APPLICATION OF 100 NOD WAY, LLC FOR PERMIT FOR REGULATED ACTIVITIES AT 100 NOD ROAD, AVON

AVON INLAND WETLANDS COMMISSION

NOVEMBER 15, 2022

Applicant:
100 Nod Way, LLC
30 Dorset Crossing Drive, # 600
Simsbury, CT 06070

Agent/Counsel:
Timothy S. Hollister
thollister@hinckleyallen.com
Hinckley Allen
20 Church Street
Hartford, CT 06103
(860) 331-2363
Attorney for 100 Nod Way, LLC

TABLE OF CONTENTS
November 15, 2022

Tabs:

Submitted separately:

- "Eagles' Point, A Residential Community, 100 Nod Road, Avon, Connecticut, October 28, 2022," consisting of 18 sheets, prepared by F.A. Hesketh & Associates
- Application fee of $750 plus $100 x 1.72 wetland/watercourse/upland review area = $922; plus $60 DEEP fee = $982 total. Payable to Town of Avon.

Tab 1

HINCKLEY ALLEN

20 Church Street
Hartford, CT 06103-1221
p: 860-725-6200 f: 860-278-3802
hinckleyallen.com

Timothy S. Hollister
Timothy S. Hollister
(860) 331-2823 (Direct)
(860) 558-1512 (Cell)
thollister@hinckleyallen.com

November 15, 2022

VIA HAND DELIVERY AND E-FILE

Michael Feldman, Chair, and Members
Avon Inland Wetlands Commission
60 West Main Street (Route 44)
Avon, CT 06001

Hiram Peck III, Director of Planning and
Community Development
60 West Main Street (Route 44)
Avon, CT 06001

Re: **Application of 100 Nod Way, LLC for a Permit for Regulated Activities**

Dear Chair Feldman, Commission Members, and Mr. Peck:

On behalf of 100 Nod Way, LLC, we are submitting this application to the Town of Avon Inland Wetlands Commission for approval of a permit for regulated activities in connection with a multi-family residential development to be called "Eagles' Point," at 100 Nod Road. The purpose of this letter is to explain the application and answer, in advance of any public hearings, likely questions.

1. Evolution of the Property Proposed for Development

Prior to 1997, Nod Road, north of Route 44, featured a sharp turn to the east and then a sharp turn back to the west. The land between these curves had been historically part of a farm, but in the 1990's was part of the Blue Fox Run golf course. In 1997, as shown on plans and documents at Tab 7 of this application, the Town of Avon straightened the road, by creating and paving a connection between the two curves. The curved part was renamed Nod Way. The result was a 9.3 acre parcel located between Nod Road to the west, running north-south and parallel to the golf course; and Nod Way to the south, east, and north. This 9.3 acre parcel is the subject of this application.

It is significant to this application that in straightening Nod Road, the Town of Avon redirected and channelized an open watercourse at the south end of the newly-created 9.3 acre parcel; and did the same to an intermittent watercourse at the northeast corner of the new parcel. Thus, the regulated watercourses on the subject property are the relatively recent result of regulated activities conducted by the Town of Avon. This wetlands application preserves the existing drainage and discharge.

2. Existing Watercourses and Wetlands

As shown on the development plan, the onsite watercourse that flows east to west in the southern portion of the property is a segment of a small stream, with a bordering fringe of woodland wetland. This stream enters the subject property to the east from the culvert installed in 1997 under Nod Way, and exits the property to the west from the culvert under Nod Road, also installed in 1997 by the Town.

Off-site, east of the northeastern corner of the property, on the east side of Nod Way, is a small stream that ends at a subsurface culvert. The culvert extends and conveys water several hundred feet to a point that is northwest of the northwestern property corner, on the west side of Nod Road. This also was a result of the Town's roadwork in 1997.

The applicant's wetland delineation report, Tab 4, identifies several land areas, on and off the site, with features or associated published records that indicate or suggest the potential presence of inland wetlands, watercourses, or both. However, based on our review and observations, we conclude that there are no wetlands or watercourses in these areas. See Tab 4.

3. Proposed Site Development Plan

The proposal includes subdivision of part of the parcel into thirteen (13) single-family home lots, ranging from 0.20 to 0.26 acres, and a larger 6.52-acre piece where eight (8) separate residential duplexes will be built as a common-interest ownership community of 42 total units. Thus, the eight buildings will include 42 town-house units, for a total development of 55 units. A new private driveway that intersects Nod Road and Nod Way will provide access to the town-house units. Each of the single-family homes will have its own driveway access directly to Nod Way.

The development will be served by an existing sewer line available in Nod Way, and an extended water main. Sanitary sewage from the proposed development will be handled by gravity sanitary sewers, a new small pump station, and a new sanitary force main. Water will be brought to the site via an extension of the existing CT Water Co. water main located on Nod Road south of the site. Electric and communications services will be provided via existing services in Nod Road and Nod Way.

4. Regulated Activities

There are no direct wetland or watercourse disturbances proposed. The only portions of the proposed development activities that fall within a 100-foot upland review area for a wetland or watercourse are within the northeastern and southwestern portions of the development. See plan sheets GR-1 and WI-1.

The northwestern construction activities are within the 100-foot upland review area of the offsite and upstream wetland and watercourse. These activities include the construction of a portion of the house and driveway on lot 11 and related site improvements on both lots. Although these activities are within 100 feet of the watercourses, the associated land area and

improvements do not drain to the northern offsite stream because it is in a different drainage area.

Southwestern construction activities within the 100-foot upland review area of the onsite, southern wetland and watercourse are the extension of a water main within the paved Nod Road. These activities will not impact the southern wetland and watercourse, as the water main extension work will occur entirely within the paved street and will be relatively brief and will result in only relatively narrow and short segments of trenching that will be backfilled daily.

5. Basis for Approval

No activities are proposed within wetlands and watercourses, and, as such, no direct impacts will occur. The proposed site improvements are designed to avoid indirect impacts to any function of a wetland or watercourse, in the short and long-term, through the incorporation of various best management practices such as a soil erosion and sediment control measures and stormwater management measures.

Overall, the development will result in an increase in impervious coverage. To mitigate and manage stormwater runoff from these impervious surfaces, three water quality treatment basins are proposed. These basins will manage runoff from each of the single-family residences as well as the multi-family buildings and the associated impervious surfaces. In addition to managing onsite stormwater runoff, the development has been designed to also manage the stormwater runoff from Nod Way and from land to the east that currently discharges to the property via a culvert from Nod Way. See sheets GR-1 and UT-1.

Conclusion

The applicant has tried in this letter and in its application materials to explain the plan in detail; cover all bases; answer anticipated questions; shorten the list of items to be discussed at the public hearing; facilitate review by consultants, Town staff, and the public; demonstrate that the site plan can be constructed without any adverse impact to a function of wetlands watercourse.

Thank you for your attention.

Very truly yours,

Timothy S. Hollister

cc:

Tab 2

Return To:
Fahey & Landolina, Attorneys LLC
487 Spring St.
Windsor Locks, CT 06096

Doc ID: 002497800004 Type: LAN
BK 737 PG 140-143

$ 2,000.00 State #6,000.00 Conveyance Tax Received
Town Clerk of Avon

WARRANTEE DEED

KNOW YE, THAT **NOD ROAD PROPERTIES, LLC,** a Connecticut limited liability company having its principal place of business in the Town of Avon, County of Hartford and State of Connecticut, for consideration in the sum of **EIGHT HUNDRED THOUSAND AND 00/100 ($800,000.00) DOLLARS** received to its full satisfaction of **THE KEYSTONE COMPANIES, LLC,** a Connecticut limited liability company having its principal place of business in the Town of Simsbury, County of Hartford and State of Connecticut, does hereby give, grant, bargain, sell and confirm unto the said **THE KEYSTONE COMPANIES, LLC,** its successors and assigns forever, a certain piece or parcel of land, commonly known as 100 Nod Road, and situated on the easterly side of Relocated Nod Road in the Town of Avon, State of Connecticut. Said parcel being depicted as Remainder of Parcel B Parcel 3290100 # 100 Nod Rod" on a map entitled "Property/Limited Topographic Survey property of Nod Road Properties, LLC 100 Nod Road Avon, Connecticut" Dated 06-20-2019 Rev. 12-2-2019 updated Commitment 11-21-2019 Rev. 02-05-20 Certification Scale 1" = 60' by F.A. Hesketh & Associates, Inc. Said parcel being bounded and more particularly described as follows:

Beginning at a monument found marking a point on the easterly street line of Relocated Nod Road and a point of curvature on the southerly street line of Nod Way.

Thence, along a curve to the right having a central angle of 94°13'00" a radius of 25.00 feet and an arc length of 41.11 feet to a monument found. Said monument being located N 46°18'09" E a chord distance of 36.63 feet from the point of beginning.

Thence, S 86°06'31" E a distance of 243.34 feet to a monument found marking a point of curvature in the southerly street line of Nod Way.

Thence, along a curve to the right having a central angle of 93°49'36" a radius of 139.04 feet and an arc length of 227.69 feet to a point. Said point being located S 39°11'43" E a distance of 203.09 feet from said point of curvature.

Thence, S 07°36'34" W a distance of 184.87 feet to a point.

Thence, S 02°43 '34" W a distance of 406.39 feet to a point.

Thence, S 11°56'34" W a distance of 262.69 feet to a point.

Thence, S 26°06'34" W a distance of 92.78 feet to a point.

Thence, S 46°05'28" W a distance of 174.21 feet to a monument found marking a point of curvature.

Thence, along a curve to the right having a central angle of 41°45'37" a radius of 139.04 feet and an arc length of 101.34 feet to a point. Said point being located S 66°58'17" W a chord distance of 99.11 feet from said point of curvature.

Thence, S 87°48'19" W a distance of 7.97 feet to a point of curvature.

Thence, along a curve to the right having a central angle of 100°40'22" a radius of 28.83 feet and an arc length of 50.66 feet to a point of reverse curvature in the easterly street line of Relocated Nod Road. Said point of reverse curvature being located N 41°03'53" W a chord distance of 44.39 feet from said point of curvature. The last ten courses being along the southerly, westerly and northerly street line of Nod Way.

Thence, along a curve to the left having a central angle of 09°42'34" a radius of 1029.98 feet and an arc length of 174.54 feet to a monument found. Said monument being located N 04°02'55" E a chord distance of 174.33 feet from said point of reverse curvature.

Thence, N 00°48'22" W a distance of 1035.82 feet along the easterly street line of Relocated Nod Road to the point and place of beginning.

Said parcel contains 9.30 Acres more or less.

Subject to:

Encumbrances:

1. All matters as shown on Avon Town Clerk No. 97-104 and all matters including, but not limited to, Unrestricted Right To Grade In Favor Of Arnold C. Greenberg A.L.R. Vol. 121 PG 863, Drainage R.O.W. A.L.R. VOL. 351 PG 171, Right To Excavate and Install Rip -Rap Acquired A.L.R. VOL 351 PG 171, Limit of Right To Grade A.L.R. VOL 351 PG 171, Legend, Notes and Notations all as shown on a certain map entitled "N/F Nod Road Properties, LLC. A.L.R. Vol. 373 Pg. 418 Name Change A.L.R. Vol. 328 Pg. 536 Root Deed Except A.L.R. Vol. 351 Pg. 171 (Nod Road Taking) Remainder of Parcel B Parcel 3290100 #100 Nod Road Area 405,224 Sq. Ft. or 9.30 Acres" on a certain Map or Plan entitled " Property/ Limited Topographic Survey Property of Nod Road Properties, LLC 100 Nod Road

Avon, Connecticut Date: 06-20-2019 Rev. 12-02-2019 updated Commitment 11-21-2019 Rev. 02-05-20 Certification Scale: 1" = 60' Drawn by: CAD Checked by: TSH Job no. 19144 Sheet no. 1 of 1" by F.A. Hesketh & Associates, Inc. 3 Creamery Brook, East Granby, CT 06026 Phone (860) 653-8000 Fax (860) 844-8600 Civil & Traffic Engineers - Surveyors- Planners - Landscape Architects-www.fahesketh.com - mail - fahesketh.com" to which reference may be made.

2. Easement Agreement by and between Anthony Rotondo, et al, ("Group") and Arnold C. Greenberg, Trustee ("Greenberg") dated and recorded December 11, 1980 in Volume 121 at Page 863 of the Avon Land Records.

3. Rights Including, but not limited to, drainage rights and right to enter as set forth in a Notice of Condemnation by the State of Connecticut against Joseph Brunoli et al dated June 17, 1998 and recorded June 19, 1998 in Volume 351 at Page 171 of the Avon land Records. (Note: As shown on Town Clerk Map Nos. 98-58 and 98-59)

The premises are hereby conveyed further subject to any and all provisions of any ordinance, municipal regulation or public or private law, declarations, restrictions, covenants and easements of record; and to taxes to the Town of Avon on the List of October 1, 2018, which taxes the grantees herein assume and agree to pay as part consideration for this deed.

TO HAVE AND TO HOLD the above granted and bargained premises, with the appurtenances thereof, unto it, the said Grantee, its heirs and assigns forever to and their own proper use and behoof. And also, it, the said Grantor does for itself, its heirs, executors, administrators, and successor, covenant with the said Grantee, its heirs and assigns, that at and until the ensealing of these premises, it is well seized of the premises, as a good indefeasible estate in FEE SIMPLE and has a good right to bargain and sell the same in manner and form as is above written and that the same is free from all encumbrances whatsoever, except as is above written.

AND FURTHERMORE, It, the said Grantor does by these presents bind itself and its successors and assigns forever to WARRANT AND DEFEND the above granted and bargained premises to it, the said Grantee, its heirs and assigns, against all claims and demands whatsoever, except as is above written.

[Signature Page Follows]

IN WITNESS WHEREOF, NOD ROAD PROPERTIES, LLC, acting herein by Christon B. Shelton, its Authorized Agent, duly authorized, has hereunto set his/her hand this 3 day of February, 2020.

NOD ROAD PROPERTIES, LLC

Jessica Nadeau

Kathryn Fisher

By: Christon B. Shelton
Its: Member Authorized Agent

STATE OF CONNECTICUT)
) ss: Avon 3 February, 2020
COUNTY OF HARTFORD)

Personally appeared Christon B Shelton, duly authorized Agent of NOD ROAD PROPERTIES, LLC, Signer and Sealer of the foregoing instrument, and acknowledged the same to be his/her free act and deed and the free act and deed of NOD ROAD PROPERTIES, LLC, before me.

