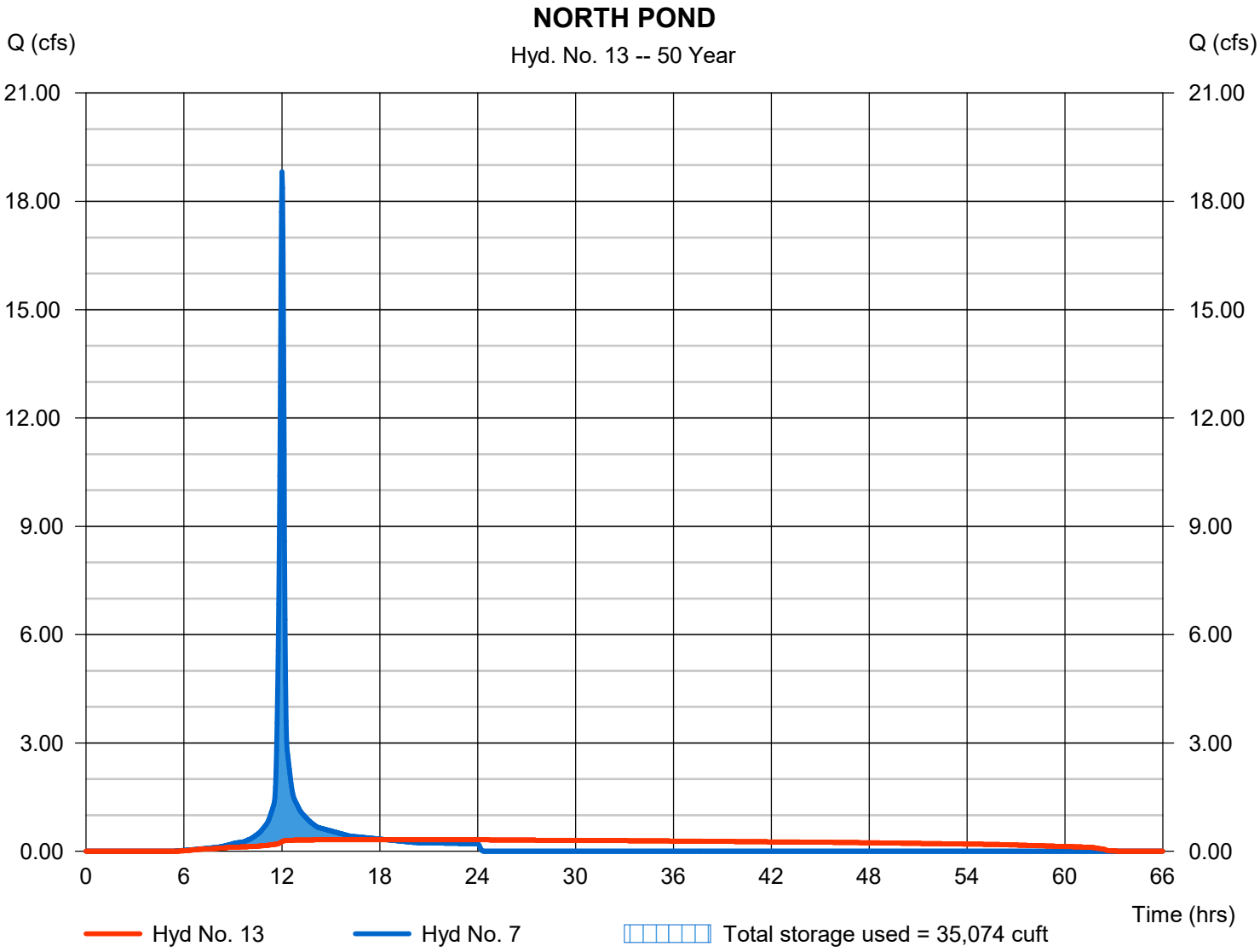
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 13

NORTH POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.320 cfs
Storm frequency	=	50 yrs	Time to peak	=	18.40 hrs
Time interval	=	2 min	Hyd. volume	=	49,636 cuft
Inflow hyd. No.	=	7 - NORTH DA	Max. Elevation	=	943.69 ft
Reservoir name	=	NORTH POND	Max. Storage	=	35,074 cuft

Storage Indication method used.

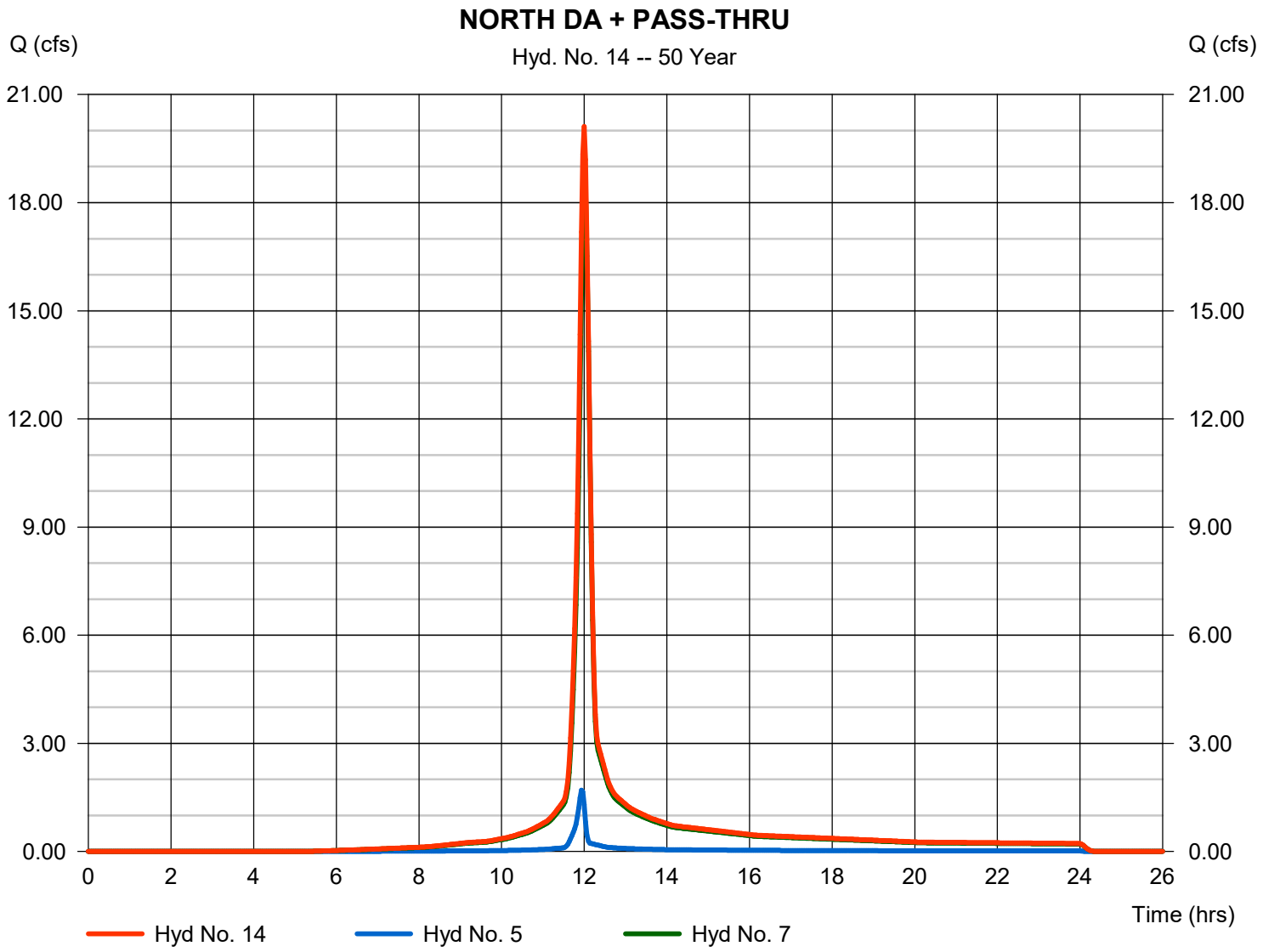


Hydrograph Report

Hyd. No. 14

NORTH DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 20.11 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 53,177 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 3.300 ac



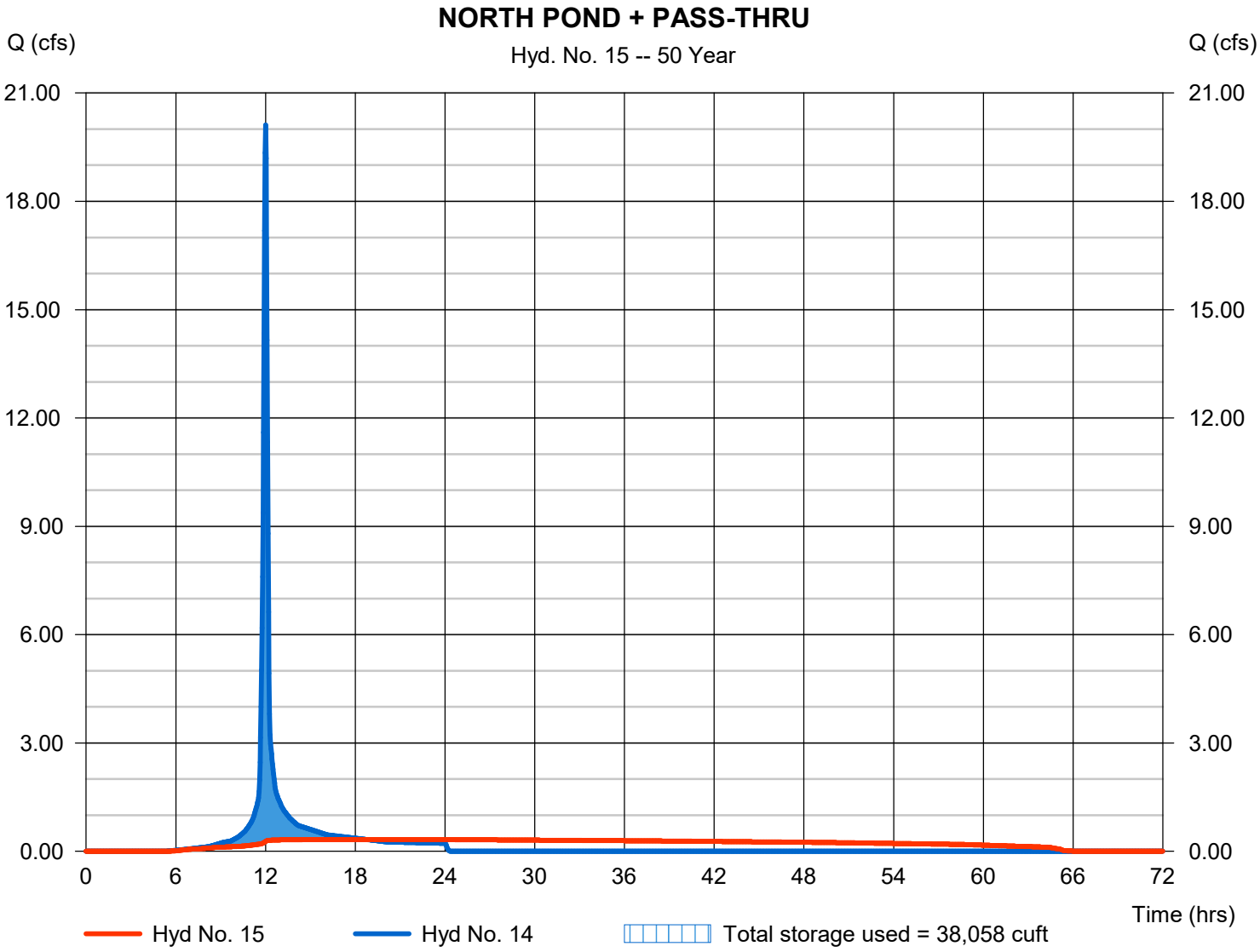
Hydrograph Report

Hyd. No. 15

NORTH POND + PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.326 cfs
Storm frequency	=	50 yrs	Time to peak	=	18.73 hrs
Time interval	=	2 min	Hyd. volume	=	53,175 cuft
Inflow hyd. No.	=	14 - NORTH DA + PASS-THRU	Max. Elevation	=	944.05 ft
Reservoir name	=	NORTH POND	Max. Storage	=	38,058 cuft

Storage Indication method used.



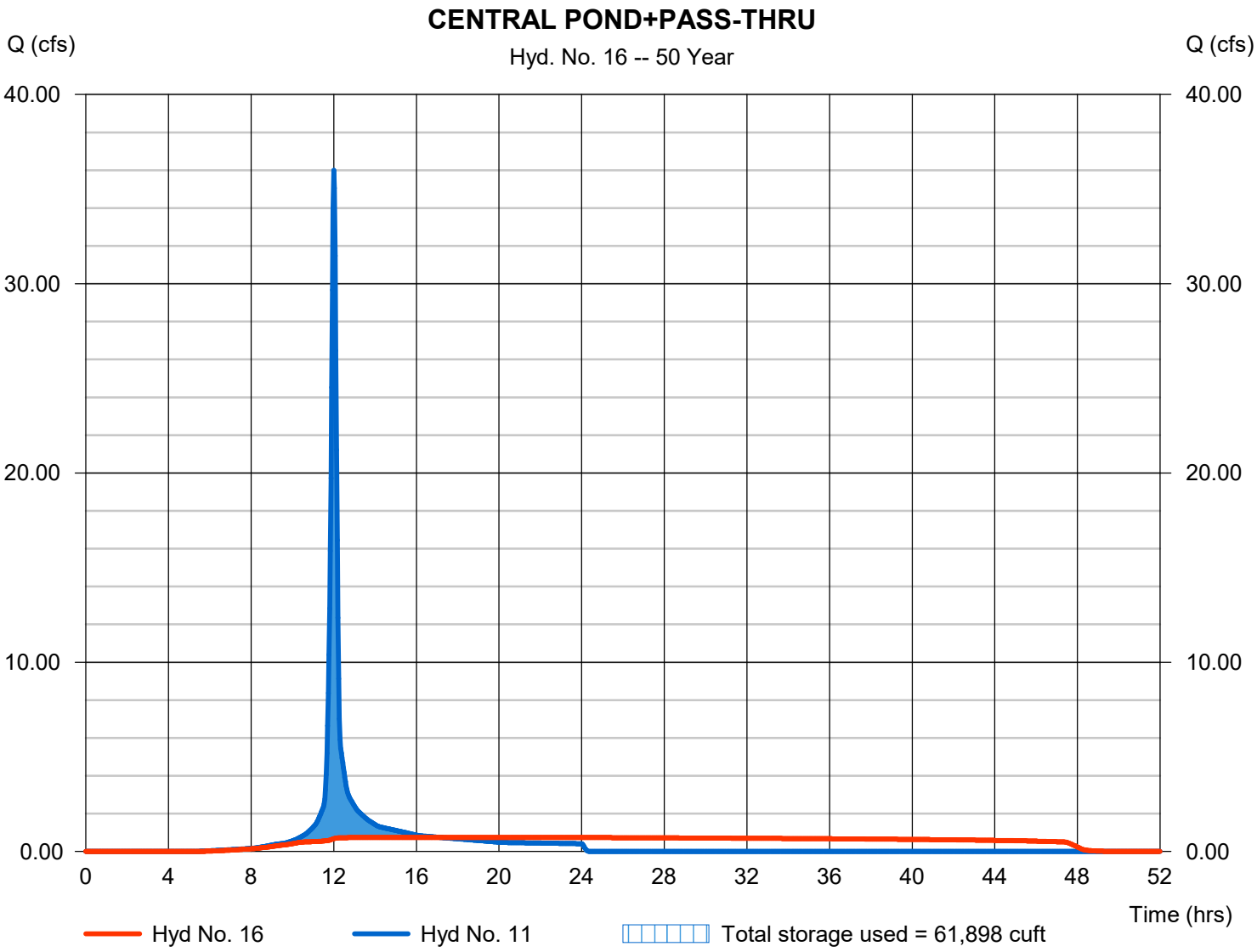
Hydrograph Report

Hyd. No. 16

CENTRAL POND+PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.742 cfs
Storm frequency	=	50 yrs	Time to peak	=	17.13 hrs
Time interval	=	2 min	Hyd. volume	=	94,630 cuft
Inflow hyd. No.	=	11 - CENTRAL DA + PASS-THRU	Max. Elevation	=	953.01 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	61,898 cuft

Storage Indication method used.

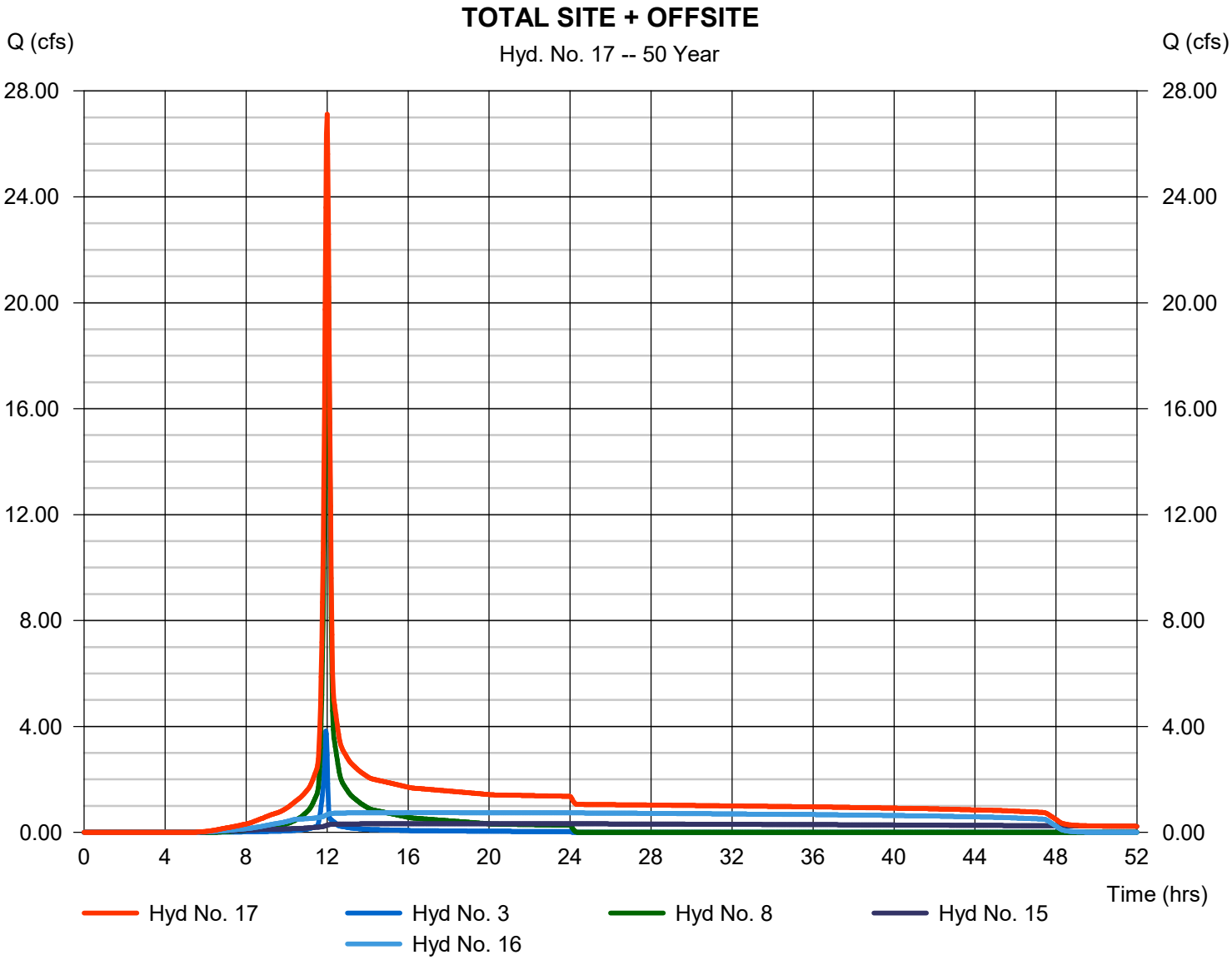


Hydrograph Report

Hyd. No. 17

TOTAL SITE + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 27.12 cfs
Storm frequency	= 50 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 216,407 cuft
Inflow hyds.	= 3, 8, 15, 16	Contrib. drain. area	= 4.680 ac