Notary Public
Commissioner of the Superior Court
Commissim expires 3/31/20

Received for Record at Avon, CT
On 02/06/2020 At 2:01:50 pm

Return to:
Fahey & Landolina, Attorneys LLC
487 Spring St.
Windsor Locks, CT 06096

Doc ID: 002553870004 Type: LAN
BK 759 PG 653-656

No Conveyance Tax Collected

Ann L. Beaudette
Town Clerk of Avon

QUIT CLAIM DEED

TO ALL PEOPLE TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

KNOW YE, THAT, THE KEYSTONE COMPANIES, LLC, a limited liability company existing pursuant to the laws of the State of Connecticut with its principal place of business in the Town of Simsbury, County of Hartford and State of Connecticut, for **NO CONSIDERATION**, received to its full satisfaction of **100 NOD WAY, LLC** a limited liability existing pursuant to the laws of the State of Connecticut with its principal place of business in the Town of Simsbury, County of Hartford and State of Connecticut, have remised, released, and forever quit-claimed, and do by these presents, for itself and its successors, justly and absolutely remise, release, and forever **QUIT-CLAIM** unto the said **100 NOD WAY, LLC**, its successors and assigns forever, all such right, title, interest, claim and demand whatsoever as it has or ought to have in the following described premises:

SEE SCHEDULE A ATTACHED HERETO AND MADE A PART HEREOF

TO HAVE AND TO HOLD the premises unto it, and to its successors and assigns, to the only use and behoof of it, its successors and assigns forever, so that neither it, the said Grantor, nor any person or persons in its name and behalf, shall or will hereafter claim or demand any right or title to the premises or any part thereof, but they and every one of them shall by these presents be excluded and forever barred.

The premises are hereby conveyed further subject to any and all provisions of any ordinance, municipal regulation or public or private law, declarations, restrictions, covenants and easements of record; and to taxes to the Town of Avon on the List of October 1, 2020, which taxes the grantee herein assumes and agrees to pay as part consideration for this deed.

Being the same premises conveyed to the grantor herein by Warrantee Deed of Nod Road Properties, LLC dated February 3, 2020 and recorded in Volume 737 at Page 140 of the Avon Land Records.

IN WITNESS WHEREOF, THE KEYSTONE COMPANIES, LLC acting herein by P. Anthony Giorgio, its duly authorized member, has hereunto set its hand this 12th day of May, 2021.

Witnesses:

Thomas W Farley, JR

Kathleen M. Watkins

THE KEYSTONE COMPANIES, LLC

By: P. Anthony Giorgio
Member

STATE OF CONNECTICUT)
) ss: Windsor Locks May 12, 2021
COUNTY OF HARTFORD)

Personally appeared, P. Anthony Giorgio, duly authorized member of **THE KEYSTONE COMPANIES, LLC**, Signer and Sealer of the foregoing Instrument, and acknowledged the same to be his free act and deed, before me.

Thomas W Farley JR
Commissioner of the Superior Court

Schedule A

100 Nod Road, Avon, Connecticut

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Property at 00100 NOD ROAD Prop ID 3290100

Administrative Information

Owner name:	ONE HUNDRED NOD WAY LLC
Second name:	
Address:	30 DORSET CROSSING RD STE600
City/state:	SIMSBURY CT Zip: 06070

Location Information

Map: 009	Clerk map:		
Lot: 3290100	Neigh.:	Zone:	Vol: 759 Page: 653

Assessments

Assmt category	Qty	Amount
Resident Land	2.00	87,500
Vacant Resident	7.32	102,480

Exemptions

Exempt	Cat	Amount

Last sale

Sale date:	06-Feb-2020
Sale price:	800,000
Sale valid:	7

Values

Mkt value :	
Cost value:	271,400

Summary

Total assessments	189,980
Total exemptions	
Net assessment	189,980

Utilities

Water	None
Sewer	None
Gas	None

Sales ratios

Cost/sale :	.3393
Mkt/sale :	
Assmt/sale:	.2375

Card 01 Street Card Sales History Home Page

Tab 3

100 Nod Way, LLC
30 Dorset Crossing Drive #600
Simsbury, CT 06070

November 14, 2022

Mr. Michael Feldman, Chair,
and Members of the Inland Wetlands
Commission
Town of Avon
60 West Main Street
Avon, CT 06001

Re: Application of 100 Nod Way, LLC

Dear Chair Feldman and Commission Members:

100 Nod Way, LLC, is the current owner of the real property located at 100 Nod Road (Parcel ID 3290100), in Avon, Connecticut (the "Property"). 100 Nod Way, LLC will be filing an application with the Inland Wetlands Commission related to the development of a multi-family residential community.

The law firm of Hinckley Allen is our legal counsel for these applications. 100 Nod Way, LLC hereby authorizes Hinckley Allen to execute any application forms or other documents in connection with these applications, and to submit documentation pertaining to the applications on its behalf. Attorneys Timothy Hollister and Christian Mines of Hinckley Allen will be the primary contacts on this matter.

Thank you for your consideration concerning this matter.

Very truly yours,

By: _____
100 Nod Way, LLC
Duly Authorized

63075945 v2

Tab 4

(Appendix A-II)
TOWN OF AVON
INLAND WETLANDS COMMISSION

APPLICATION#

APPLICATION FOR AGENCY APPROVAL OF REGULATED ACTIVITIES

1. APPLICANT
Name 100 Nod Way, LLC
Business Address 30 Dorset Crossing Drive #600, Simsbury, CT 06070 Phone _____
Home Address _____ Phone _____
Fax _____ Email _____

2. OWNER(S) OF RECORD
Name 100 Nod Way, LLC
Business Address 30 Dorset Crossing Drive #600, Simsbury, CT 06070 Phone _____
Home Address _____ Phone _____
Fax _____ Email _____

Name _____
Business Address _____ Phone _____
Home Address _____ Phone _____
Fax _____ Email _____

3. DESCRIPTION OF PARCEL
Location 100 Nod Road
Area (acres) approx. 9.3 acres (square feet, if less than 2 acres) _____
Parcel I.D. No. 3290100 Zone Agricultural

4. PERMIT APPLICATION DESCRIPTION
Complete attached Page 2.

5. NAMES AND ADDRESSES OF ADJACENT PROPERTY OWNERS
Complete attached Page 3.

6. This application is required pursuant to Title 22A of the Connecticut General Statues and the Town of Avon Inland Wetlands and Watercourses Regulations. Applications received pursuant to the above do not relieve the applicant of his responsibility for making application to other local, state, or federal agencies. Specifically, the applicant is advised that a permit under Section 404 of Public Law 92-500 may be required. Additional information and applications regarding this Section 404 Permit Program may be obtained from the following: Chief, Regulatory Branch, New England Division, Corps. Of Engineers, 424 Trapelo Road, Waltham, MA 02154 (Telephone 617/894-2400, Ext. 332).

7. The undersigned warrants the truth of all statements contained herein and in all supporting documents to the best of his knowledge and belief. Furthermore, the applicant agrees that submission of this application constitutes permission for and consent to Commission and Town Staff inspections of the site of proposed activity.

P. Anthony Giorgio Jr. Ph.D
(Applicant's Signature)

P. ANTHONY GIORGIO PH. D
(Print or Type Name and Title)
MANAGING DIRECTOR

63141145 v2

voice

8. The undersigned owner(s) of record consent(s) to the submission of this application and to inspections of the site.

P. ANTHONY GIORGIO Ph.D
100 AVON PARK LLC
MANAGING DIRECTOR

(Owner's Signature) (Print or Type Name and Title)

(Owner's Signature) (Print or Type Name and Title)

Pursuant to Section 19.3 of the Town of Avon Inland Wetlands and Watercourses Regulations the application fee is non refundable.

Application #_____

Proposed Regulated Activity and Location (List Individually)	Area (Acres)	Soil Type	Wetland Type*	Wetland Functions**	Effect of Proposed Activity on Wetlands Function
1. See wetlands impact report - Bill Kenny 10-28-2022					

*Wetland Types:

Poorly Drained Soil (PDS)
Very Poorly Drained Soil (VPDS)
Flood Plain Soil (FPS)
Alluvial Soil (AS)
Watercourse (WC)
Waterbody (WB)
Marsh Area (MA)
Intermittent Stream (IS)

**Wetland Functions:

Water Quality (WQ)
Flood Control (FC)
Wildlife Habitat (WH)
Erosion and Sedimentation Control (E&SC)
Other

(Appendix A-II)

 Application # _____

In the case of an application which is subject to a public hearing, please list below the name(s) and mailing address(es) of the owner(s) of record of all properties which about the subject parcel(s) and those property owners which are directly on the opposite of the street of the subject parcel(s) for which this application is made. This information is available from records in the office of the Assessor. If possible, this list should be prepared by the project land surveyor or professional engineer. This information will be used by the applicant to notify property owner(s) of any public hearing which may be scheduled.

Address(es) of Properties			Name(s) of Owner(s)	Mailing Address(es) Of Owner(s)
Map #	Street	Parcel #		
	SEE ATTACHED EXCEL SPREADSHEET			

GISPin	Owner Name	Label Name	Owner Address	Owner City	Owner State	Owner Zip	Address
5150012	ACOSTA JOSE & MARIA	JOSE & MARIA ACOSTA	12 GATEWOOD	AVON	CT	06001	12 GATEWOOD
3290120	ADAMS JILL AND KNIGHT WILLIAM	JILL ADAMS & WILLIAM KNIGHT	120 NOD WAY	AVON	CT	06001	120 NOD WAY
1420004	ADAMS THERESE D	THERESE D ADAMS	4 BRENTHAVEN	AVON	CT	06001	4 BRENTHAVEN
5190008	ALICANDRO NINA	NINA ALICANDRO	8 THISTLE HOLLOW	AVON	CT	06001	8 THISTLE HOLLOW
5190020	ANDERSON MARSHA & BERLINER BONNIE TR	MARSHA ANDERSON & BONNIE BERLINER TR	20 THISTLE HOLLOW	AVON	CT	06001	20 THISTLE HOLLOW
1010009	ANDERSON THOMAS G & VIRGINIA TRUSTEES	THOMAS G & VIRGINIA ANDERSON TRUSTEES	9 ACORN GLEN	AVON	CT	06001	9 ACORN GLEN
5680011	ARMENTANO JAMES & CAROL	JAMES & CAROL ARMENTANO	11 TEMPLETON COURT	AVON	CT	06001	11 TEMPLETON COURT
5160002	AMIR NIROOMAND PARIDOKHT	NIROOMAND PARIDOKHT AMIR	2 HAWTHORN WAY	AVON	CT	06001	2 HAWTHORN WAY
1010006	BADIOLA EDITH D	EDITH D BADIOLA	6 ACORN GLEN	AVON	CT	06001	6 ACORN GLEN
5160001	BAKER CYNTHIA A TRUSTEE OF THE CYNTHIA A BAKER REV TRUST	CYNTHIA A BAKER TRUSTEE OF THE CYNTHIA A BAKER REV TRUST	1 HAWTHORN WAY	AVON	CT	06001	1 HAWTHORN WAY
1010004	BARBER LORRANE	LORRANE BARBER	4 ACORN GLEN	AVON	CT	06001	4 ACORN GLEN
5170011	BARON MYRON G & ILENE O	MYRON G & ILENE O BARON	11 LANCASTER COURT	AVON	CT	06001	11 LANCASTER COURT
5180003	BASSOCK MICHAEL P TRUSTEE	MICHAEL P BASSOCK TRUSTEE	3 SHIRECREST	AVON	CT	06001	3 SHIRECREST
1390005	BAUM EDWIN L & DAVID K TRUSTEES	EDWIN L & DAVID K BAUM TRUSTEES	5 BRAMBLE BUSH	AVON	CT	06001	5 BRAMBLE BUSH
1390008	BENDETT INA L	INA L BENDETT	8 BRAMBLE BUSH	AVON	CT	06001	8 BRAMBLE BUSH
5150028	BERNARD CAROLE & DOMERACKI JR EDWARD	CAROLE BERNARD & EDWARD DOMERACKI JR	28 GATEWOOD	AVON	CT	06001	28 GATEWOOD
1040004	BERNSTEIN THERESA A TRUST	THERESA A BERNSTEIN TRUST	4 ALPINE MEADOW LANE	AVON	CT	06001	4 ALPINE MEADOW LANE
5150006	BERUBE, GERARD & LINDA	GERARD & LINDA BERUBE	6 GATEWOOD	AVON	CT	06001	6 GATEWOOD
5170005	BIGELOW BAYARD III & BOUGERE BIGELOW NANCY	BAYARD & NANCY BIGELOW	5 LANCASTER COURT	AVON	CT	06001	5 LANCASTER COURT
3800008	BINGHAM ALFRED A III & MARY JANE	ALFRED A & MARY JANE BINGHAM	8 SADDLE CROSSING	AVON	CT	06001	8 SADDLE CROSSING
3290065	BLUE FOX RUN GOLF	BLUE FOX RUN GOLF	21 WATERVILLE ROAD	AVON	CT	06001	65 NOD ROAD
3200001	BRAUNSTEIN ROBERT & SCOTT	ROBERT & SCOTT BRAUNSTEIN	41 CROSSROADS PLZ SUITE 108	WEST HARTFORD	CT	06117	1 MORGAN PLACE
3200001	BRAUNSTEIN ROBERT & SCOTT	ROBERT & SCOTT BRAUNSTEIN	1 MORGAN PLACE	AVON	CT	06001	1 MORGAN PLACE
4440006	BRADY STEPHEN & ELISA	STEPHEN & ELISA BRADY	6 VISTA TERRACE	AVON	CT	06001	6 VISTA TERRACE
5150008	BROOKS ALAN F & MARIE PIER TRUSTEES	ALAN & MARIE BROOKS TRUSTEES	8 GATEWOOD	AVON	CT	06001	8 GATEWOOD
5150035	BROUILLARD MAUREEN M & ANDRE A	MAUREEN M & ANDRE A BROUILLARD	35 GATEWOOD	AVON	CT	06001	35 GATEWOOD
5200008	BROCKMAN SUSAN W & ALLAIRE STEPHEN TRUSTEES	SUSAN BROCKMAN & STEPHEN ALLAIRE TRUSTEES	8 WYNDEMERE	AVON	CT	06001	8 WYNDEMERE
5150010	BRODY ROBERT C & BETH F	ROBERT C & BETH F BRODY	10 GATEWOOD	AVON	CT	06001	10 GATEWOOD
2480009	BROWN SANDRA A	SANDRA A BROWN	9 GREY FOX TRAIL	AVON	CT	06001	9 GREY FOX TRAIL
2240001	BUCHANAN MARK C & JANET E	MARK C & JANET E BUCHANAN	1 FARMSTEAD LANE	AVON	CT	06001	1 FARMSTEAD LANE
5150002	BULZAK THOMAS J & BULZAK-COFTA RENATA	THOMAS J & RENATA BULZAK	2 GATEWOOD	AVON	CT	06001	2 GATEWOOD
5170006	BUSH, PAUL & WELTMAN PAMELA	PAUL BUSH & PAMELA WELTMAN	6 LANCASTER COURT	AVON	CT	06001	6 LANCASTER COURT
5930002	CAPTAIN HARRY J & HEATHER M	HARRY J & HEATHER M CAPTAIN	2 CLEARBROOK	AVON	CT	06001	2 CLEARBROOK
1390002	CAPUTO EDWARD G	EDWARD G CAPUTO	2 BRAMBLE BUSH	AVON	CT	06001	2 BRAMBLE BUSH
5200004	CARMON LINDA S TRUSTEE	LINDA S CARMON TRUSTEE OF LINDA CARMON REV. TRUST	4 WYNDEMERE	AVON	CT	06001	4 WYNDEMERE
5150011	CASAZZA KIMBERLY	KIMBERLY CASAZZA	11 GATEWOOD	AVON	CT	06001	11 GATEWOOD
1390004	CASTORINA NANCY & TAWNE	NANCY & TAWNE CASTORINA	4 BRAMBLE BUSH	AVON	CT	06001	4 BRAMBLE BUSH
5150030	CHERRONE ANNE MARIE TRUST	ANNE MARIE CHERRONE TRUST	30 GATEWOOD	AVON	CT	06001	30 GATEWOOD
5150030	CHERRONE ANNE MARIE TRUST	ANNE MARIE CHERRONE TRUST	7749 BUTERA PLZ	DELRAY BEACH	FL	33446	30 GATEWOOD
2900003	CHERVENAK JEFFREY	JEFFREY CHERVENAK	3 IVY COVE	AVON	CT	06001	3 IVY COVE
5150034	CHRISTOFER BARBARA J TTE	BARBARA J CHRISTOFER TTE	34 GATEWOOD	AVON	CT	06001	34 GATEWOOD
5710004	CINTI DOMINICK & DOROTHY	CINTI DOMINICK & DOROTHY	4 WHITFIELD HEIGHTS	AVON	CT	06001	4 WHITFIELD HEIGHTS
2800007	COHEN PAUL H	PAUL H COHEN	15 COBTAIL WAY	SIMSBURY	CT	06070	7 HOUNDS CHASE
2800007	COHEN PAUL H	PAUL H COHEN	7 HOUNDS CHASE	AVON	CT	06001	7 HOUNDS CHASE
1040013	COHN DOREEN A & SOLOMON FAITH CO TRUSTEES	DOREEN A COHN & FAITH SOLOMON CO TRUSTEESS	13 ALPINE MEADOW LANE	AVON	CT	06001	13 ALPINE MEADOW LANE
5150036	COLKET KATHLEEN & MEREDITH B III	KATHLEEN & MEREDITH B COLKET	36 GATEWOOD	AVON	CT	06001	36 GATEWOOD
3290146	CORNING JOHN D & LAURA A	JOHN D & LAURA A CORNING	146 NOD WAY	AVON	CT	06001	146 NOD WAY
2480006	CORSO THOMAS C & KAREN R TRUSTEES	THOMAS C & KAREN R CORSO TRUSTEES	6 GREY FOX TRAIL	AVON	CT	06001	6 GREY FOX TRAIL