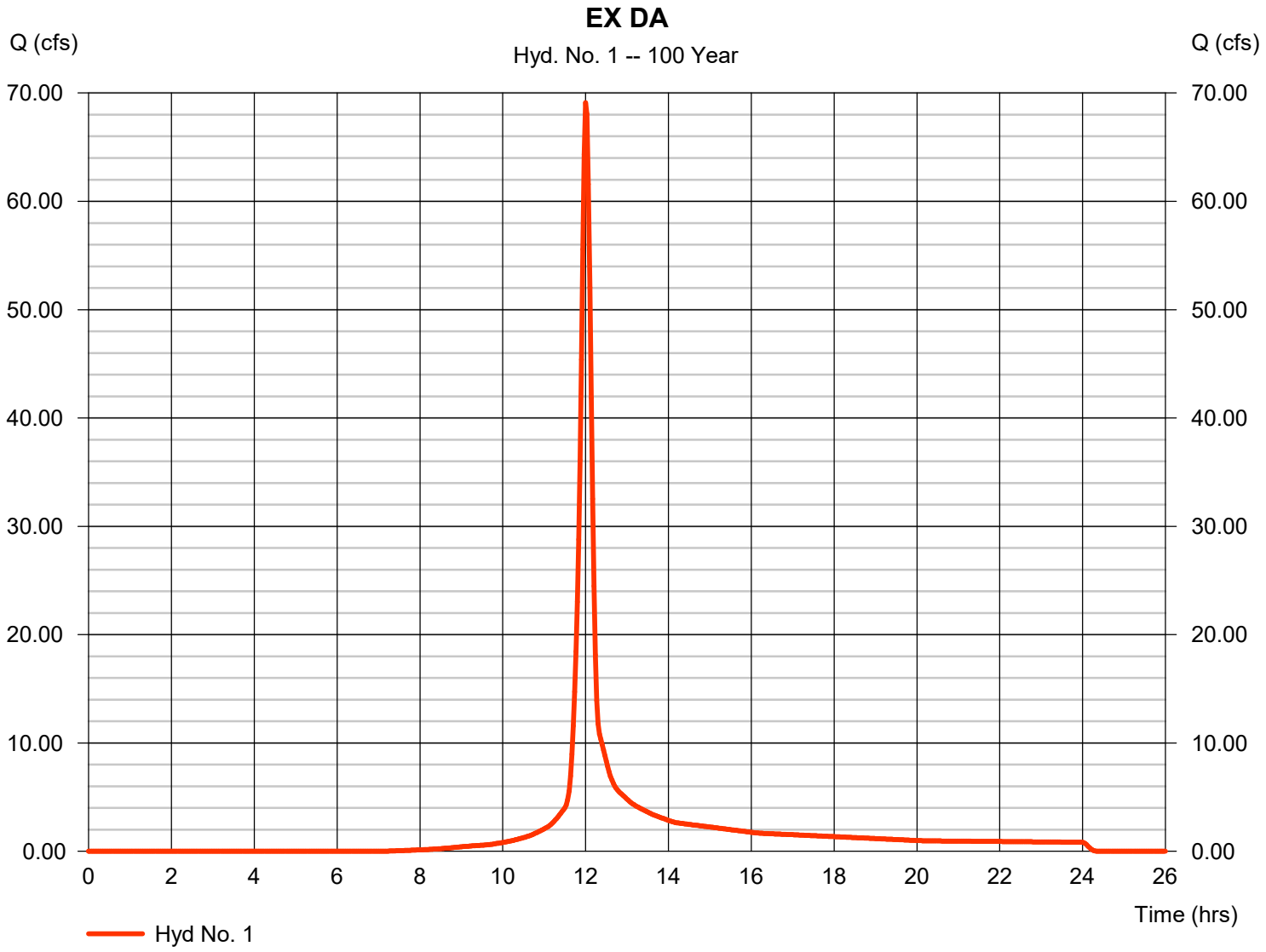


Hydrograph Report

Hyd. No. 1

EX DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	69.10 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	179,452 cuft
Drainage area	=	11.560 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.60 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

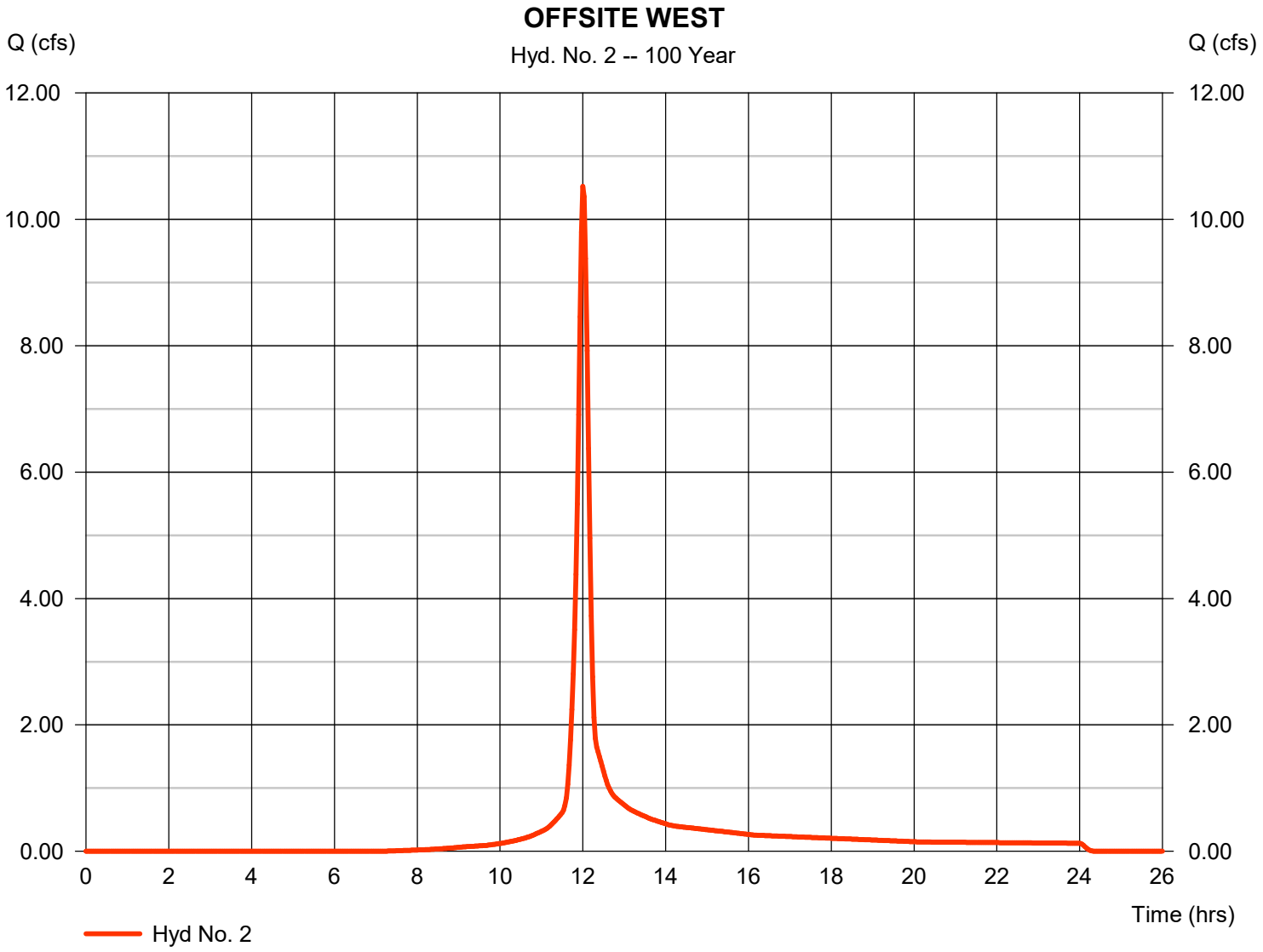


Hydrograph Report

Hyd. No. 2

OFFSITE WEST

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.52 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	27,321 cuft
Drainage area	=	1.760 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.10 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

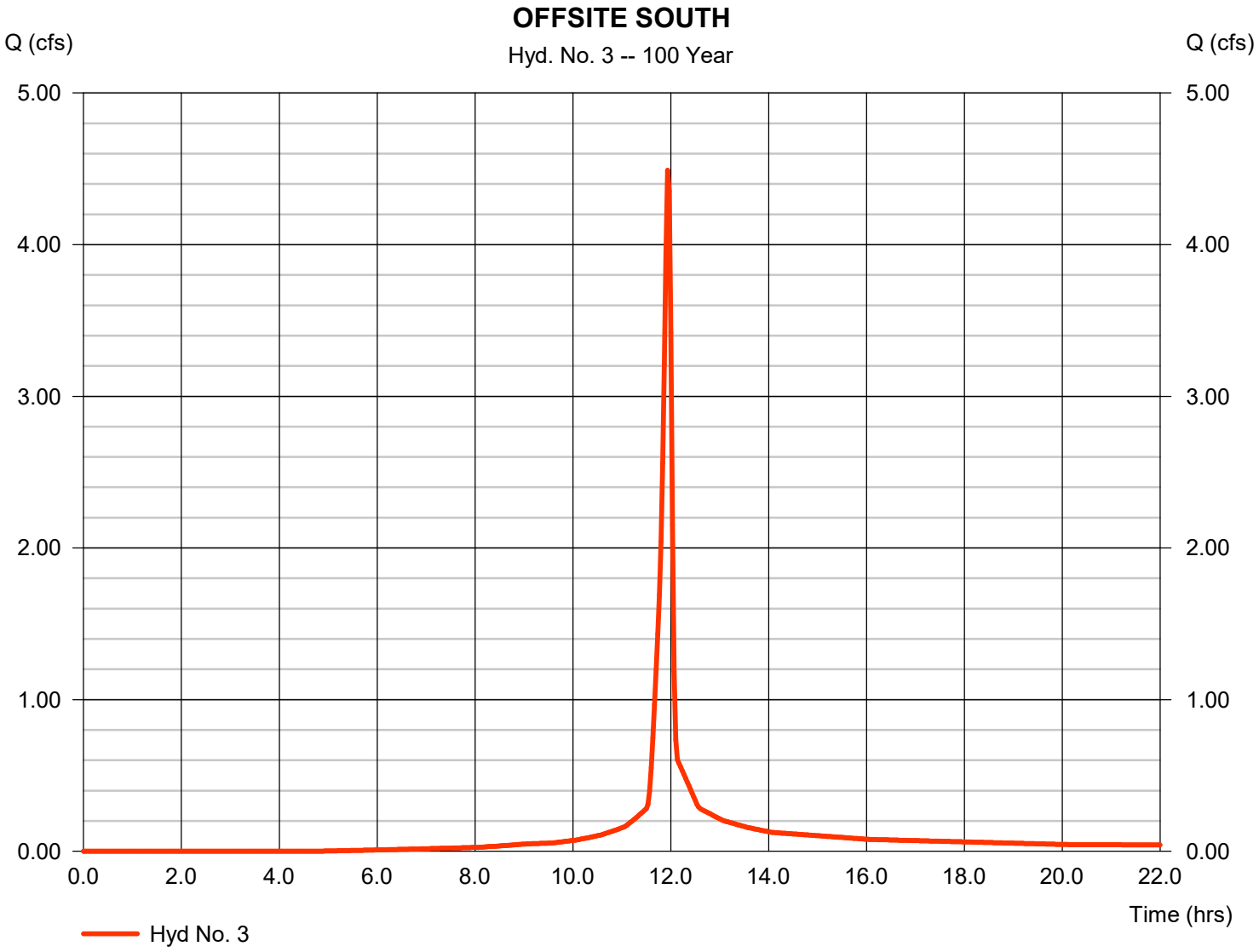


Hydrograph Report

Hyd. No. 3

OFFSITE SOUTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.491 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	9,448 cuft
Drainage area	=	0.540 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