4440001	COSENZA JUDITH S	JUDITH S COSENZA	1 VISTA TERRACE	AVON	CT	06001	1 VISTA TERRACE
5190014	CZACHOROWSKI THOMAS & ANNA	THOMAS & ANNA CZACHOROWSKI	14 THISTLE HOLLOW	AVON	CT	06001	14 THISTLE HOLLOW
1480005	DEITCH JULIE R	JULIE R DEITCH	5 BRIDLE PATH	AVON	CT	06001	5 BRIDLE PATH
5190009	DEMADIS GREGORY & BEVERLY	GREGORY & BEVERLY DEMADIS	9 THISTLE HOLLOW	AVON	CT	06001	9 THISTLE HOLLOW
1420015	DENDINGER LOWELL E & JANICE J	LOWELL E & JANICE J DENDINGER	15 BRENTHAVEN	AVON	CT	06001	15 BRENTHAVEN
1480003	DENEGAR DEBRA E TRUSTEE	DEBRA E DENEGAR TRUSTEE	3 BRIDLE PATH	AVON	CT	06001	3 BRIDLE PATH
3200003	DEROSSI PATRICIA E	PATRICIA E DEROSSI	3 MORGAN PLACE	AVON	CT	06001	3 MORGAN PLACE
1010003	DIFAZIO JOSEPH R & AMY E TRUSTEES	JOSEPH R & AMY E DIFAZIO TRUSTEES	1 KORY LANE	BRISTOL	CT	06010	3 ACORN GLEN
1010003	DIFAZIO JOSEPH R & AMY E TRUSTEES	JOSEPH R & AMY E DIFAZIO TRUSTEES	3 ACORN GLEN	AVON	CT	06001	3 ACORN GLEN
5150001	DORAN FRANK & CAROLE	FRANK & CAROLE DORAN	1 GATEWOOD	AVON	CT	06001	1 GATEWOOD
5680001	DUPLESSIS ANN K TRUSTEE	ANN K TRUSTEE DUPLESSIS	1 TEMPLETON COURT	AVON	CT	06001	1 TEMPLETON COURT
1390003	EASON JOHN E & STEPHANIE	JOHN E & STEPHANIE EASON	3 BRAMBLE BUSH	AVON	CT	06001	3 BRAMBLE BUSH
5190007	EISENBAUM DONNA R	DONNA R EISENBAUM	7 THISTLE HOLLOW	AVON	CT	06001	7 THISTLE HOLLOW
1480008	EMMANUEL IRENE TRUSTEE	IRENE EMMANUEL TRUSTEE	8 BRIDLE PATH	AVON	CT	06001	8 BRIDLE PATH
1010007	FELDMAN MICHAEL	MICHAEL FELDMAN	7 ACORN GLEN	AVON	CT	06001	7 ACORN GLEN
5190003	FIERSTON DAVID H & ROCHELLE S TRUSTEES	DAVID H & ROCHELLE S FIERSTON TRUSTEES	3 THISTLE HOLLOW	AVON	CT	06001	3 THISTLE HOLLOW
5680010	FINE MARCIA LEE TRUSTEE	MARCIA LEE FINE TRUSTEE	10 TEMPLETON COURT	AVON	CT	06001	10 TEMPLETON COURT
5150017	FINN THOMAS S & MARYANN A	THOMAS S & MARYANN A FINN	17 GATEWOOD	AVON	CT	06001	17 GATEWOOD
1010001	FLYNN JAMES P	JAMES P FLYNN	1 ACORN GLEN	AVON	CT	06001	1 ACORN GLEN
5170003	FOX MARK F & NORA K	MARK F & NORA K FOX	3 LANCASTER COURT	AVON	CT	06001	3 LANCASTER COURT
5200005	FRASER KAREN L & LEBLEU RONALD E	KAREN L FRASER & RONALD E LEBLEU	5 WYNDEMERE	AVON	CT	06001	5 WYNDEMERE
1480004	FREEDMAN ARTHUR & DVORIN RIVKA	ARTHUR FREEDMAN & RIVKA DVORIN	4 BRIDLE PATH	AVON	CT	06001	4 BRIDLE PATH
5160004	FREEDMAN BRUCE & MERYL	BRUCE & MERYL FREEDMAN	4 HAWTHORN WAY	AVON	CT	06001	4 HAWTHORN WAY
2480001	FREEMAN HAMILTON H & JANE W TRUSTEES	HAMILTON H & JANE W FREEMAN TRUSTEES	1 GREY FOX TRAIL	AVON	CT	06001	1 GREY FOX TRAIL
2480004	GAGNE EDMUND J & ELAINE B	EDMUND J & ELAINE B GAGNE	4 GREY FOX TRAIL	AVON	CT	06001	4 GREY FOX TRAIL
1420002	GALAZAN GAIL W	GAIL W GALAZAN	2 BRENTHAVEN DRIVE	AVON	CT	06001	2 BRENTHAVEN DRIVE
5170010	GANDEL, SANDRA S & PAUL N TRS	SANDRA & PAUL GANDEL TRS	10 LANCASTER COURT	AVON	CT	06001	10 LANCASTER COURT
5190015	GATELY MARY JANE	MARY JANE GATELY	15 THISTLE HOLLOW	AVON	CT	06001	15 THISTLE HOLLOW
1380002	GAUTHIER PAUL	PAUL GAUTHIER	2 BOXWOOD CIRCLE	AVON	CT	06001	2 BOXWOOD CIRCLE
5190011	GAUSTER WILHELM & NORMA	WILHELM & NORMA GAUSTER	11 THISTLE HOLLOW	AVON	CT	06001	11 THISTLE HOLLOW
2880001	GENGRAS VALERIE & JOHN	VALERIE & JOHN GENGRAS	1 IRON FORGE	AVON	CT	06001	1 IRON FORGE
3800006	GEORGE EUGENIA	EUGENIA GEORGE	6 SADDLE CROSSING	AVON	CT	06001	6 SADDLE CROSSING
2240005	GFELLER ALENA & CHARLES	ALENA & CHARLES GFELLER	5 FARMSTEAD LANE	AVON	CT	06001	5 FARMSTEAD LANE
5100016	GOLD MARTIN	MARTIN GOLD	16 WYNDEMERE	AVON	CT	06001	16 WYNDEMERE
1040002	GOLDSTEIN SHIRLEY	SHIRLEY GOLDSTEIN	2 ALPINE MEADOW LANE	AVON	CT	06001	2 ALPINE MEADOW LANE
2240002	GOODMAN LINDA	LINDA GOODMAN	2 FARMSTEAD LANE	AVON	CT	06001	2 FARMSTEAD LANE
5190013	GOSCIMINSKI BETH W	BETH W GOSCIMINSKI	13 THISTLE HOLLOW	AVON	CT	06001	13 THISTLE HOLLOW
5150024	GOSSELIN CRAIG ALBERT & ROOYEN SIMIRI VAN	CRAIG ALBERT GOSSELIN & SIMIRI VAN ROOYEN	24 GATEWOOD	AVON	CT	06001	24 GATEWOOD
4440003	GRASSO JOSEPH E & CAROLYN E	JOSEPH E & CAROLYN E GRASSO	3 VISTA TERRACE	AVON	CT	06001	3 VISTA TERRACE
5680005	GREY ELIZABETH D	ELIZABETH D GREY	28431 BURANO DRIVE	BONITA SPRINGS	FL	34135	5 TEMPLETON COURT
5680005	GREY ELIZABETH D	ELIZABETH D GREY	5 TEMPLETON COURT	AVON	CT	06001	5 TEMPLETON COURT
5190012	GRIMES EDWARD & ZELOP, CAROLYN	EDWARD GRIMES & CAROLYN ZELOP	12 THISTILE HOLLOW	AVON	CT	06001	12 THISTLE HOLLOW
2880002	GRIMMEISEN E PAUL TR	PAUL E GRIMMEISEN TR	2 IRON FORGE	AVON	CT	06001	2 IRON FORGE
5810003	GUGLIELMO STEPHEN & SARAH	STEPHEN & SARAH GUGLIELMO	3 ABBOTTSFORD	AVON	CT	06001	3 ABBOTTSFORD
5200017	GUIDA JAMES F & ALICE	JAMES F & ALICE GUIDA	17 WYNDEMERE	AVON	CT	06001	17 WYNDEMERE
1010008	HAGUEL MARIE F	MARIE F HAGUEL	8 ACORN GLEN	AVON	CT	06001	8 ACORN GLEN
3290164	HAMMAD KHALED J	KHALED J HAMMAD	164 NOD WAY	AVON	CT	06001	164 NOD WAY
2480003	HANNON-GROSS DENISE	DENISE HANNON GROSS	3 GREY FOX TRAIL	AVON	CT	06001	3 GREY FOX TRAIL
2960003	HARDCASTLE DAN	DAN HARDCASTLE	3 KIRBYSHIRE	AVON	CT	06001	3 KIRBYSHIRE
2800003	HARRIS STEPHEN BRUCE & CAROLINE DEMIRS CALIO TRUSTEES	STEPHEN BRUCE HARRIS & CAROLINE DEIRS CALIO TRUSTEES	440 SOUTH BROAD ST U906	PHILADELPHIA	PA	19146	3 HOUNDS CHASE

2800003	HARRIS STEPHEN BRUCE & CAROLINE DEMIRS CALIO TRUSTEES	STEPHEN BRUCE HARRIS & CAROLINE DEIRS CALIO TRUSTEES	3 HOUNDS CHASE	AVON	CT	06001	3 HOUNDS CHASE
2880004	HAYES REALTY LLC	HAYES REALTY LLC	936 AUGUSTA POINTE DRIVE	PALM BEACH GARDENS	FL	33418	4 IRON FORGE
2880004	HAYES REALTY LLC	HAYES REALTY LLC	4 IRON FORGE	AVON	CT	06001	4 IRON FORGE
5680008	HERZ MATTHEW & LAURA	MATTHEW & LAURA HERZ	8 TEMPLETON COURT	AVON	CT	06001	8 TEMPLETON COURT
3800005	HILL ROBERT L & BARBARA V	ROBERT L & BARBARA V HILL	5 SADDLE CROSSING	AVON	CT	06001	5 SADDLE CROSSING
3200010	HOCHBERG BENJAMIN S AND HOCHBERG-WEISS ADI	BENJAMIN S AND ADI HOCHBERG	10 MORGAN PLACE	AVON	CT	06001	10 MORGAN PLACE
5150016	HOUCK PETER & CAROLYN	PETER & CAROLYN HOUCK	16 GATEWOOD	AVON	CT	06001	16 GATEWOOD
5680012	HUFSTADER PETER & KATHERINE	PETER & KATHERINE HUFSTADER	12 TEMPLETON COURT	AVON	CT	06001	12 TEMPLETON COURT
1480006	HUGHES GARY & JOAN	JOAN & GARY HUGHES	6 BRIDLE PATH	AVON	CT	06001	6 BRIDLE PATH
3290072	HUNTERS RUN CONDOMINIUM ASSN INC	HUNTERS RUN CONDOMINIUM ASSN INC	1 HUNTINGTON GLEN	AVON	CT	06001	1 HUNTINGTON GLEN
5190004	HUSTON RONALD E & MARY C	RONALD E & MARY C HUSTON	4 THISTLE HOLLOW	AVON	CT	06001	4 THISTLE HOLLOW
1420001	IBANEZ RUDOLFO & DIANE	RUDOLFO & DIANE IBANEZ	1 BRENTHAVEN	AVON	CT	06001	1 BRENTHAVEN
5200010	ISENBERG DMITRY & ALKHAZOVA ZHANA	DMITRY ISENBERG & ZHANA ALKHAZOVA	10 WYNDEMERE	AVON	CT	06001	10 WYNDEMERE
3200014	JACK JOSEPH W & KAREN	JOSEPH W & KAREN JACK	14 MORGAN PLACE	AVON	CT	06001	14 MORGAN PLACE
1040007	JETER S EDWARD & MICHAEL	EDWARD S & MICHAEL JETER	7 ALPINE MEADOW LANE	AVON	CT	06001	7 ALPINE MEADOW LANE
1420014	JULIANO JAMES	JAMES JULIANO	14 BRENTHAVEN	AVON	CT	06001	14 BRENTHAVEN
4040006	KAMBLE VISHAL	VISHAL KAMBLE	6 SPYGLASS DRIVE	AVON	CT	06001	6 SPYGLASS DRIVE
2960002	KAMBLI SHUBHADA VIJAYKANT	SHUBHADA VIJAYKANT KAMBLI	2 KIRBYSHIRE	AVON	CT	06001	2 KIRBYSHIRE
5200009	KEENAN JOHN F & MARY ANN	JOHN F & MARY ANN KEENAN	9 WYNDEMERE	AVON	CT	06001	9 WYNDEMERE
1420012	KESKAR SAURABH & SURNIS NAMITA	SAURABH KESKAR & NAMITA SURNIS	12 BRENTHAVEN	AVON	CT	06001	12 BRENTHAVEN
3800001	KESSLER LAWRENCE J	LAWRENCE J KESSLER	1 SADDLE CROSSING	AVON	CT	06001	1 SADDLE CROSSING
1040001	KETHAMUKKALA SATISH & AKELLA BHARATHI	SATISH KETHAMUKKALA & BHARATHI AKELLA	1 ALPINE MEADOW LANE	AVON	CT	06001	1 ALPINE MEADOW LANE
5200001	KIERNAN CAROL A & FRANCIS TRUSTEE	CAROL & FRANCIS KIERNAN TRUSTEE	1 WYNDEMERE	AVON	CT	06001	1 WYNDEMERE
1040005	KITSON CHERYL & WHITAKER MATTHEW J	CHERYL KITSON & MATTHEW J WHITAKER	5 ALPINE MEADOW LANE	AVON	CT	06001	5 ALPINE MEADOW LANE
4040001	KOPROSKE KAREN S	KAREN S KOPROSKE	1 SPYGLASS DRIVE	AVON	CT	06001	1 SPYGLASS DRIVE
1480009	KOSTICH MITCHELL & STACEY	MITCHELL & STACEY KOSTICH	9 BRIDLE PATH	AVON	CT	06001	9 BRIDLE PATH
5680013	KOWALSKI KENNETH FRANCIS & IRENE	KENNETH FRANCIS & IRENE KOWALSKI	13 TEMPLETON COURT	AVON	CT	06001	13 TEMPLETON COURT
5180010	KORWIN ROBERT S	ROBERT S KORWIN	10 SHIRECREST	AVON	CT	06001	10 SHIRECREST
5170008	KORWIN ROY & ANNE	ROY & ANNE KORWIN	8 LANCASTER COURT	AVON	CT	06001	8 LANCASTER COURT
5190001	KRAVET DAVID S & JEREMY W & GIRARD TAMAR TRUSTEES	DAVID & JEREMY KRAVET & TAMAR GIRARD TRUSTEES	1 THISTLE HOLLOW	AVON	CT	06001	1 THISTLE HOLLOW
1420003	KRUH ALMA & JASON B	ALMA & JASON B KRUH	3 BRETHAVEN	AVON	CT	06001	3 BRENTHAVEN
5180006	KRUGMAN RUTH L	RUTH L KRUGMAN	6 SHIRECREST	AVON	CT	06001	6 SHIRECREEST
3200002	KRUTCHKOFF SUMIKO	SUMIKO KRUTCHKOFF	2 MORGAN PLACE	AVON	CT	06001	2 MORGAN PLACE
5190019	KUSHNER, LAWRENCE	LAWRENCE KUSHNER	19 THISTLE HOLLOW	AVON	CT	06001	19 THISTLE HOLLOW
4040002	KURSMAN NANCY B TRUSTEE	NANCY B KURSMAN TRUSTEE	2 SPYGLASS DRIVE	AVON	CT	06001	2 SPYGLASS DRIVE
5680009	LAFAYETTE JEAN	JEAN LAFAYETTE	9 TEMPLETON COURT	AVON	CT	06001	9 TEMPLETON COURT
4440002	LEIBMAN LAWRENCE	LAWRENCE LEIBMAN	31 MONTCLAIR DRIVE	AVON	CT	06001	2 VISTA TERRACE
4440002	LEIBMAN LAWRENCE	LAWRENCE LEIBMAN	2 VISTA TERRACE	AVON	CT	06001	2 VISTA TERRACE
3800004	LEONARD WILLIAM & MARTHA	WILLIAM & MARTHA LEONARD	4 SADDLE CROSSING	AVON	CT	06001	4 SADDLE CROSSING
1420010	LESHEM OSNAT ALICE	ALICE OSNAT LESHEM	10 BRENTHAVEN	AVON	CT	06001	10 BRENTHAVEN
2800006	LEVAN GREGORY W AND KAREN S	GREGORY W & KAREN S LEVAN	6 HOUNDS CHASE	AVON	CT	06001	6 HOUNDS CHASE
2960005	LEVI JOAN M & MELVIN TRUSTEES	JOAN M & MELVIN LEVI TRUSTEES	5 KIRBYSHIRE	AVON	CT	06001	5 KIRBYSHIRE
5180009	LEVINE MITCHELL J	MITCHELL J LEVINE	9 SHIRECREST	AVON	CT	06001	9 SHIRECREST
5190005	LEWTAN ELIZABETH D	ELIZABETH D LEWTAN	5 THISTLE HOLLOW	AVON	CT	06001	5 THISTLE HOLLOW
5150020	LICITRA PAULA	PAULA LICITRA	20 GATEWOOD	AVON	CT	06001	20 GATEWOOD
3200011	LIEBERFARB RICHARD & DIANE	RICHARD & DIANE LIEBERFARB	11 MORGAN PLACE	AVON	CT	06001	11 MORGAN PLACE
1040010	LISSITZYN LAWRENCE H & CHRISTINE B	LAWRENCE H & CHRISTINE B LISSITZYN	10 ALPINE MEADOW LANE	AVON	CT	06001	10 ALPINE MEADOW LANE
2800005	LLOYD JOANNE F & ALEX	JOANNE F & ALEX LLOYD	5 HOUNDS CHASE	AVON	CT	06001	5 HOUNDS CHASE
5150018	LONGO DIEGO M & ARISTIZABEL MARIELA	DIEGO LONGO & MARIELA ARISTIZABEL	18 GATEWOOD	AVON	CT	06001	18 GATEWOOD
1390006	MALLEY TONI J	TONI J MALLEY	6 BRAMBLE BUSH	AVON	CT	06001	6 BRAMBLE BUSH

5180007	MALKOFF JOEL A & LINDA	JOEL A & LINDA MALKOFF	7 SHIRECREST	AVON	CT	06001	7 SHIRECREST
2960007	MALONE ANN L TRUSTEE	ANN L MALONE TRUSTEE	7 KIRBYSHIRE	AVON	CT	06001	7 KIRBYSHIRE
5150041	MANSFIELD RICHARD H & KELLEY S TRUSTEES	RICHARD H & KELLEY S MANSFIELD TRUSTEES	41 GATEWOOD	AVON	CT	06001	41 GATEWOOD
1390007	MANSHIP MARYELLEN	MARYELLEN MANSHIP	7 BRAMBLE BUSH	AVON	CT	06001	7 BRAMBLE BUSH
5150005	MARCUS RACHEL & MITCHELL S TRUSTEES	RACHEL & MITCHELL MARCUS TRUSTEES	5 GATEWOOD	AVON	CT	06001	5 GATEWOOD
2900008	MCMAHON PATRICIA S	PATRICIA S MCMAHON	8 IVY COVE	AVON	CT	06001	8 IVY COVE
3200012	MEAD GINA R TRUSTEE	GINA R MEAD TRUSTEE	12 MORGAN PLACE	AVON	CT	06001	12 MORGAN PLACE
2880003	MEADE EDITH & SHIFFMAN IRVING	EDITH MEADE & IRVING SHIFFMAN	3 IRON FORGE	AVON	CT	06001	3 IRON FORGE
3200009	MEHETRE AMIT GANGADHAR & PRATIKSHA	AMIT GANGADHAR & PRATIKSHA MEHETRE	9 MORGAN PLACE	AVON	CT	06001	9 MORGAN PLACE
1480001	MICHAUD CYNTHIA J TRUSTEE	CYNTHIA J MICHAUD TRUSTEE	1 BRIDLE PATH	AVON	CT	06001	1 BRIDLE PATH
5810004	MIERZEJEWSKI RICHARD & LINDA	RICHARD & LINDA MIERZEJEWSKI	4 ABBOTTSFORD	AVON	CT	06001	4 ABBOTTSFORD
5200006	MILIKOW EDWARD & TRUDY	EDWARD & TRUDY MILIKOW	6 WYNDEMERE	AVON	CT	06001	6 WYNDEMERE
5180002	MILLER JANET H	JANET H MILLER	2 SHIRECREST	AVON	CT	06001	2 SHIRECREST
5180005	MILNAMOW ROBERT J & NANCY B TRUSTEES	ROBERT J & NANCY B MILNAMOW TRUSTEES	5 SHIRECREST	AVON	CT	06001	5 SHIRECREST
4040008	MISSION KIMBERLY K TRUSTEE	KIMBERLY K MISSION TRUSTEE	8 SPYGLASS DRIVE	AVON	CT	06001	8 SPYGLASS DRIVE
5190016	MODY ANIL & ARVINDA	ANIL & ARVINDA MODY	16 THISTLE HOLLOW	AVON	CT	06001	16 THISTLE HOLLOW
5160003	MORGENSTERN JEANNE C TRUSTEE	JEANNE C MORENSTERN TRUSTEE	3 HAWTHORN WAY	AVON	CT	06001	3 HAWTHORN WAY
5150039	MUNDAIR ANMOL & DEBORAH KEY	ANMOL MUNDAIR & DEBORAH KEY	39 GATEWOOD	AVON	CT	06001	39 GATEWOOD
2880005	MURRAY BARBARA W	BARBARA W MURRAY	5 IRON FORGE	AVON	CT	06001	5 IRON FORGE
1040003	MURRAY MARTHA T TRUSTEE	MARTHA T MURRAY TRUSTEE	3 ALPINE MEADOW LANE	AVON	CT	06001	3 ALPINE MEADOW LANE
2240004	MURPHY PETER W & LOWIT A DENISE	PETER MURPHY & DENISE A LOWIT	4 FARMSTEAD LANE	AVON	CT	06001	4 FARMSTEAD LANE
3200006	MURPHY SEAN P	SEAN P MURPHY	6 MORGAN PLACE	AVON	CT	06001	6 MORGAN PLACE
2880006	MYERS DEENA	DEENA MYERS	6 IRONG FORGE	AVON	CT	06001	6 IRON FORGE
2480005	NASSAU ARTHUR M & REBA L TRUSTEES	ARTHUR M & REBA L NASSAU TRUSTEES	5 GREY FOX TRAIL	AVON	CT	06001	5 GREY FOX TRAIL
5180008	NEEDHAM ALAN & JOHANNA	ALAN & JOHANNA NEEDHAM	8 SHIRECREST	AVON	CT	06001	8 SHIRECREST
5200015	NGUYEN NHUNG	NHUNG NGUYGEN	15 WYNDEMERE	AVON	CT	06001	15 WYNDEMERE
1380007	NOBERT GARY F & JULIE K	GARY F & JULIE K NOBERT	7 BOXWOOD CIRCLE	AVON	CT	06001	7 BOXWOOD CIRCLE
3290117	NOD ROAD PROPERTIES LLC	NOD ROAD PROPERTIES LLC	21 WATERVILLE ROAD	AVON	CT	06001	117 NOD ROAD
5200011	NWOGBO CLEMENT CHUKWUMA & NWOGBO UCHECHUKWU IJEOMA	CLEMENT CHUKWUMA & UCHECHUKWU IJEOMA NWOGBO	38 BISHOP ROAD	WEST HARTFORD	CT	06119	11 WYNDEMERE
5200011	NWOGBO CLEMENT CHUKWUMA & NWOGBO UCHECHUKWU IJEOMA	CLEMENT CHUKWUMA & UCHECHUKWU IJEOMA NWOGBO	11 WYNDEMERE	AVON	CT	06001	11 WYNDEMERE
5930003	OLIVAR HOPE KEENER	HOPE KEENER OLIVAR	3 CLEARBROOK	AVON	CT	06001	3 CLEARBROOK
1390009	OMALLEY MARK E	MARK E OMALLEY	9 BRAMBLE BUSH	AVON	CT	06001	9 BRAMBLE BUSH
3290100	ONE HUNDRED NOD WAY LLC	ONE HUNDRED NOD WAY LLC	30 DORSET CROSSING RD STE600	SIMSBURY	CT	06070	100 NOD ROAD
2480008	ONTKO KEITH A & SHERRY S	KEITH A & SHERRY S ONTKO	8 GREY FOX TRAIL	AVON	CT	06001	8 GREY FOX TRAIL
5710001	OWLIA DARIUSH & NANCY JEAN	OWLIA DARIUSH & NANCY JEAN	1 WHITFIELD HEIGHTS	AVON	CT	06001	1 WHITFIELD HEIGHTS
5180004	PAGNOTTA -MEMMO CATHERINE	CATHERINE PAGNOTTA-MEMMO	4 SHIRECREST	AVON	CT	06001	4 SHIRECREST
1380004	PAPPALARDO ANTOINETTE	ANTOINETTE PAPPALARDO	4 BOXWOOD CIRCLE	AVON	CT	06001	4 BOXWOOD CIRCLE
3200008	PARKER MICHELE B	MICHELE B PARKER	8 MORGAN PLACE	AVON	CT	06001	8 MORGAN PLACE
4040007	PARVEN SANDRA J	SANDRA J PARVEN	7 SPYGLASS DDRIVE	AVON	CT	06001	7 SPYGLASS DRIVE
1380005	PATURZO ROBERT M & DIANA M	ROBERT M & DIANA M PATURZO	5 BOXWOOD CIRCLE	AVON	CT	06001	5 BOXWOOD CIRCLE
5150009	PEESAPATI SYAMA SUNDAR	SYAMA SUNDAR PEESAPATI	9 GATEWOOD	AVON	CT	06001	9 GATEWOOD
5190002	PENDERGAST PAUL F & LINDA	PAUL F & LINDA PENDERGAST	2 THISTLE HOLLOW	AVON	CT	06001	2 THISTLE HOLLOW
1380006	PERECHOCKY JOSEPH & BARBARA	JOSEPH & BARBARA PERECHOCKY	6 BOXWOOD CIRCLE	AVON	CT	06001	6 BOXWOOD CIRCLE
1420009	PERRETTA SHEILA & JAMES F TRUSTEES	SHEILA & JAMES F PERRETTA	9 BRENTHAVEN	AVON	CT	06001	9 BRENTHAVEN
2900007	PETERSEN JOY	JOY PETERSEN	7 IVY COVE	AVON	CT	06001	7 IVY COVE
1420008	PHELAN ANNE O	ANNE O PHELAN	8 BRENTHAVEN	AVON	CT	06001	8 BRENTHAVEN
5680002	PHIBBS WILLIAM S	WILLIAM S PHIBBS	2 TEMPLETON COURT	AVON	CT	06001	2 TEMPLETON COURT
3200004	PIKOR THOMAS & PATRICIA	THOMAS & PATRICIA PIKOR	4 MORGAN PLACE	AVON	CT	06001	4 MORGAN PLACE
4040004	POLATNICK GAIL & JACK	GAIL & JACK POLATNICK	4 SPYGLASS DRIVE	AVON	CT	06001	4 SPYGLASS DRIVE
4040009	POLETTI CHARLES E & CHARLOTTE E	CHARLES E & CHARLOTTE E POLETTI	9 SPYGLASS DRIVE	AVON	CT	06001	9 SPYGLASS DRIVE