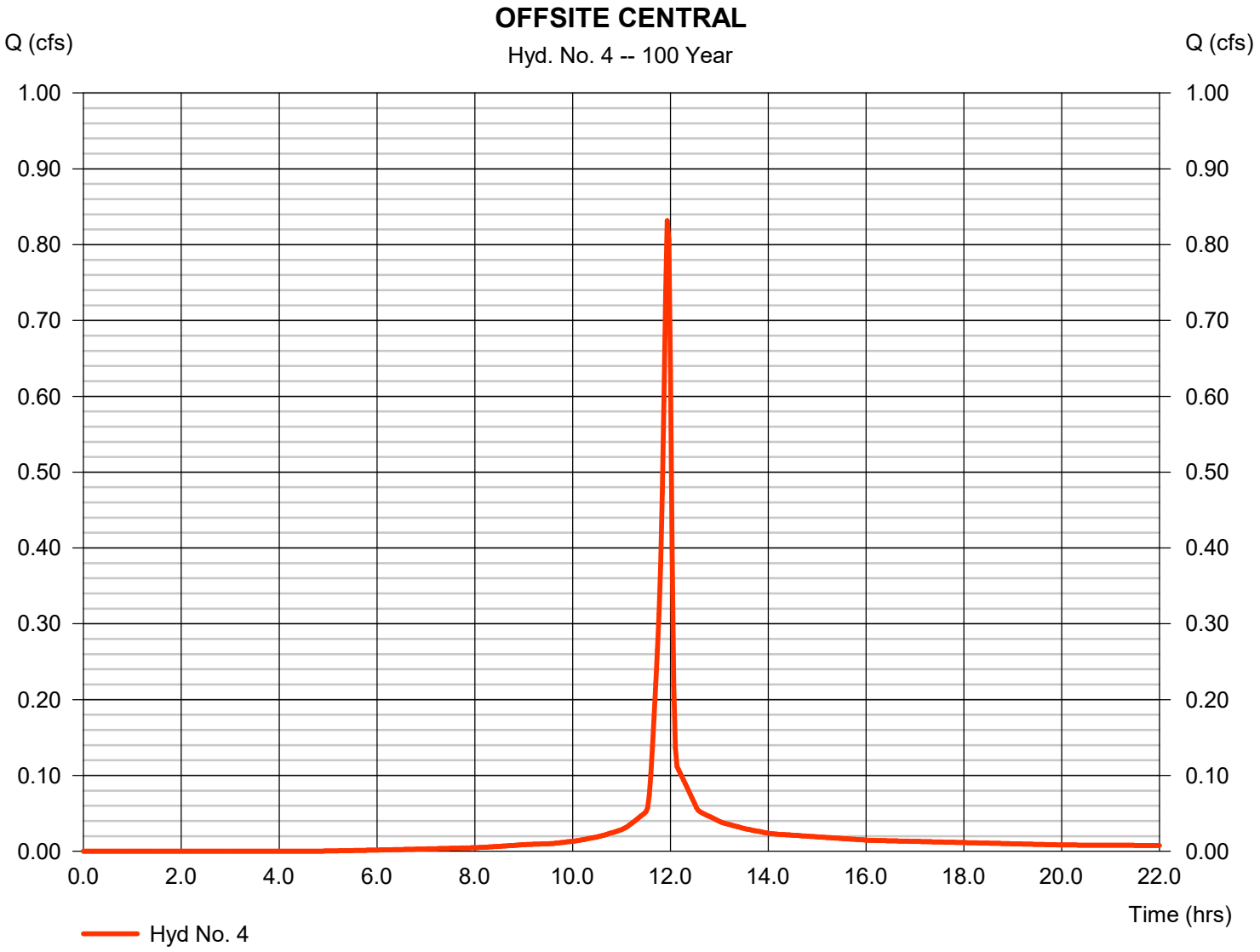


Hydrograph Report

Hyd. No. 4

OFFSITE CENTRAL

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.832 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,750 cuft
Drainage area	=	0.100 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

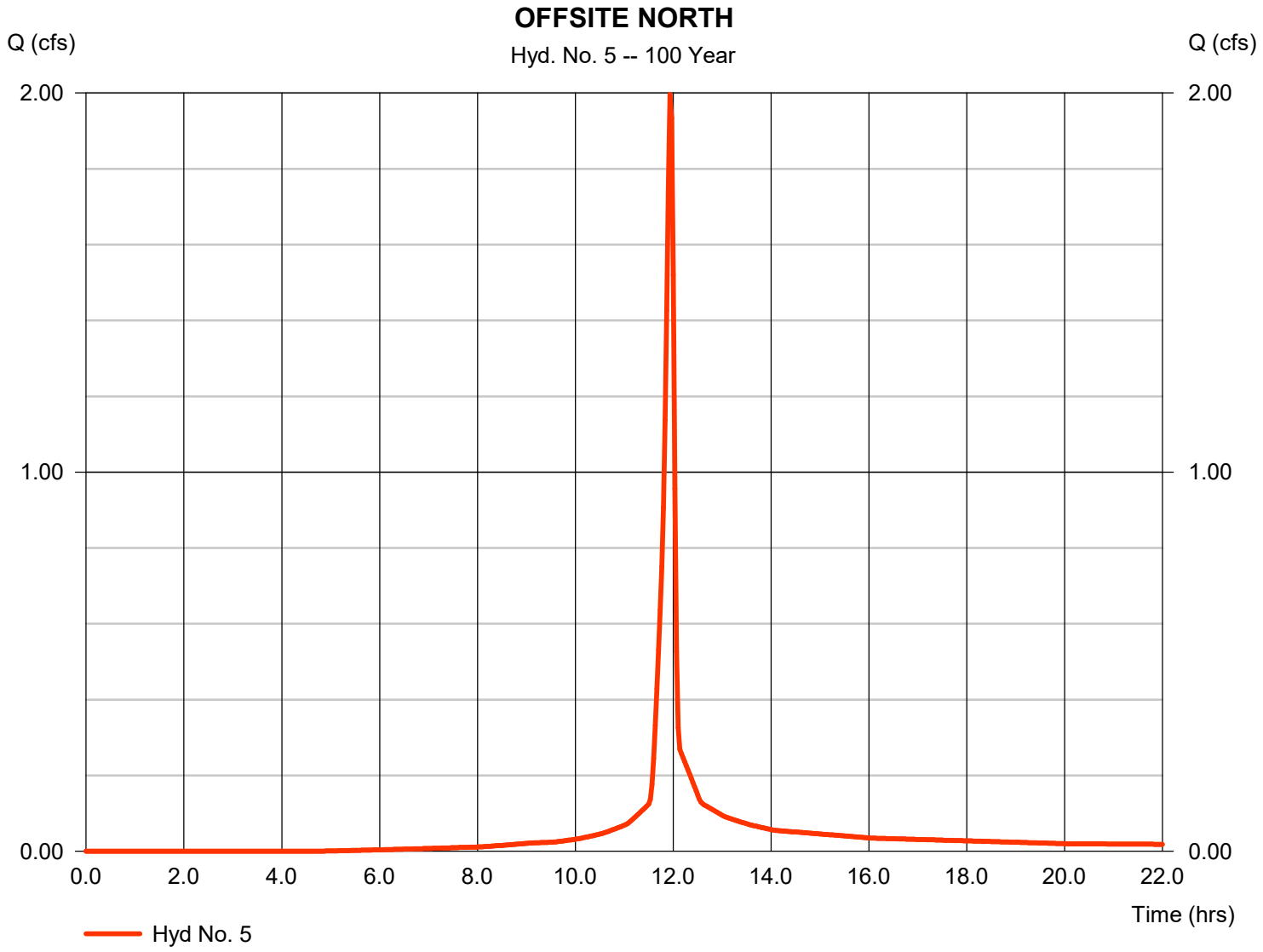


Hydrograph Report

Hyd. No. 5

OFFSITE NORTH

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.996 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	4,199 cuft
Drainage area	=	0.240 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

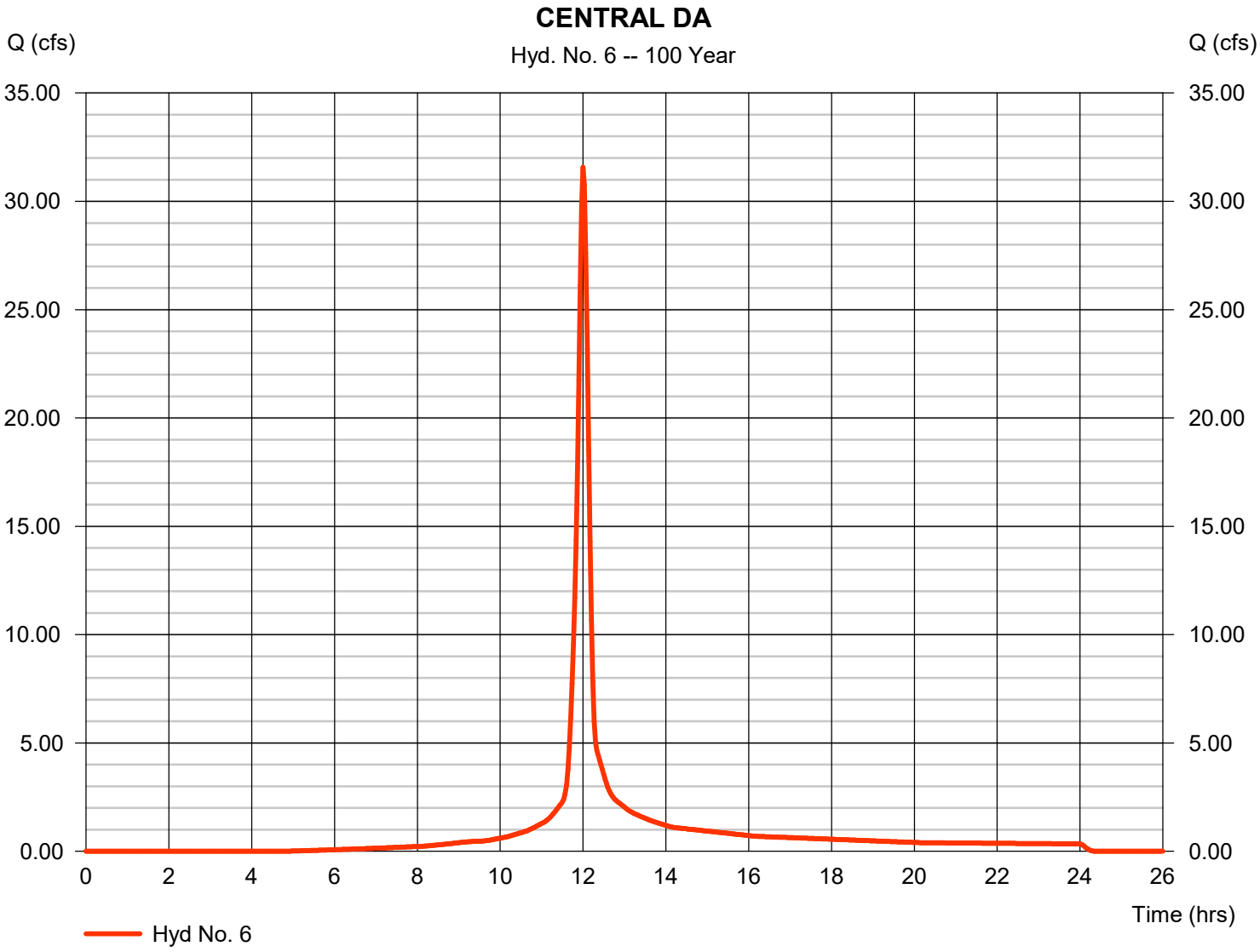


Hydrograph Report

Hyd. No. 6

CENTRAL DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	31.57 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	83,911 cuft
Drainage area	=	4.360 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