5170004	POLINSKY JEFFREY L & KAREN S	JEFFREY L & KAREN S POLINSKY	4 LANCASTER COURT	AVON	CT	06001	4 LANCASTER COURT
3800007	POLLACK LYNN FERRIS TRUSTEE	LYNN FERRIS POLLACK TRUSTEE	7 SADDLE CROSSING	AVON	CT	06001	7 SADDLE CROSSING
4040005	PRATS SHEILA M	SHEILA M PRATS	5 SPYGLASS DRIVE	AVON	CT	06001	5 SPYGLASS DRIVE
2800004	PREVO SARA	SARA PREVO	4 HOUNDS CHASE	AVON	CT	06001	4 HOUNDS CHASE
2900004	RADLER SHARON B & MICHAEL A	SHARON B & MICHAEL A RADLER	4 IVY COVE	AVON	CT	06001	4 IVY COVE
5680006	RASOULPOUR MAJID & NINA	MAJID & NINA RASOULPOUR	6 TEMPLETON COURT	AVON	CT	06001	6 TEMPLETON COURT
5810001	REVIS LINDA & STEPHEN	LINDA & STEPHEN REVIS	ONE ABBOTTSFORD	AVON	CT	06001	ONE ABBOTTSFORD
2960006	ROESNER FRANZ & MARIANNE	FRANZ & MARIANNE ROESNER	6 KIRBYSHIRE	AVON	CT	06001	6 KIRBYSHIRE
5150026	ROSENFIELD ANDREA	ANDREA ROSENFIELD	26 GATEWOOD DRIVE	AVON	CT	06001	26 GATEWOOD DRIVE
2480007	ROSENKRANZ BARBARA	BARBARA ROSENKRANZ	7 GREY FOX TRAIL	AVON	CT	06001	7 GREY FOX TRAIL
1480007	ROSENKRANZ NANCI	NANCI ROSENKRANZ	7 BRIDLE PATH	AVON	CT	06001	7 BRIDLE PATH
1010010	ROSOW NORMAN Z & JAN	NORMAN Z & JAN ROSOW	10 ACORN GLEN	AVON	CT	06001	10 ACORN GLEN
1040006	ROSS RICHARD L & JULE S	RICHARD L & JULIE S ROSS	6 ALPINE MEADOW LANE	AVON	CT	06001	6 ALPINE MEADOW LANE
1010005	ROTHSTEIN ANDREW & REYNOLDS MYRNA	ANDREW ROTHSTEIN & MYRNA REYNOLDS	5 ACORN GLEN	AVON	CT	06001	5 ACORN GLEN
5150003	RUDERMAN THOMAS & JAN	THOMAS & JAN RUDERMAN	3 GATEWOOD	AVON	CT	06001	3 GATEWOOD
5810005	RUEL JAMES & DEBRA	JAMES & DEBRA RUEL	5 ABBOTTSFORD	AVON	CT	06001	5 ABBOTTSFORD
5170002	RUSSO ROSEMARY	ROSEMARY RUSSO	2 LANCASTER COURT	AVON	CT	06001	2 LANCASTER COURT
5710003	SALOOM LOUIS D & CHERYL S	LOUIS D & CHERYL S SALOOM	3 WHITFIELD HEIGHTS	AVON	CT	06001	3 WHITFIELD HEIGHTS
1380008	SALTON HENRY A & CALIBEY KATHRYN	HENRY SALTON & KATHRYN CALIBEY	8 BOXWOOD CIRCLE	AVON	CT	06001	8 BOXWOOD CIRCLE
5150033	SARDELLA WILLIAM & DEBRA	WILLIAM & DEBRA SARDELLA	33 GATEWOOD	AVON	CT	06001	33 GATEWOOD
5710002	SATVAT ASHRAF	ASHRAF SATVAT	2 WHITFIELD HEIGHTS	AVON	CT	06001	2 WHITFIELD HEIGHTS
5190017	SCALA SCOT S & TRACY L	SCOT S & TRACY L SCALA	17 THISTLE HOLLOW	AVON	CT	06001	17 THISTLE HOLLOW
1040011	SCATA NICHOLAS S	NICHOLAS S SCATA	11 ALPINE MEADOW LANE	AVON	CT	06001	11 ALPINE MEADOW LANE
5170007	SCHILTZ DEBRA MARIE & TIMOTHY PAUL TRS	DEBRA MARIE & TIMOTHY PAUL SCHILTZ TRS	7 LANCASTER COURT	AVON	CT	06001	7 LANCASTER COURT
5930001	SCHLOSSBERG JUDITH D	JUDITH D SCHLOSSBERG	1 CLEARBROOK	AVON	CT	06001	1 CLEARBROOK
1420011	SCHNEIDER DONNA TRUSTEE	DONNA SCHNEIDER TRUSTEE	11 BRENTHAVEN	AVON	CT	06001	11 BRENTHAVEN
1040008	SCHUMACHER JILL & GUTSTEIN, HOWARD BRUCE	JILL SCHUMACHER & HOWARD BRUCE GUTSTEIN	8 ALPINE MEADOW LANE	AVON	CT	06001	8 ALPINE MEADOW LANE
5190010	SCOTT STUART & C.S. SILVER TRUSTEES	STUART SCOTT & C S SILVER TRUSTEES	10 THISTLE HOLLOW	AVON	CT	06001	10 THISTLE HOLLOW
2960004	SEARSON DEBORAH M	DEBORAH M SEARSON	4 KIRBYSHIRE	AVON	CT	06001	4 KIRBYSHIRE
1380001	SEIDMAN MARSHALL L & SUSAN J TRUSTEES	MARSHALL L & SUSAN J SEIDMAN TRUSTEES	1 BOXWOOD CIRCLE	AVON	CT	06001	1 BOXWOOD CIRCLE
3800002	SEIFTS ELLEN & WADINGTON WILLIAM J	ELLEN SEIFTS & WILLIAM J WADINGTON	2 SADDLE CROSSING	AVON	CT	06001	2 SADDLE CROSSING
5200007	SEVEN WYNDEMERE LLC C/O SARAH MANIATTY	SEVEN WYNDEMERE LLC C/O SARAH MANIATTY	PO BOX 5397	LACONIA	NH	03247	7 WYNDEMERE
5200007	SEVEN WYNDEMERE LLC C/O SARAH MANIATTY	SEVEN WYNDEMERE LLC C/O SARAH MANIATTY	7 WYNDEMERE	AVON	CT	06001	7 WYNDEMERE
3800003	SHAH SMITA A	SMITA A SHAH	3 SADDLE CROSSING	AVON	CT	06001	3 SADDLE CROSSING
2960001	SHERIDAN LISA & TIMOTHY	LISA & TIMOTHY SHERIDAN	1 KIRBYSHIRE	AVON	CT	06001	1 KIRBYSHIRE
4040003	SHECHTMAN SHEILA & RICHARD	SHEILA & RICHARD SHECHTMAN	P.O. BOX 696	AVON	CT	06001	3 SPYGLASS DRIVE
1040009	SHUCH NANCY S	NANCY S SHUCH	9 ALPINE MEADOW LANE	AVON	CT	06001	9 ALPINE MEADOW LANE
5170009	SINATRO JAMES A JR & ANNA D	JAMES A & ANNA D SINATRO	9 LANCASTER COURT	AVON	CT	06001	9 LANCASTER COURT
2900002	SIROP ARIANE	ARIANE SIROP	2 IVY COVE	AVON	CT	06001	2 IVY COVE
2800002	SMITH JAMES DIGBY	JAMES DIGBY SMITH	2 HOUNDS CHASE	AVON	CT	06001	2 HOUNDS CHASE
5680004	SMITH ELIZABETH W	ELIZABETH W SMITH	4 TEMPLETON COURT	AVON	CT	06001	4 TEMPLETON COURT
2800001	SMITH JOAN G	JOAN G SMITH	1 HOUNDS CHASE	AVON	CT	06001	1 HOUNDS CHASE
5150037	SMITS GILLIAN LISA TRUSTEE	LISA GILLIAN SMITS TRUSTEE	37 GATEWOOD	AVON	CT	06001	37 GATEWOOD
5150007	SORENSON ROSALIE B REV TRUST	ROSALIE SORENSON REV TRUST	7 GATEWOOD	AVON	CT	06001	7 GATEWOOD
3200013	SPIELMAN JULIE A	JULIE A SPIELMAN	13 MORGAN PLACE	AVON	CT	06001	13 MORGAN PLACE
5170001	STECKLER JEFFREY B TR & BARBARA M TR	JEFFREY B & BARBARA M STECKLER TRUST	1 LANCASTER COURT	AVON	CT	06001	1 LANCASTER COURT
5150015	STEIN MARK & LINDA LEE	MARK & LINDA LEE STEIN	15 GATEWOOD	AVON	CT	06001	15 GATEWOOD
3200007	STERN RUTH C	RUTH C STERN	7 MORGAN PLACE	AVON	CT	06001	7 MORGAN PLACE
5200012	STEVENS SOPHIE & GAUCHR PHILLIP E	SOPHIE STEVENS & PHILLIP E GAUCHER	12 WYNDEMERE	AVON	CT	06001	12 WYNDEMERE
4440005	STONER LIZABETH A	LIZABETH A STONER	5 VISTA TERRACE	AVON	CT	06001	5 VISTA TERRACE

5680007	STRIEBE WILLIAM F JR AND DONNA M	WILLIAM F JR AND DONNA M STRIEBE	7 TEMPLETON COURT	AVON	CT	06001	7 TEMPLETON COURT
5680007	STRIEBE WILLIAM F JR AND DONNA M	WILLIAM F JR AND DONNA M STRIEBE	1118 FAULKNER TERRACE	PALM BEACH GARDENS	FL	33418	7 TEMPLETON COURT
1380009	STYS RICHARD G	RICHARD G STYS	9 BOXWOOD CIRCLE	AVON	CT	06001	9 BOXWOOD CIRCLE
5200002	SULLIVAN MARY T	MARY T SULLIVAN	2 WYNDEMORE	AVON	CT	06001	2 WYNDEMERE
5680003	SULLIVAN NEIL J	NEIL J SULLIVAN	3 TEMPLETON COURT	AVON	CT	06001	3 TEMPLETON COURT
5150022	VILLANOVA ROBERT M & MARY	ROBERT M & MARY VILLANOVA	22 GATEWOOD	AVON	CT	06001	22 GATEWOOD
1390001	VINER PETER & LILIA SHTUMER & FUSCO IRENE	PETER VINE & LILIA SHTUMER & IRENE FUSCO	1 BRAMBLE BUSH	AVON	CT	06001	1 BRAMBLE BUSH
1010002	VOROBYEV RACHEL	RACHEL VOROBYEV	2 ACORN GLEN	AVON	CT	06001	2 ACORN GLEN
2900005	TARDIFF JEAN-PAUL & YVONNE	JEAN PAUL & YVONNE TARDIFF	5 IVY COVE	AVON	CT	06001	5 IVY COVE
1420006	TAYLOR MARSHA J	MARSHA J TAYLOR	6 BRENTHAVEN	AVON	CT	06001	6 BRENTHAVEN
2900001	THOMANN MICHAEL E TRUSTEE	MICHAEL E THOMANN TRUSTEE	1 IVY COVE	AVON	CT	06001	1 IRVY COVE
1420005	TUCKER SHERWIN M & ELAINE JACOBS	SHERWIN & ELAINE TUCKER	5 BRENTHAVEN	AVON	CT	06001	5 BRENTHAVEN
2900006	WABREK ALAN J & CAROLYN J	ALAN J & CAROLYN J WABREK	6 IVY COVE	AVON	CT	06001	6 IVY COVE
5150004	WADHAMS DAVID & NANCY	NANCY & DAVID WADHAMS	4 GATEWOOD	AVON	CT	06001	4 GATEWOOD
4440004	WAYLAND EWA D & DAVID S	EWA D & DAVID S WAYLAND	4 VISTA TERRACE	AVON	CT	06001	4 VISTA TERRACE
5810006	WEBB RICHARD & STEPHANIE	RICHARD & STEPHANIE WEBB	6 ABBOTTSFORD	AVON	CT	06001	6 ABBOTTSFORD
1480010	WEINBERGER PAUL A & FRANCES	PAUL A & FRANCES WEINBERGER	10 BRIDLE PATH	AVON	CT	06001	10 BRIDLE PATH
2480002	WEINTRAUB LINDA H & LUBLIN GERALD TRUSTEES	LINDA WEINTRAUB & GERALD LUBLIN TRUSTEES	2 GREY FOX TRAIL	AVON	CT	06001	2 GREY FOX TRAIL
5180001	WERNER HERBERT J & LILO M	HERBERT J & LILO M WERNER	1 SHIRECREST	AVON	CT	06001	1 SHIRECREST
1480002	WIEMERT KEITH & LISA	KEITH & LISA WIEMERT	2 BRIDLE PATH	AVON	CT	06001	2 BRIDLE PATH
3200005	WILLIAMS BRAD M & MERIDITH L	BRAD M & MERIDITH L WILLIAMS	5 MORGAN PLACE	AVON	CT	06001	5 MORGAN PLACE
1420007	WILLIAMS TAMARA & DENNIS	TAMARA & DENNIS WILLIAMS	7 BRENTHAVEN	AVON	CT	06001	7 BRENTHAVEN
5190006	WISSEL STEPHEN J & JACQUES SHERRY M	STEPHEN J WISSELL & SHERRY M JACQUES	6 THISTLE HOLLOW	AVON	CT	06001	6 THISTLE HOLLOW
5150032	YIRIGIAN ROBERT S & BEVERLY	ROBERT S & BEVERLY YIRIGIAN	32 GATEWOOD DRIVE	AVON	CT	06001	32 GATEWOOD DRIVE
5190018	YASS ROBERT K & EISEN, MARY JANE CO TRUSTEES	ROBERT K YASS & MARY JANE EISEN TRUSTEES	18 THISTLE HOLLOW	AVON	CT	06001	18 THISTLE HOLLOW
1040012	YAZMER ELLEN L TRUSTEE	ELLEN L YAZMER TRUSTEE	12 ALPINE MEADOW LANE	AVON	CT	06001	12 ALPINE MEADOW LANE
2960008	YOLLES ANNE L & MICHAEL TRUSTEES	ANNE L & MICHAEL YOLLES TRUSTEES	8 KIRBYSHIRE	AVON	CT	06001	8 KIRBYSHIRE
2960008	YOLLES ANNE L & MICHAEL TRUSTEES	ANNE L & MICHAEL YOLLES TRUSTEES	8165 SARATOGA DRIVE, UNIT 1304	AVON	CT	06001	8 KIRBYSHIRE
5200003	YHPRUM LLC	YHPRUM LLC	7329 HAGEN WAY	NAPLES	FL	34113	3 WYNDEMERE
5200003	YHPRUM LLC	YHPRUM LLC	3 WYNDEMERE	AVON	CT	06001	WYNDEMERE
5810002	ZAFAR SAADIA	SAADIA ZAFAR	2 ABBOTTSFORD	AVON	CT	06001	2 ABBOTTSFORD
2240003	ZEHGEER ASIMA ALI	ASIMA ALI ZEHGEER	38 COLD SPRING ROAD	AVON	CT	06001	3 FARMSTEAD LANE
2240003	ZEHGEER ASIMA ALI	ASIMA ALI ZEHGEER	3 FARMSTEAD LANE	AVON	CT	06001	3 FARMSTEAD LANE
5200014	ZHOU XIAOBO & ZHU GUANGYAN	XIAOBO ZHOU & GUANGYAN ZHU	14 WYNDEMERE	AVON	CT	06001	14 WYNDEMERE
1380003	ZIPADELLI, DAVID A TRUSTEE	DAVID ZIPADELLI TRUSTEE	3 BOXWOOD CIRCLE	AVON	CT	06001	3 BOXWOOD CIRCLE
5150014	ZWEIG RICHARD M & C DIANNE	RICHARD & C DIANNE ZWEIG	14 GATEWOOD	AVON	CT	06001	14 GATEWOOD

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

GIS CODE #: _____
For DEEP Use Only

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Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete this form in accordance with the instructions on pages 2 and 3 and mail to:
DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106
Incomplete or incomprehensible forms will be mailed back to the inland wetlands agency.

PART I: Must Be Completed By The Inland Wetlands Agency

1. DATE ACTION WAS TAKEN: year: _____ month: _____
2. ACTION TAKEN (see instructions - one code only): _____
3. WAS A PUBLIC HEARING HELD (check one)? yes ☐ no ☐
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
   (print name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

5. TOWN IN WHICH THE ACTIVITY IS OCCURRING (print name): AVON
   does this project cross municipal boundaries (check one)? yes ☐ no ☒
   if yes, list the other town(s) in which the activity is occurring (print name(s)): _____, _____
6. LOCATION (see instructions for information): USGS quad name: AVON or number: 36
   subregional drainage basin number: 4300
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): 100 NOD WAY LLC
8. NAME & ADDRESS OF ACTIVITY / PROJECT SITE (print information): 100 NOD ROAD
   briefly describe the action/project/activity (check and print information): temporary ☐ permanent ☒ description:
   RESIDENTIAL HOUSING DEVELOPMENT
9. ACTIVITY *PURPOSE* CODE (see instructions - one code only): C
10. ACTIVITY *TYPE* CODE(S) (see instructions for codes): 12, 14, _____, _____
11. WETLAND / WATERCOURSE AREA ALTERED (see instructions for explanation, must provide acres or linear feet):
    wetlands: 0 acres open water body: 0 acres stream: 0 linear feet
12. UPLAND AREA ALTERED (must provide acres): 0.32 acres
13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): 0 acres

DATE RECEIVED: **PART III: To Be Completed By The DEEP** DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO

Tab 5

WILLIAM KENNY ASSOCIATES
LANDSCAPE ARCHITECTURE ▪ ECOLOGICAL SERVICES

October 28, 2022

Attorney Timothy S. Hollister
Hinckley Allen
20 Church Street
Hartford, CT 06103

Re: Wetland and Watercourse Delineation
100 Nod Road, Avon, Connecticut

Dear Attorney Hollister:

As requested, we visited the referenced property to determine the presence or absence of wetlands and/or watercourses, to demarcate (flag) the boundaries of wetlands and watercourses identified, and to identify onsite soil types. This letter includes the methods and results of our investigation, which we completed on November 5, 2021 and during several 2022 site visits. In summary, one onsite and several off-site inland wetland and watercourse systems were identified and delineated. The onsite system, which extends and flows east to west in the southern portion of the property, is a segment of a small stream with a bordering fringe of woodland wetland. This system extends east and west of the property beyond the adjacent town roads. Off-site, east of the northeastern corner of the property, on the east side of Nod Way, is a small stream that ends at a subsurface culvert. The culvert extends and conveys the stream water several hundred feet to a point that is northwest of the northwestern property corner, on the west side of Nod Road.

Regulatory Definitions

The Inland Wetlands and Watercourses Act (Connecticut General Statutes §22a-38) defines inland wetlands as "land, including submerged land…which consists of any soil types designated as poorly drained, very poorly drained, alluvial, and floodplain." Watercourses are defined in the act as "rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private, which are contained within, flow through or border upon the state or any portion thereof." The Act defines Intermittent Watercourses as having a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Methodology

A second order soil survey in accordance with the principles and practices noted in the USDA publication *Soil Survey Manual* (1993) was completed at the subject site. The classification system of

1899 Bronson Road
Fairfield CT 06824
203 366 0588
www.wkassociates.net

the National Cooperative Soil Survey was used in this investigation. Soil map units identified at the project site generally correspond to those included in the *Soil Survey of the State of Connecticut* (USDA 2005).

Onsite wetland determinations were completed based on the presence of poorly drained, very poorly drained, alluvial, or floodplain soils. Soil types were identified by observation of soil morphology (soil texture, color, structure, etc.). To observe the morphology of the property's soils, test pits and/or borings (maximum depth of two feet) were completed at the site.

Intermittent watercourse determinations were made based on the presence of a defined permanent channel and bank and the occurrence of two or more of the following characteristics: A) evidence of scour or deposits of recent alluvium or detritus, B) the presence of standing or flowing water for a duration longer than a particular storm incident, and C) the presence of hydrophytic vegetation.

Onsite wetland boundaries were demarcated (flagged) with pink surveyor's tape (hung from vegetation) or small flags (on wire stakes) labeled "William Kenny Associates" that are generally spaced a maximum of every 50 feet. Complete boundaries are located along the lines that connect these sequentially numbered flags. The wetland boundaries are subject to change until adopted by local, state, or federal regulatory agencies.

Off-site wetland and watercourse determinations were based on observations made from the project site and public right-of-ways of offsite topography, vegetation and hydrological conditions and were based on a review of the following attached exhibits:

1. 1951 USGS Topographic Map.
2. 1997 CT DOT Nod Road Reconstruction Map.
3. 2018 USDA NRCS Soil Survey Map.
4. 2019 *Wetland and Soils Report* prepared by CLA Engineers, Inc.
5. 2022 *Property/Limited Topographic Survey* prepared by F.A. Hesketh & Associates, Inc.
6. 2022 USFW National Wetlands Inventory Map.
7. 2022 Town of Avon GIS Wetland Map.
8. 2022 *Site Photos* prepared by WKA.
9. 2022 *Wetland & Watercourse Map* prepared by WKA

Based on these observations, conclusions were made regarding the approximate location of off-site wetlands and watercourses.

Wetland & Watercourse Mapping Results

The approximate 9.3-acre undeveloped property is located at 100 Nod Road in Avon, Connecticut. Nod Road borders the western property boundary and Nod Way borders the northern, eastern and southern property boundaries. The primary vegetative cover in the southern portion of the property is a broadleaved deciduous woodland. A meadow is the primary vegetative cover in the northern portion of the property.

One onsite inland wetland and watercourse system was identified and delineated. The system, which extends and flows east to west in the southern portion of the property, is a segment of a small stream with a bordering fringe of woodland wetland. This stream enters the property to the east from a

culvert under Nod Way and exits the property to the west from a culvert under Nod Road. According to the 1997 CT DOT Nod Road Reconstruction Map, the original alignment of the stream was altered during the road construction to convey the stream flow to the culvert under Nod Road which it passes through today. Wetland soils are primarily poorly drained and are forming from human altered deposits. Off-site, east of the northeastern corner of the property, and east of Nod Way, is a small stream that ends at a subsurface culvert. The culvert extends and conveys the stream water to a point that is west of the northwestern property corner and Nod Road. The approximate locations of the systems are shown on the attached map. The boundary of the onsite system was marked at the site with flags numbered 1 to 37.

Our wetland determinations also included several land areas, on and off the site, with features or associated published records that indicate or suggest the presence of inland wetlands, watercourses or both. However, based on our review and observations, we conclude that there are no wetlands or watercourses in these areas. The following text provides information regarding each of these areas and the bases for our conclusions.

On both the Town GIS wetlands maps and the NRCS soil map, the soils in the southern roughly one-third of the property are shown to be primarily wetland soils. According to the NRCS map, the soils within this area are mapped as Winooski silt loam, a moderately well drained soil series that are forming in alluvial deposits. We and Robert Russo, Soil Scientist with CLA Engineers, Inc., closely reviewed this area and identified and field marked a stream and wetland corridor that was substantially smaller than that shown on the NRCS and Town maps. We did not find evidence that the soils within this area were alluvial soils. Instead, we found these soils to be excessively drained soils formed from glacial outwash. The wetland information on the Town map was compiled entirely with information from the NRCS map. NRCS maps are not precise, are intended for general planning purposes, and are not the result of detailed field investigations, such as those completed by Robert Russo and us. This is the reason for the inconsistency between our wetland mapping and the mapping shown on the Town and NRCS maps. In the southern portion of the property, the USFW NWI map shows only a stream system, which is consistent with our and Robert Russo's findings.

On both the 1951 USGS topographic map and the CT DOT Nod Road Reconstruction Map, a small stream is shown extending and flowing east to west along the northern property line. Also on the CT DOT map, wetlands are shown adjacent to the stream. The CT DOT map does not include a reference or source for the indicated wetlands. We and Robert Russo closely reviewed this area and determined that no wetlands or watercourses are present. As noted on the CT DOT map, the stream segment in this area was piped as part of the relocation of Nod Road and the establishment of Nod Way, circa 2000. As such the stream and the adjacent wetlands were eliminated from this area.

In the central portion of the property is an eroded drainage ditch that also is the result of the establishment of Nod Way. Stormwater runoff from portions of Nod Way and Gatewood Lane are collected in a drainage system of catch basins and subsurface pipes that collect and convey the water to the surface along the eastern property line just west of the intersection of Nod Way and Gatewood Lane. This point discharge of stormwater runoff did not exist before the construction of this drainage system circa 2000. As a result of this stormwater discharge, an eroded channel has formed and extends about 175 feet west into the property. We and Robert Russo observed this eroded channel and determined that is not a regulated inland wetland or watercourse. We found no poorly or very poorly drained soils or soils that formed or are forming from alluvial deposits. Also, water flow

through this channel appears to occur only during a storm event and hydrophytic vegetation is not present.

Similarly, west of the central portion of the property is a drainage system within Nod Road that consists of catch basins and subsurface pipes. This system collects and conveys stormwater runoff primarily from Nod Road and discharges via a pipe that outlets west of the road. There is an excavated depression (sump) at the end of the pipe and a swale extending south to north from the sump. We conclude that this sump and associated swale are not regulated wetlands or watercourses. These features do not appear to have poorly or very poorly drained soils or soils that formed or are forming from alluvial deposits. Water flow to this sump and swale appears to occur only during a storm event. During most storm events, water discharged to the sump and channel is primarily stormwater runoff from Nod Road (approximately 1,200 linear feet), supporting our claim that this system is fed primarily by stormwater runoff. Hydrophytic vegetation does not appear to be present within either the sump or swale.

Soil Mapping Results

Four soil map units were identified on the property (one wetland and three upland). Each map unit represents a specific area on the landscape and consists of one or more soils for which the unit is named. Other soils (inclusions that are generally too small to be delineated separately) may account for 10 to 15 percent of each map unit. The mapped units are identified in the following table by name and symbol and typical characteristics (parent material, drainage class, high water table, depth to bedrock, and slope). These characteristics are generally the primary characteristics to be considered in land use planning and management. A description of each characteristic and their land use implications follows the table. A complete description of each soil map unit can be found in the *Soil Survey of the State of Connecticut* (USDA 2005), and at *https://soilseries.sc.egov.usda.gov/osdname.aspx*. On the day of the review, there was less than 1 inch of soil frost and no snow cover. The upland soil was moist and the wetland soil was moist to inundated. The sky was clear and air temperatures were in the 30's ° F.