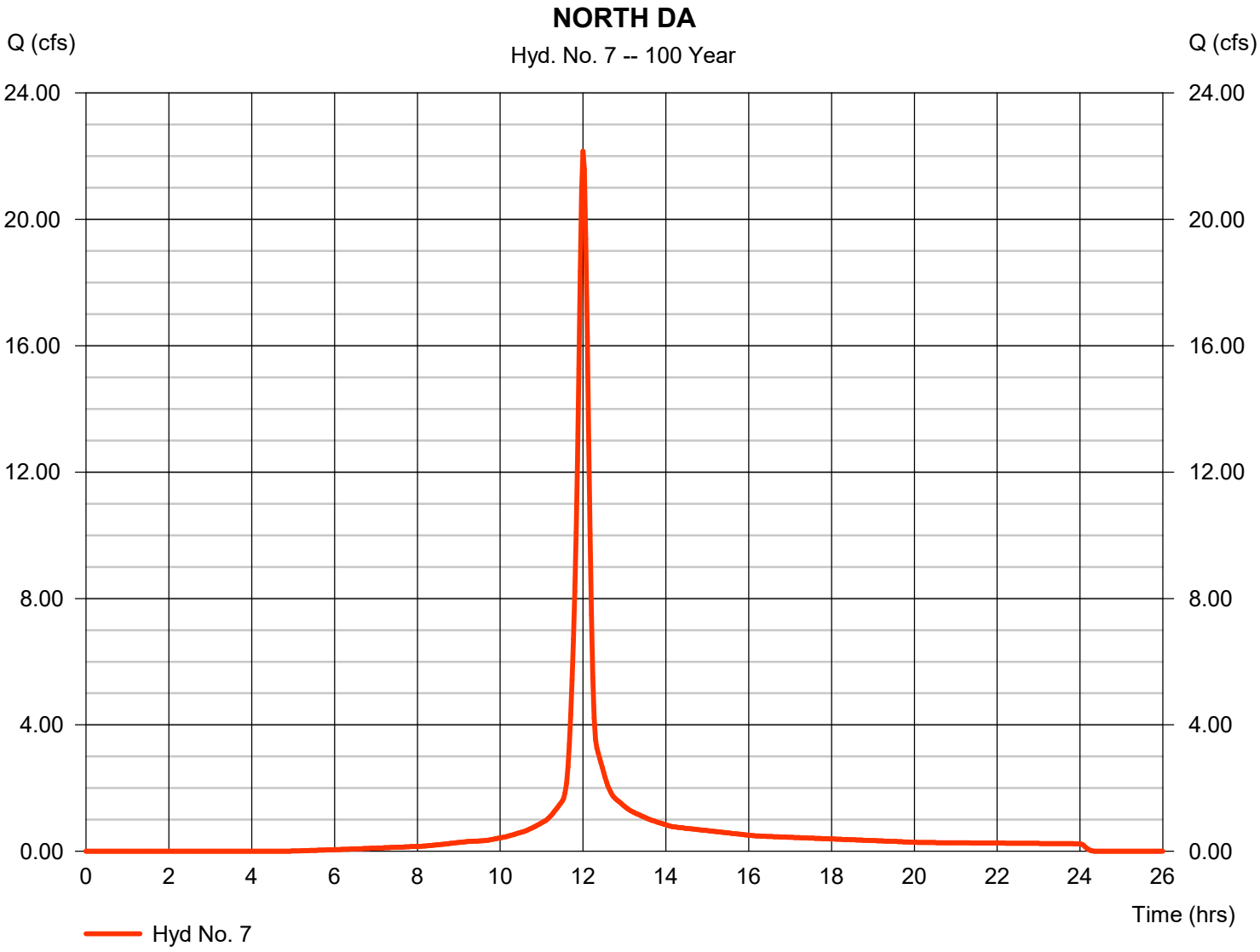


Hydrograph Report

Hyd. No. 7

NORTH DA

Hydrograph type	=	SCS Runoff	Peak discharge	=	22.16 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	58,891 cuft
Drainage area	=	3.060 ac	Curve number	=	83
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.12 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

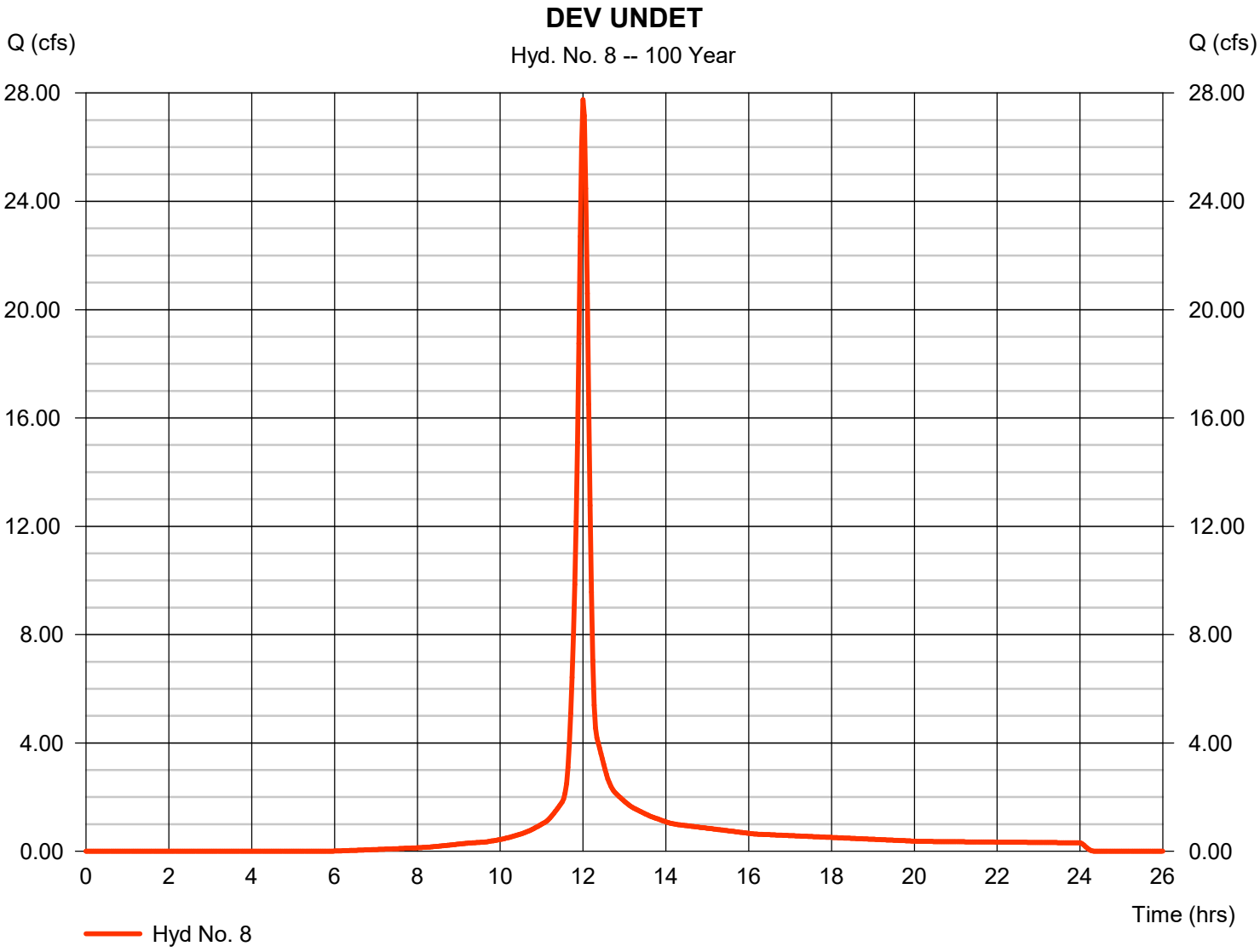
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 8

DEV UNDET

Hydrograph type	= SCS Runoff	Peak discharge	= 27.75 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 72,752 cuft
Drainage area	= 4.140 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 7.12 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(2.460 x 79) + (1.680 x 80)] / 4.140

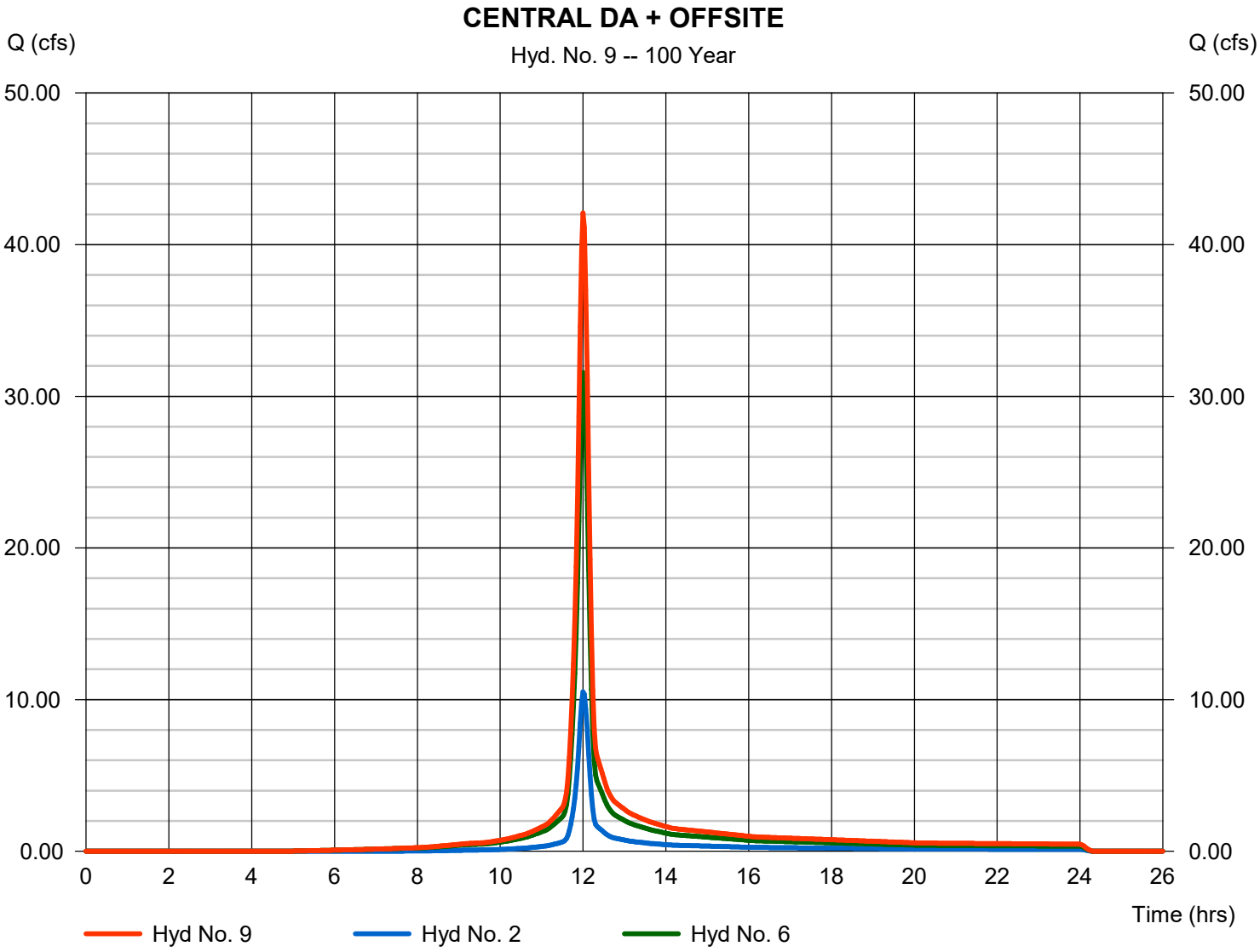


Hydrograph Report

Hyd. No. 9

CENTRAL DA + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 42.09 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 111,232 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 6.120 ac