Map Unit		Parent Material	Slope (%)	Drainage Class	High Water Table			Depth To Bedrock (in)
Sym.	Name				Depth (ft)	Kind	Mos.	
Upland Soil								
37	Manchester gravelly sandy loam	Glacial Outwash Stratified Drift	3-15	Excessively Drained	>6.0	--	--	>65
308	Udorthents, Smoothed	Excavated or Filled Soil (>2 feet)	0-45	Well Drained to Somewhat Poorly Drained	1.5->6.0	Apparent	Nov-May	>60
704	Enfield Silt Loam	Glacial Outwash	3-8	Well Drained	>6.0	--	--	>60
Wetland Soil								
1	Aquents	Disturbed Soil	0-3	Poorly Drained	0.0-1.5	Apparent	Nov-May	>60

Parent material is the unconsolidated organic and mineral material in which soil forms. Soil inherits characteristics, such as mineralogy and texture, from its parent material. Glacial till is unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice. Glacial outwash consists of gravel, sand, and silt, which are commonly stratified and deposited by glacial melt water. Alluvium is material such as sand, silt, or clay, deposited on land by streams. Organic deposits consist of decomposed plant and animal parts.

A soil's texture affects the ease of digging, filling, and compacting and the permeability of a soil. Generally sand and gravel soils, such as outwash soils, have higher permeability rates than most glacial till soils. Soil permeability affects the cost to design and construct subsurface sanitary disposal facilities and, if too slow or too fast, may preclude their use. Outwash soils are generally excellent sources of natural aggregates (sand and gravel) suitable for commercial use, such as construction sub base material. Organic layers in soils can cause movement of structural footings. Compacted glacial till layers make excavating more difficult and may preclude the use of subsurface sanitary disposal systems or increase their design and construction costs if fill material is required.

Generally, soils with steeper slopes increase construction costs, increase the potential for erosion and sedimentation impacts, and reduce the feasibility of locating subsurface sanitary disposal facilities.

Drainage class refers to the frequency and duration of periods of soil saturation or partial saturation during soil formation. Seven classes of natural drainage classes exist. They range from excessively drained, where water is removed from the soil very rapidly, to very poorly drained, where water is removed so slowly that free water remains at or near the soil surface during most of the growing season. Soil drainage affects the type and growth of plants found in an area. When landscaping or gardening, drainage class information can be used to assure that proposed plants are adapted to existing drainage conditions or that necessary alterations to drainage conditions (irrigation or drainage systems) are provided to assure plant survival.

High water table is the highest level of a saturated zone in the soil in most years. The water table can affect the timing of excavations; the ease of excavating, constructing, and grading; and the supporting capacity of the soil. Shallow water tables may preclude the use of subsurface sanitary disposal systems or increase design and construction costs if fill material is required.

The depth to bedrock refers to the depth to fixed rock. Bedrock depth affects the ease and cost of construction, such as digging, filling, compacting, and planting. Shallow depth bedrock may preclude the use of subsurface sanitary disposal systems or increase design and construction costs if fill material is required.

Conclusions

We investigated the property at 100 Nod Road in Avon, Connecticut and identified and delineated one onsite inland wetland and watercourse system and identified several offsite inland wetland and watercourse system. Thank you for the opportunity to assist you. If you should have any questions or comments, please do not hesitate to contact us.

Sincerely,

William L. Kenny, PWS, PLA
Soil Scientist

Alexander Wojtkowiak
Soil Scientist

Enclosure

Ref. No. 5044

100 Nod Road
Avon, Connecticut

Wetland & Watercourse Delineation - Exhibit 1
1951 USGS Topographic Map

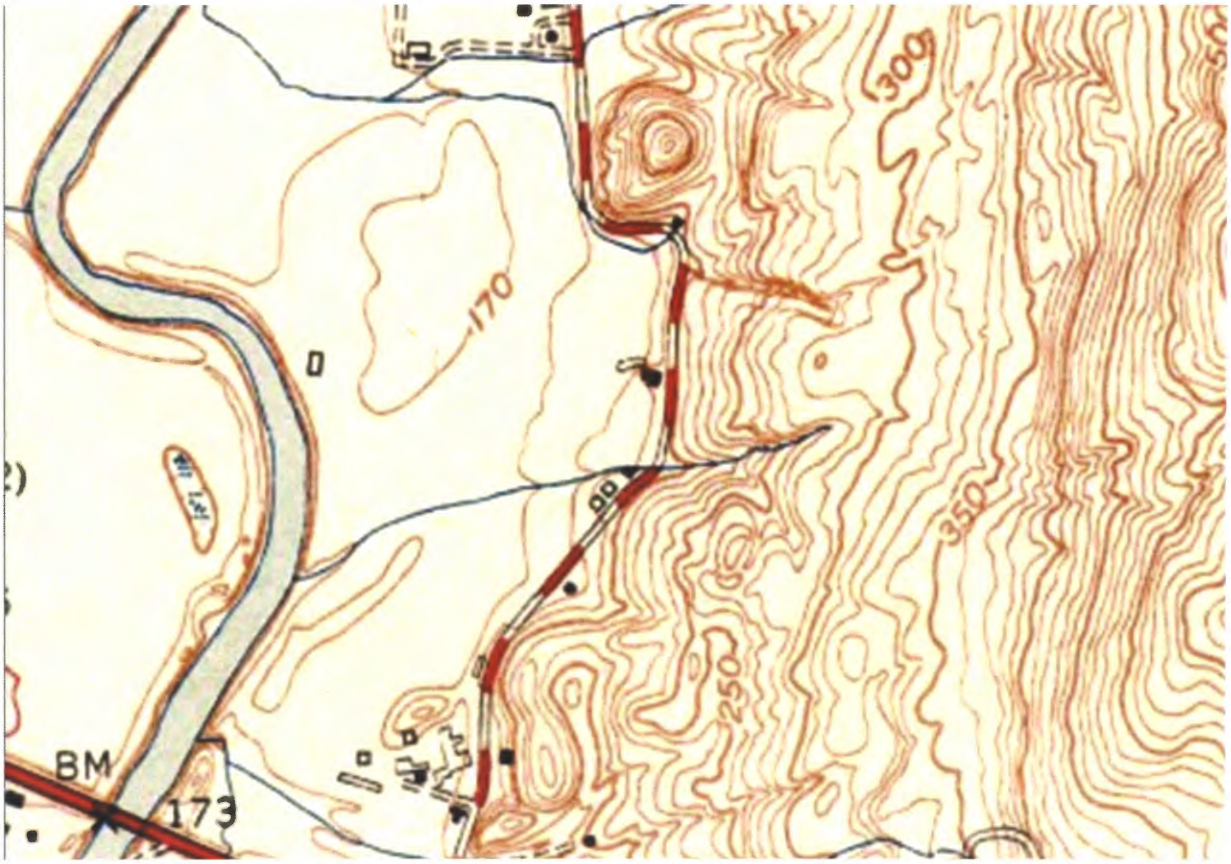
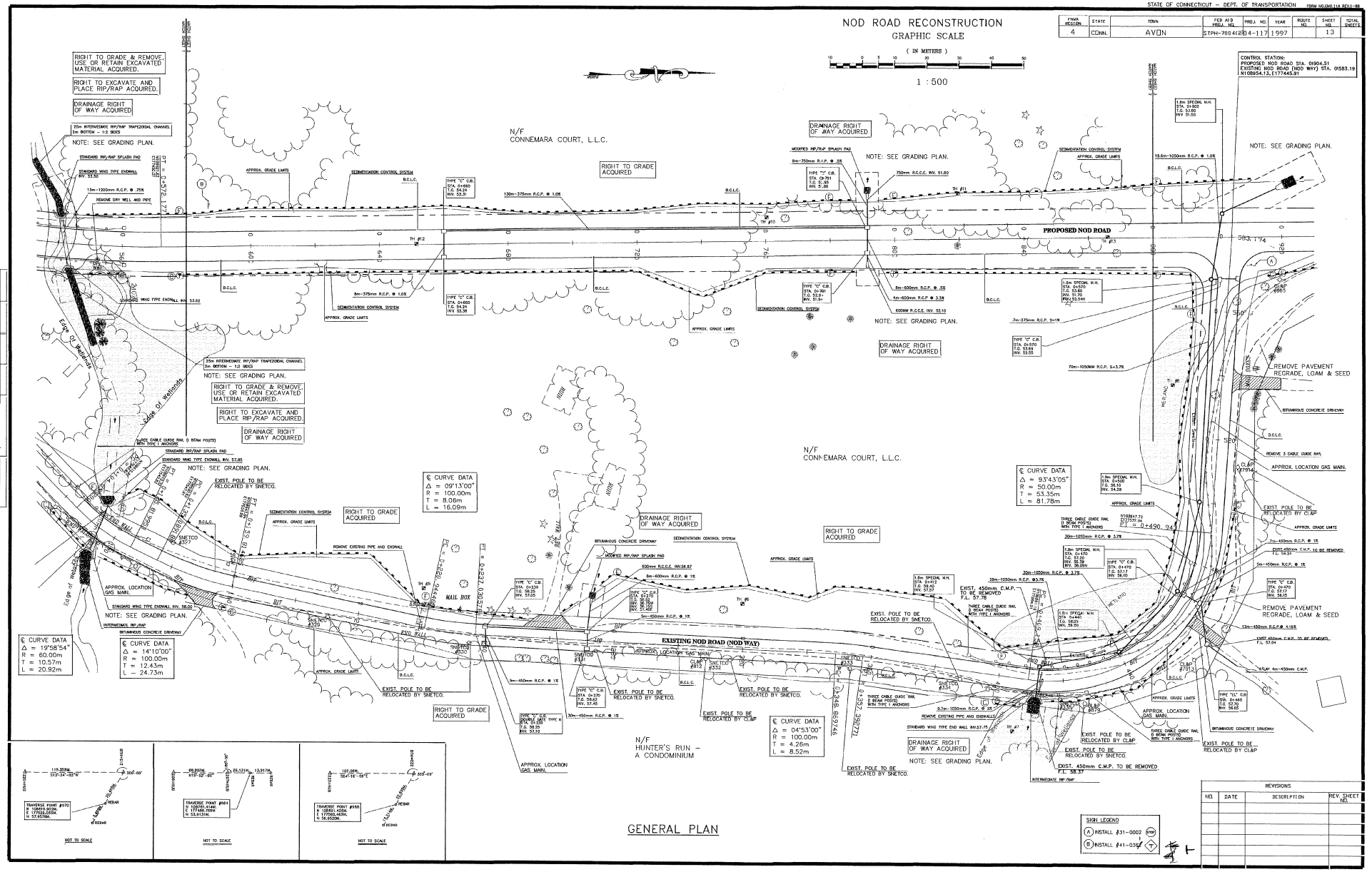
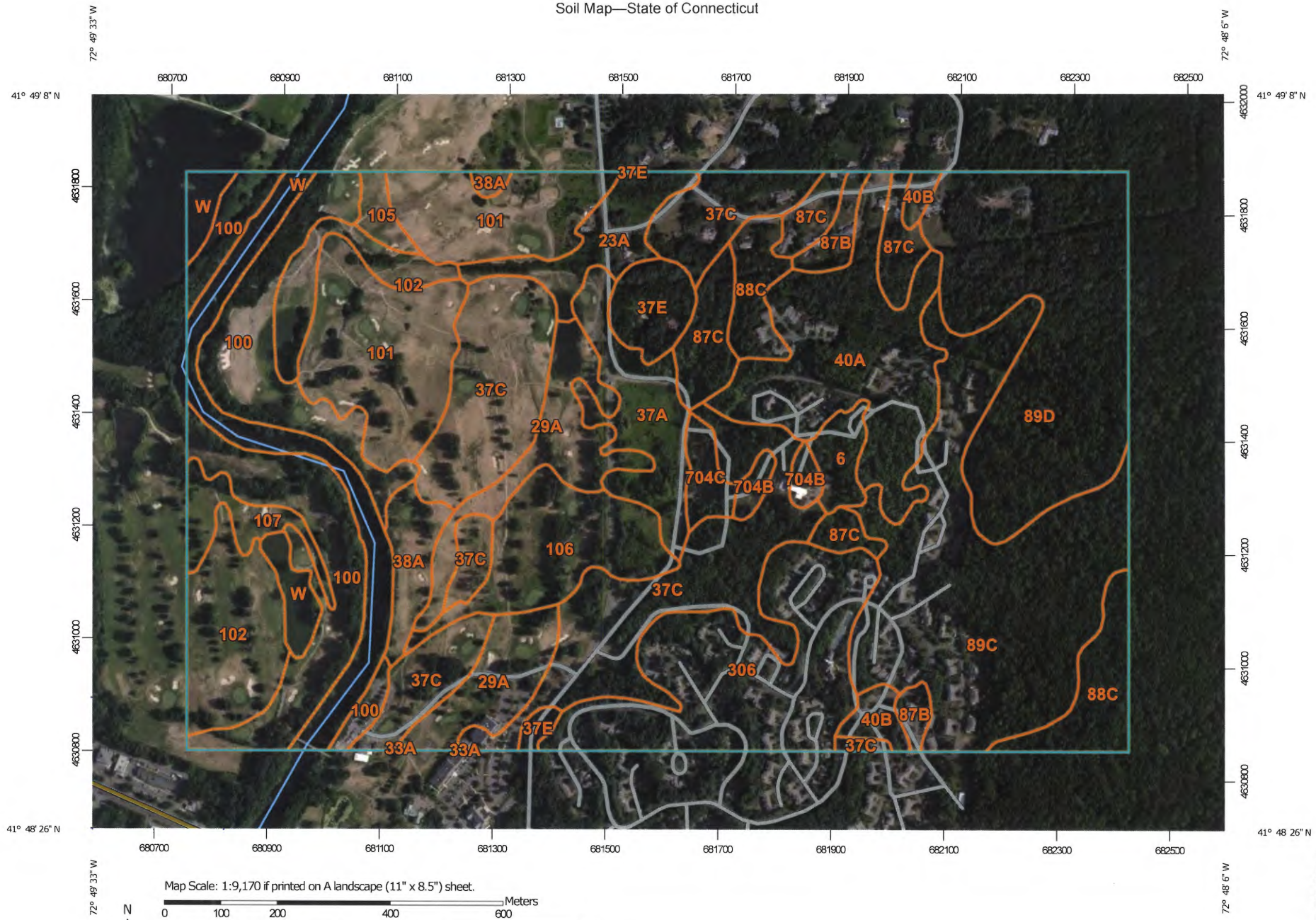