Hydrograph Report

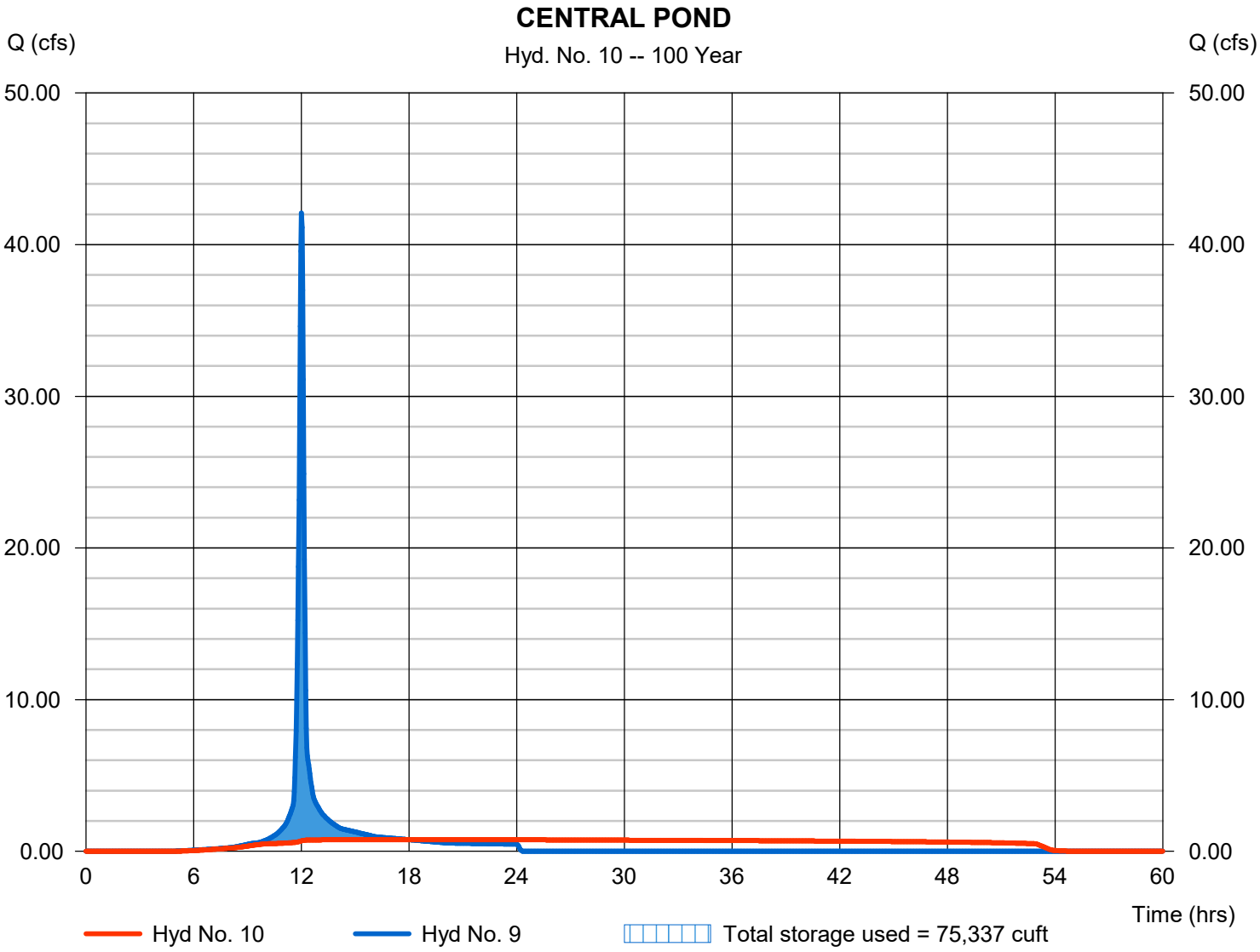
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 10

CENTRAL POND

Hydrograph type	= Reservoir	Peak discharge	= 0.761 cfs
Storm frequency	= 100 yrs	Time to peak	= 18.00 hrs
Time interval	= 2 min	Hyd. volume	= 111,230 cuft
Inflow hyd. No.	= 9 - CENTRAL DA + OFFSITE	Max. Elevation	= 953.88 ft
Reservoir name	= CENTRAL POND	Max. Storage	= 75,337 cuft

Storage Indication method used.

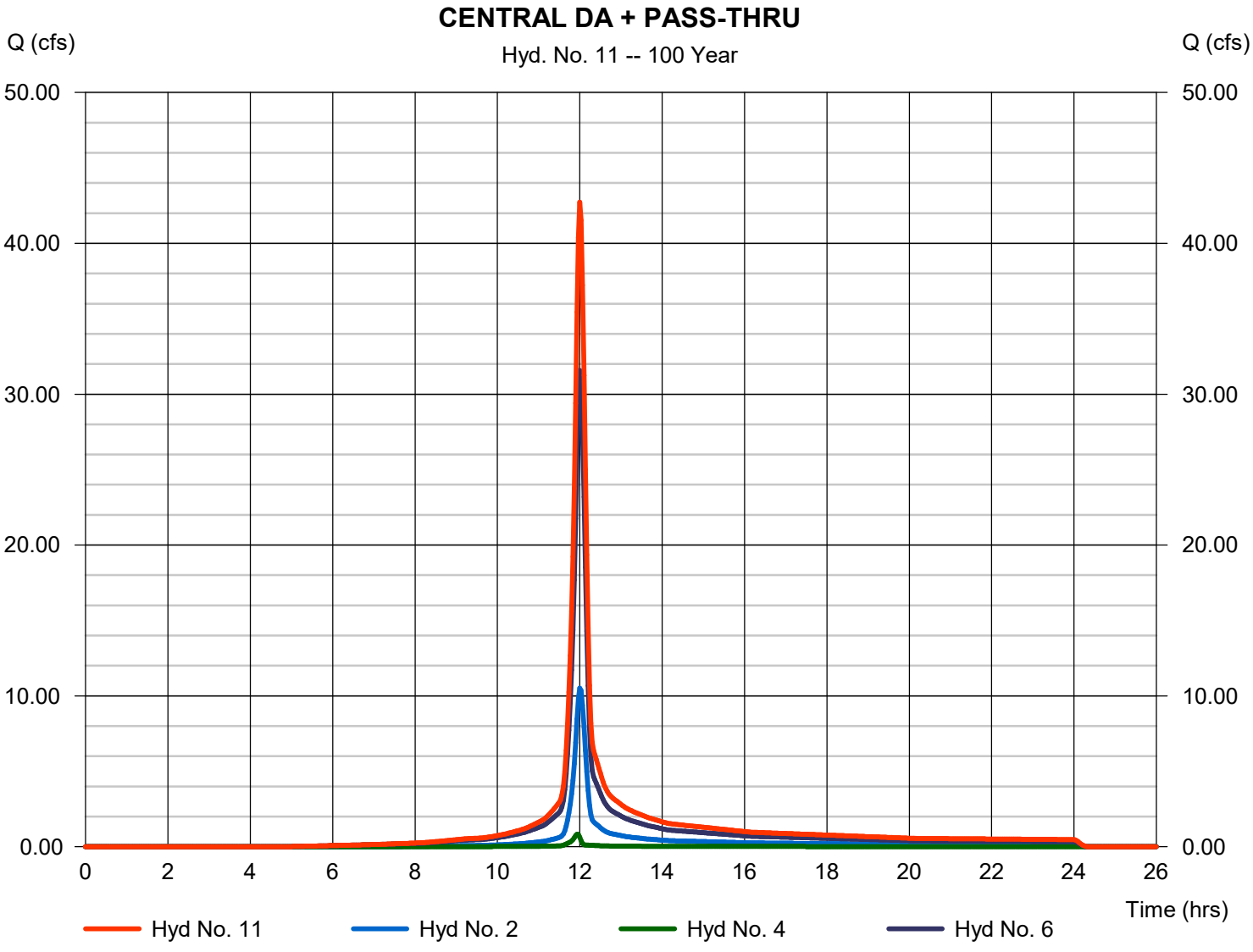


Hydrograph Report

Hyd. No. 11

CENTRAL DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 42.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 112,981 cuft
Inflow hyds.	= 2, 4, 6	Contrib. drain. area	= 6.220 ac



Hydrograph Report

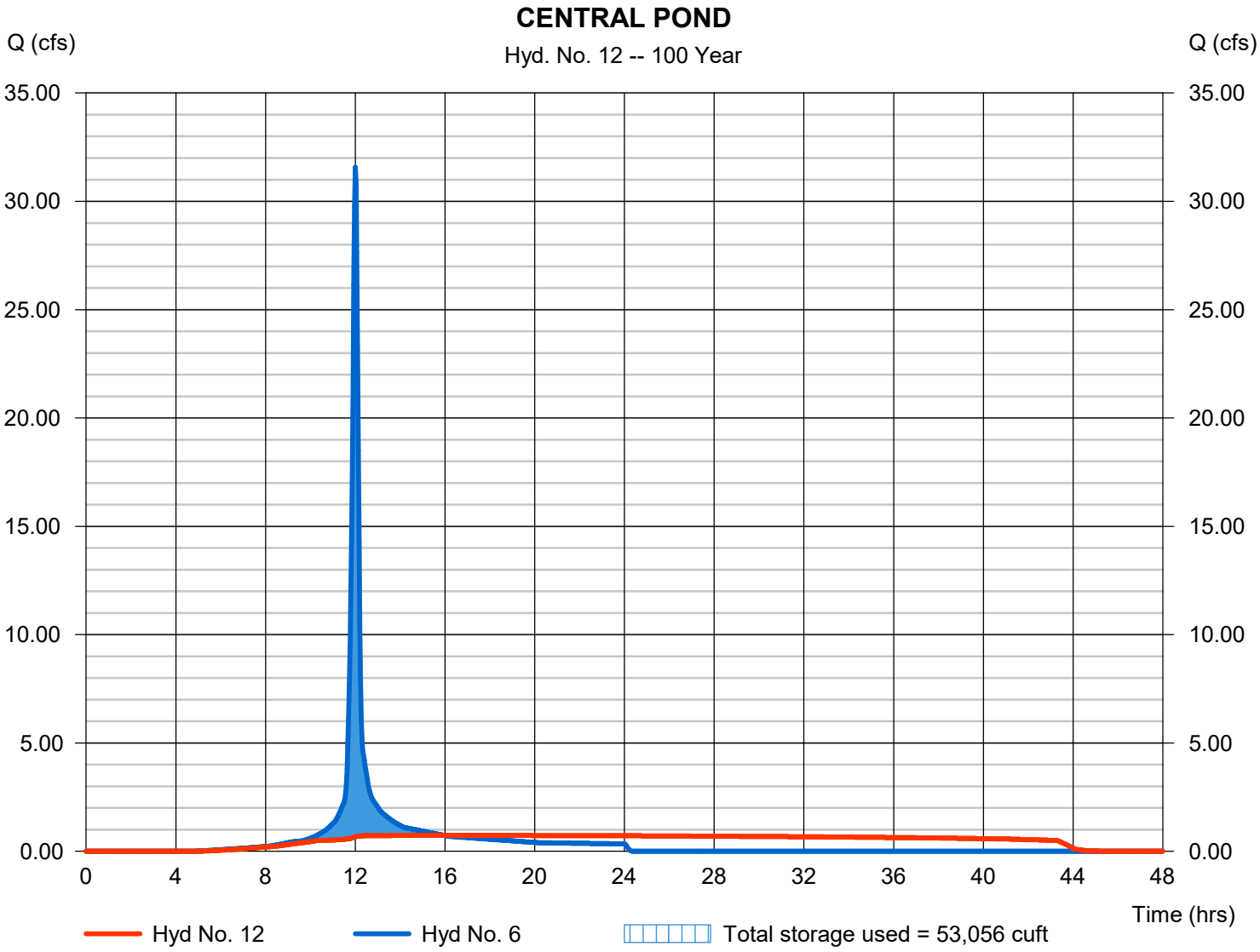
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 12

CENTRAL POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.729 cfs
Storm frequency	=	100 yrs	Time to peak	=	15.97 hrs
Time interval	=	2 min	Hyd. volume	=	83,909 cuft
Inflow hyd. No.	=	6 - CENTRAL DA	Max. Elevation	=	952.43 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	53,056 cuft

Storage Indication method used.



Hydrograph Report

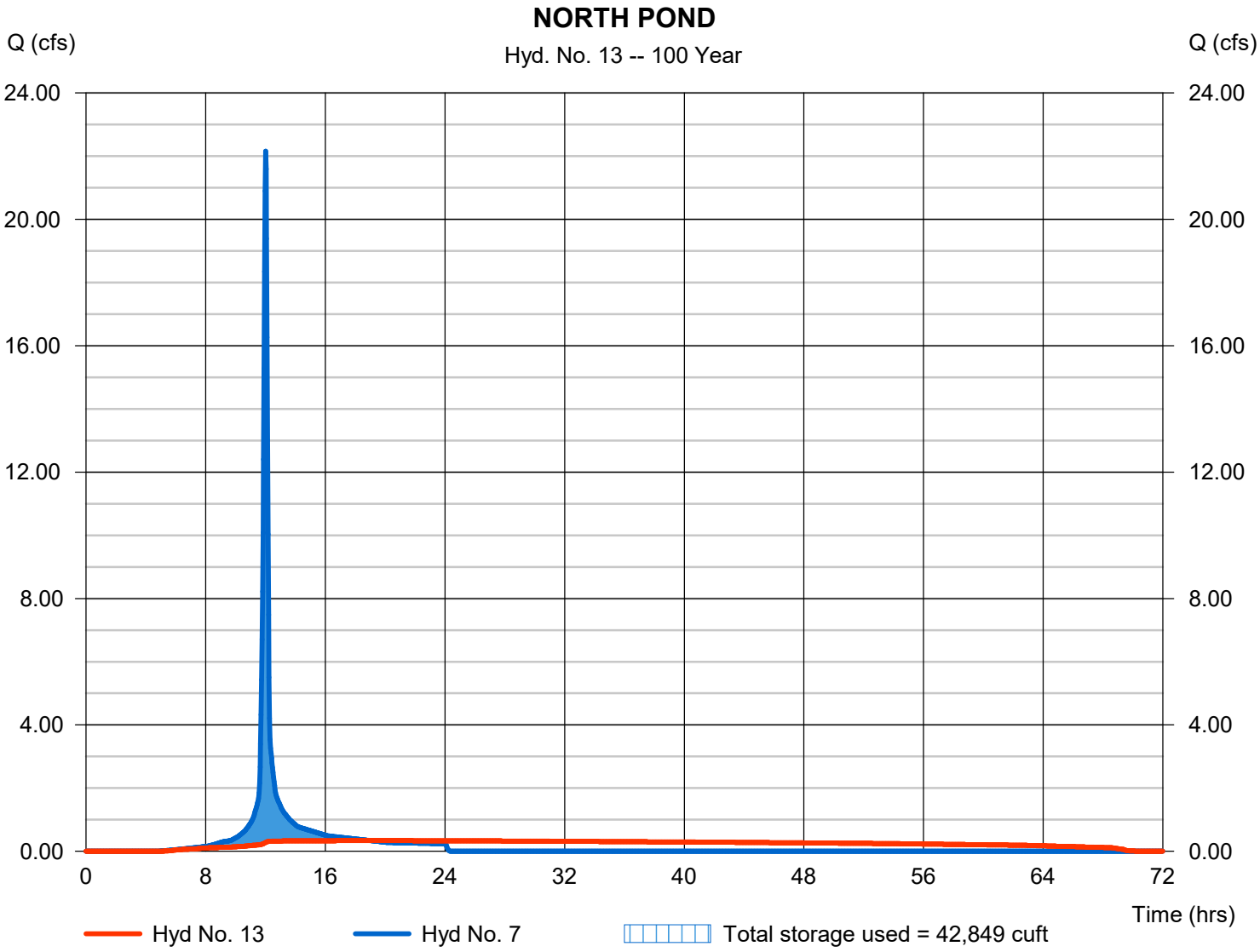
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 13

NORTH POND

Hydrograph type	=	Reservoir	Peak discharge	=	0.334 cfs
Storm frequency	=	100 yrs	Time to peak	=	19.07 hrs
Time interval	=	2 min	Hyd. volume	=	58,890 cuft
Inflow hyd. No.	=	7 - NORTH DA	Max. Elevation	=	944.50 ft
Reservoir name	=	NORTH POND	Max. Storage	=	42,849 cuft

Storage Indication method used.

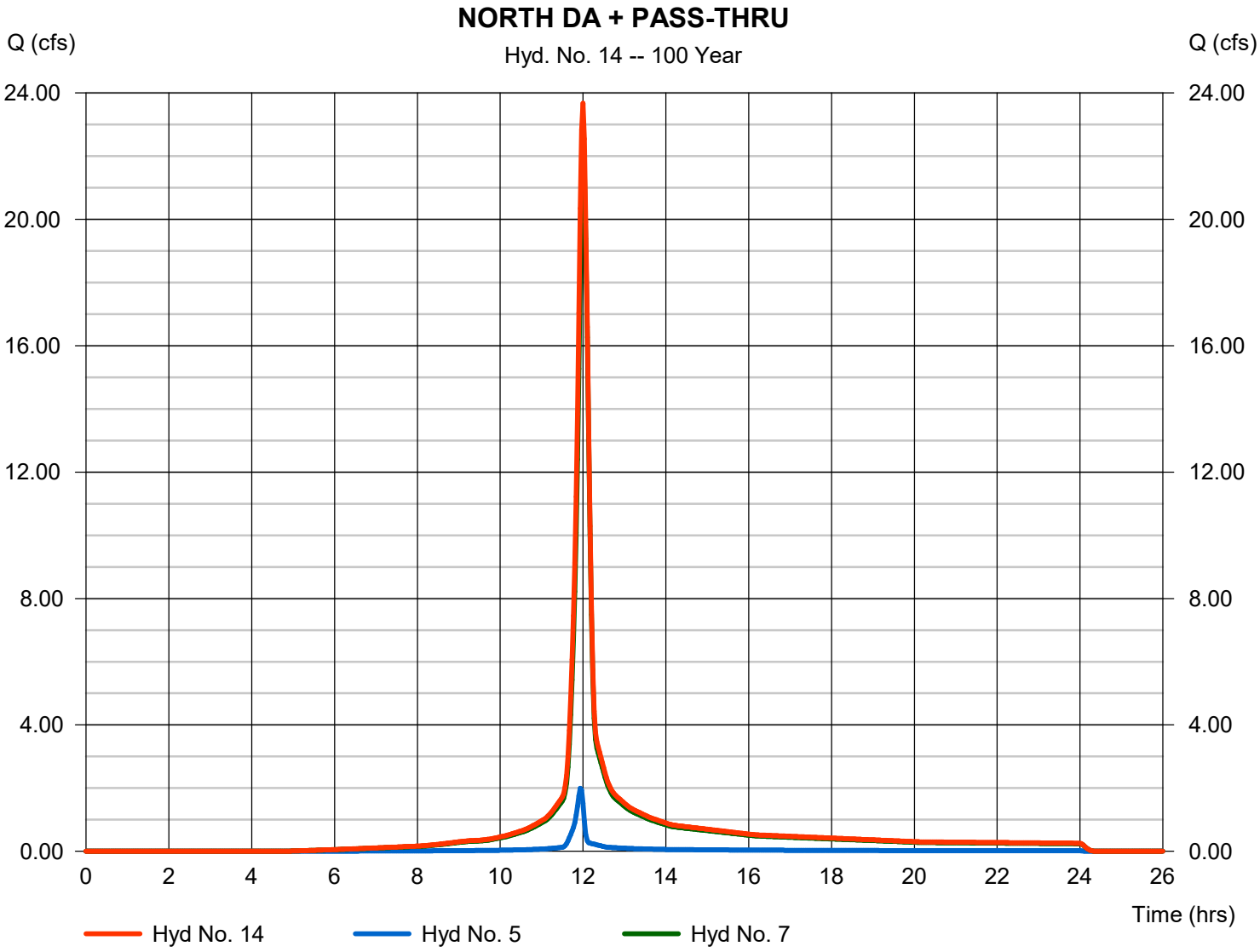


Hydrograph Report

Hyd. No. 14

NORTH DA + PASS-THRU

Hydrograph type	= Combine	Peak discharge	= 23.68 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 63,090 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 3.300 ac



Hydrograph Report

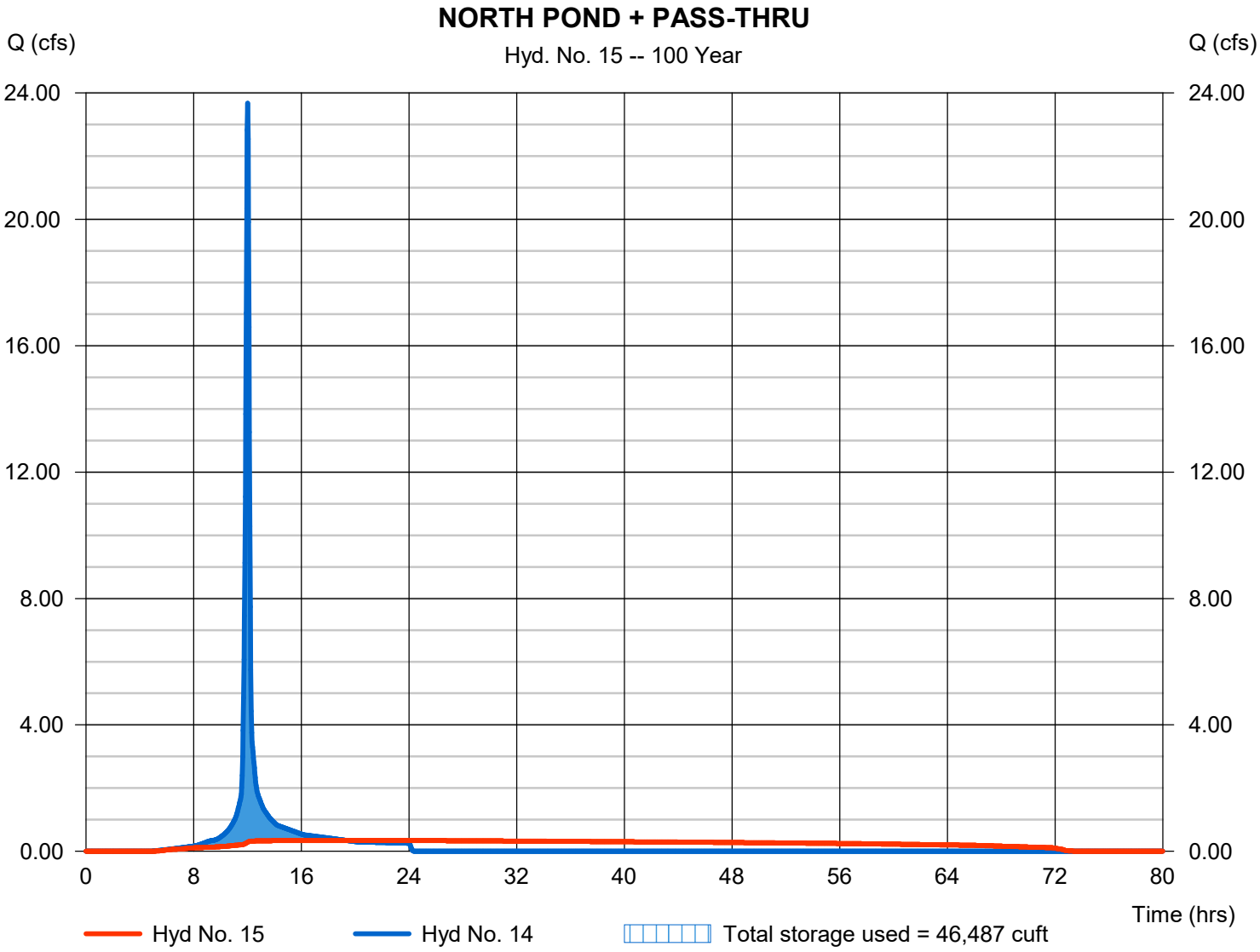
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 15

NORTH POND + PASS-THRU

Hydrograph type	= Reservoir	Peak discharge	= 0.341 cfs
Storm frequency	= 100 yrs	Time to peak	= 19.37 hrs
Time interval	= 2 min	Hyd. volume	= 63,089 cuft
Inflow hyd. No.	= 14 - NORTH DA + PASS-THRU	Max. Elevation	= 944.85 ft
Reservoir name	= NORTH POND	Max. Storage	= 46,487 cuft

Storage Indication method used.



Hydrograph Report

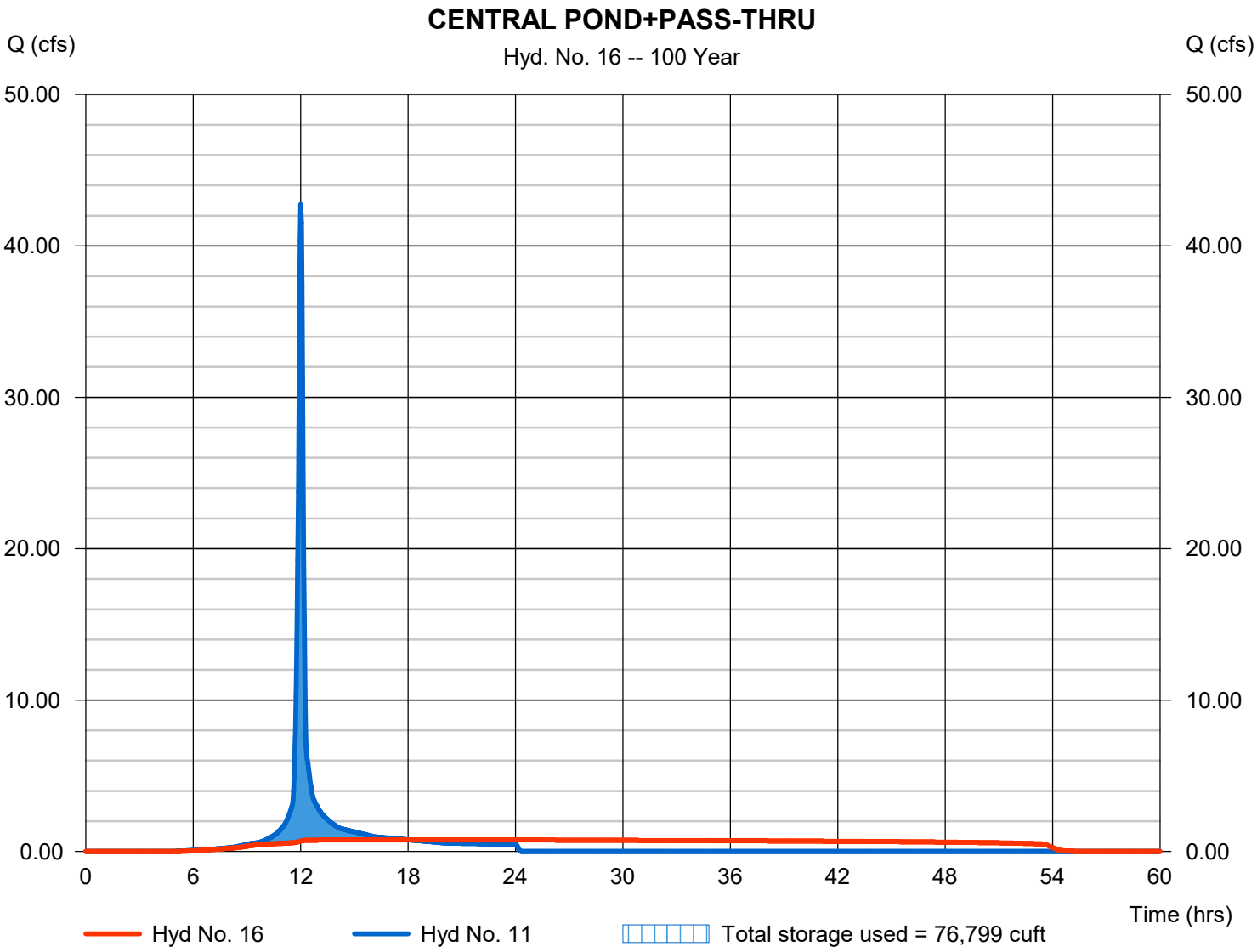
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020 Monday, 09 / 27 / 2021

Hyd. No. 16

CENTRAL POND+PASS-THRU

Hydrograph type	=	Reservoir	Peak discharge	=	0.763 cfs
Storm frequency	=	100 yrs	Time to peak	=	18.10 hrs
Time interval	=	2 min	Hyd. volume	=	112,980 cuft
Inflow hyd. No.	=	11 - CENTRAL DA + PASS-THRU	Max. Elevation	=	953.98 ft
Reservoir name	=	CENTRAL POND	Max. Storage	=	76,799 cuft

Storage Indication method used.

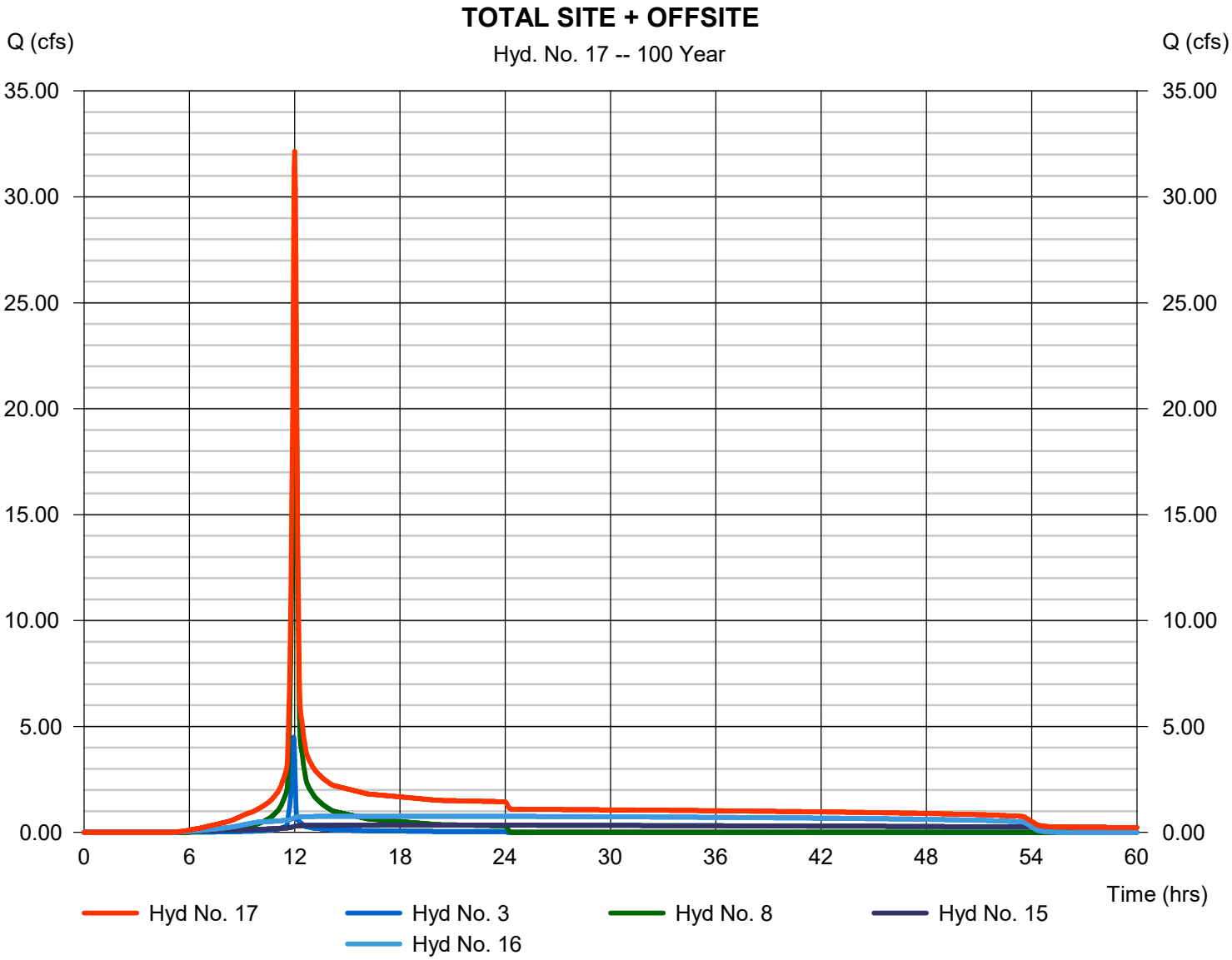


Hydrograph Report

Hyd. No. 17

TOTAL SITE + OFFSITE

Hydrograph type	= Combine	Peak discharge	= 32.15 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 258,269 cuft
Inflow hyds.	= 3, 8, 15, 16	Contrib. drain. area	= 4.680 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	66.7390	18.4000	0.9371	--------
2	101.8674	20.8000	0.9811	--------
3	0.0000	0.0000	0.0000	--------
5	124.8469	20.4000	0.9780	--------
10	145.4638	20.8000	0.9749	--------
25	181.9707	20.8000	0.9836	--------
50	201.7299	20.9000	0.9769	--------
100	239.1196	21.3001	0.9873	--------

File name: WDM-Figure3-5.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	3.48	2.90	2.49	2.19	1.95	1.76	1.61	1.48	1.37	1.27	1.19	1.12
2	4.20	3.53	3.04	2.68	2.39	2.16	1.97	1.81	1.68	1.56	1.46	1.37
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	5.28	4.43	3.81	3.35	2.99	2.70	2.46	2.26	2.09	1.95	1.82	1.71
10	6.12	5.15	4.44	3.91	3.50	3.16	2.88	2.65	2.46	2.29	2.14	2.01
25	7.44	6.25	5.39	4.74	4.23	3.82	3.48	3.20	2.96	2.76	2.58	2.42
50	8.40	7.07	6.10	5.37	4.80	4.34	3.96	3.64	3.37	3.14	2.94	2.76
100	9.48	7.98	6.89	6.07	5.42	4.90	4.47	4.11	3.80	3.54	3.31	3.11

Tc = time in minutes. Values may exceed 60.

Precip. file name: Q:\A-FILES\A-1800\A1846\Docs\Stormwater Management Plan\Hydroflow\WDM-Figure3-5.PCP

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.67	3.08	0.00	3.81	4.46	5.44	6.26	7.12
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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