Exhibit 2


NOD ROAD RECONSTRUCTION
GRAPHIC SCALE
(IN METERS)
1 : 500
STATE OF CONNECTICUT — DEPT. OF TRANSPORTATION
FHWA REGION 4 | STATE CONN. | TOWN AVON | FED AID PROJ. NO. STPH-700(42) | PROJ. NO. 104-117 | YEAR 1997 | ROUTE NO. | SHEET NO. 13 | TOTAL SHEETS
CONTROL STATION:
PROPOSED NOD ROAD STA. 01904.51
EXISTING NOD ROAD (NOD WAY) STA. 01583.19
N108954.13, E177445.91
PROPOSED NOD ROAD
EXISTING NOD ROAD (NOD WAY)
N/F CONNEMARA COURT, L.L.C.
N/F CONN-EMARA COURT, L.L.C.
N/F HUNTER'S RUN - A CONDOMINIUM
RIGHT TO GRADE & REMOVE. USE OR RETAIN EXCAVATED MATERIAL ACQUIRED.
RIGHT TO EXCAVATE AND PLACE RIP/RAP ACQUIRED.
DRAINAGE RIGHT OF WAY ACQUIRED
RIGHT TO GRADE ACQUIRED
NOTE: SEE GRADING PLAN.
℄ CURVE DATA
Δ = 19°58'54"
R = 60.00m
T = 10.57m
L = 20.92m
℄ CURVE DATA
Δ = 14°10'00"
R = 100.00m
T = 12.43m
L = 24.73m
℄ CURVE DATA
Δ = 09°13'00"
R = 100.00m
T = 8.06m
L = 16.09m
℄ CURVE DATA
Δ = 04°53'00"
R = 100.00m
T = 4.26m
L = 8.52m
℄ CURVE DATA
Δ = 93°43'05"
R = 50.00m
T = 53.35m
L = 81.78m
EXIST. POLE TO BE RELOCATED BY SNETCO.
EXIST. POLE TO BE RELOCATED BY CL&P
EXIST. 450mm C.M.P. TO BE REMOVED
REMOVE PAVEMENT REGRADE, LOAM & SEED
APPROX. LOCATION GAS MAIN.
BITUMINOUS CONCRETE DRIVEWAY
SEDIMENTATION CONTROL SYSTEM
APPROX. GRADE LIMITS
SIGN LEGEND
(A) INSTALL #31-0002
(B) INSTALL #41-0361
GENERAL PLAN
REVISIONS
NO. | DATE | DESCRIPTION | REV. SHEET NO.
D-00-163

Soil Map—State of Connecticut



Map Scale: 1:9,170 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Exhibit 3

Exhibit 3

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony	3.3	0.8%
23A	Sudbury sandy loam, 0 to 5 percent slopes	8.0	1.9%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	18.9	4.4%
33A	Hartford sandy loam, 0 to 3 percent slopes	0.1	0.0%
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes	12.0	2.8%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	57.0	13.4%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	6.1	1.4%
38A	Hinckley loamy sand, 0 to 3 percent slopes	5.7	1.3%
40A	Ludlow silt loam, 0 to 3 percent slopes	26.7	6.3%
40B	Ludlow silt loam, 3 to 8 percent slopes	3.2	0.7%
87B	Wethersfield loam, 3 to 8 percent slopes	3.7	0.9%
87C	Wethersfield loam, 8 to 15 percent slopes	12.3	2.9%
88C	Wethersfield loam, 8 to 15 percent slopes, very stony	12.3	2.9%
89C	Wethersfield loam, 3 to 15 percent slopes, extremely stony	49.3	11.6%
89D	Wethersfield loam, 15 to 35 percent slopes, extremely stony	42.5	10.0%
100	Suncook loamy fine sand	37.7	8.9%
101	Occum fine sandy loam	31.7	7.5%
102	Pootatuck fine sandy loam	19.5	4.6%
105	Hadley silt loam	2.0	0.5%
106	Winooski silt loam	14.7	3.5%
107	Limerick and Lim soils	4.7	1.1%
306	Udorthents-Urban land complex	29.6	7.0%
704B	Enfield silt loam, 3 to 8 percent slopes	2.4	0.6%

Exhibit 3

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
704C	Enfield silt loam, 8 to 15 percent slopes	2.8	0.7%
W	Water	18.5	4.4%
Totals for Area of Interest		**424.6**	**100.0%**

Exhibit 4

CLAEngineers, Inc.
Civil • Structural • Survey

317 MAIN STREET • NORWICH, CT 06360 • (860) 886-1966 • (860) 886-9165 FAX

September 9, 2019

Mr. David Ziaks P.E.
F.A. Hesketh & Associates, Inc.
6 Creamery Brook
East Granby, CT 06026

Re: Wetland and Soils Report
100 Nod Way
CLA –6071

Dear Mr. Ziaks:

At the request of F.A. Hesketh& Associates, Inc,CLA has investigated the referenced site for inland wetlands and watercourses. CLA performed the delineation in August of 2019.Theplan prepared by Hesketh depicts the wetland flags as located by F.A.Heskethto be used in planning any future site development. This report documents the wetland types found and summarizes the functions and values of those wetlands. This letter also serves as the soil scientist's report and documents the soils found on the site and their characteristics.

Existing Conditions

The configuration of the site investigated is shown on the plans provided by F.A. Hesketh. The site is predominantly vegetated with weedy species such as goldenrod, mugwort, Japanese knotweed, dock, grasses and sedges. The site is undeveloped.

Surface water on the site runs from the higher elevations on the eastern part of the siteflowing westward. There areearthen bermsand excavated depressionswithin the site. A brook flows east to west near the southern edge of the site. As shown on the existing conditions plan, there is a steep bank along the brook that forms the southern side of the channel. This bank forms an abrupt boundary at the edge of the regulated resource.The northern edge of the brook has a bank as well, but with generally less relief.

Wetlands and Watercourses

Wetlands were delineated with sequentially numbered pink flags, which were field located by F.A. Hesketh. Wetland flag numbersdelineate resource areas described as follows:

The wetland flag series numbered WF 1-1 to 1-27 delineatea watercourse/wetland area that has pipes at both its inlet and outlet. The soils along its edge indicate that it was altered by past grading. Typical vegetation includes weeping willow trees, red maple and

willow shrubs, silky dogwood, and skunk cabbage, spicebush, wool grass, *phragmites* and purple loosestrife.

Soils

The NRCS soil series classifications for the site and surrounding areas are shown in Appendix A. The predominant soils shown on the site. Are Manchester gravelly sandy loam and Winooski silt loam. Neither of these soil was found to be present on the site. The site currently has highly disturbed soils that have been excavated, filled, and generally re-graded. As such, the soilson site should be classified as sandy Udorthents (described by NRCS as: **Udorthents, sandy.** This map unit consists of nearly level to steep areas where the original soils have been removed for use as roadfill, concrete aggregate, or landfill).The wetland soils on site all show signs of alteration through grading and are classified as aquents.

CLA noted during the wetland delineation that there are small, low lying, areas of soils that were previously disturbed by grading and excavation that contain facultative wetland vegetation. The soils in these areas are somewhat poorly drained and are not regulated as wetlands.

Wetland Conditions

The wetland/watercourse on the site performsa number of functions that are typically attributed to Connecticut's wetlands. Observations relevant to functions and values of the wetlands include:

1. The wetlands contain manmade features (ponds, culverts, bridges)
2. Erosion was not noted in or along the wetland edge.
3. The wetlands and watercourse received storm water runoff from nearby development (roads)
4. The wetlands occur within coarse textured soils and serve as an interface with the local water table and aquifer.
5. The wetlands typically contain native species such as weeping willow (*Salix*) red maple (*Acer rubrum*) and spicebush *(Lindera benzoin*) but also have purple loostrife (*Lythrumsalicaria)*multiflora rose (*Rosa multiflora*)and common reed (*Phragmitescommunis*), which are invasive species.
6. The wetlands haveboth mineral surfacesoils. Along the stream edges grading and filling has disturbed the normal soil horizons. The wetland occurs as a narrow band along the edge of the brook.
7. The wetlands has one habitat types: perennial stream. .
8. There is very little undeveloped wooded buffer along the brook.
9. In August of 2019 brook trout and rainbow trout were observed in the plunge pool below the Nod Way culvert

10. The June 2019 CTDEEP Natural Diversity Database (NDDB) shows known presences of threatened, endangered or species of special concern.

Based on these observations, the on-site wetlands appear to provide fish (cold water) and wildlife habitat, and serve as a groundwater interface. It also receives nutrients and pollutants from surrounding land uses,and its ability to treat and process these inputsislimited by the narrow, linear nature of the wetland.

Please contact me if you have any questions.

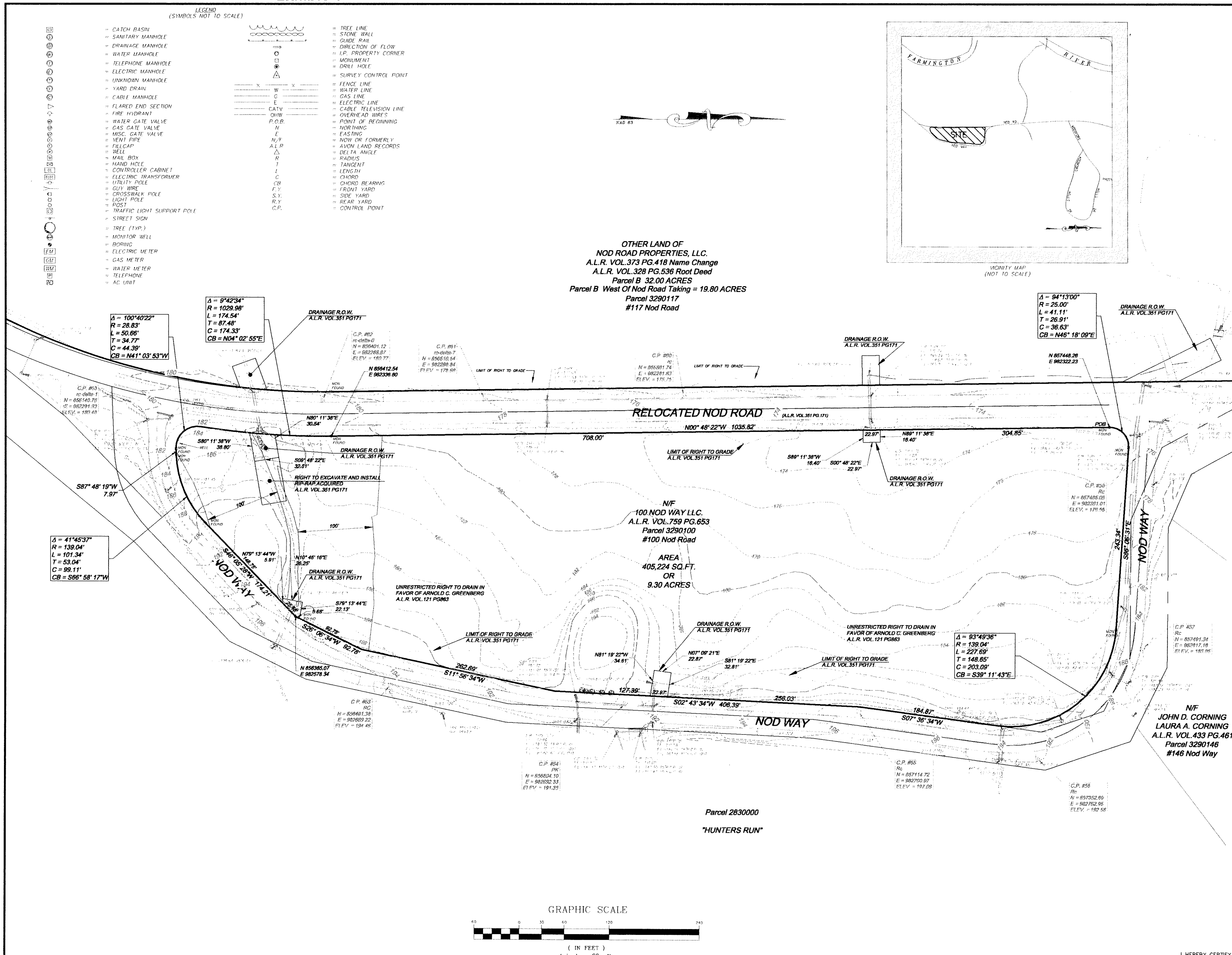
Sincerely,

R C Russo

Robert C. Russo
C.S.S.

Exhibit 4

Exhibit 5



N/F
KHALED J. HAMMAD.
A.L.R. VOL.721 PG.630
Parcel 3290164
#164 Nod Way

NOTES

1. THIS SURVEY HAS BEEN PREPARED IN PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

2. IT IS A PROPERTY / LIMITED TOPOOGRAPHIC SURVEY INTENDED TO BE USED FOR PLANNING PURPOSES.

3. THE BOUNDARY DETERMINATION CATEGORY IS THAT OF A RESURVEY.

4. THIS SURVEY CONFORMS TO CLASS A-2 HORIZONTAL ACCURACY, CLASS T-2 TOPOGRAPHIC ACCURACY STANDARDS FOR ROADWAYS AND CLASS T-D FOR THE SITE DIGITIZED FROM TOWN OF AVON GIS MAPPING.

5. THE SUBJECT PARCEL IS CURRENTLY OWNED BY 100 NOD WAY LLC. THIS IS THE REMAINDER PROPERTY ON EAST SIDE OF THE RELOCATED NOD ROAD TAKEN BY THE STATE OF CONNECTICUT IN THE AVON LAND RECORDS VOL. 351 AT PAGE 171.

6. THE SUBJECT PARCEL IS DEPICTED ON THE TOWN OF AVON GIS WEBSITE AS PARCEL 3290100

7. THE SUBJECT PARCELS ARE LOCATED IN THE AGRICULTURAL ZONE IN THE TOWN OF AVON.

8. BEARINGS, COORDINATES AND ELEVATIONS DEPICTED HEREON REFER TO THE NORTH AMERICAN DATUM OF 1983 AND THE NATIONAL VERTICAL DATUM OF 1988 BASED UPON OPUS RAPID STATIC OBSERVATIONS PERFORMED IN JULY AND AUGUST OF 2017 RESULTING IN THE FOLLOWING VALUES. CONTROL POINT #1, N=859371.57, E=982190.84, ELEV.=164.56 AND CONTROL POINT #13, N=854206.85, E=981570.16, ELEV.=180.12.

9. THE WETLAND FLAGS DEPICTED HEREON WERE SET IN THE FIELD BY ROBERT RUSSO, A CERTIFIED SOIL SCIENTIST, AND LOCATED UNDER THE DIRECT SUPERVISION OF THE LAND SURVEYOR WHOSE SIGNATURE APPEARS HEREON.

10. THIS SURVEYOR HAS REVIEWED THE CONNECTICUT ATTORNEYS TITLE INSURANCE ISSUED BY – CATIC – COMMITMENT DATE 11-21-2019 AND ALL EXCEPTIONS OF A SURVEY NATURE LISTED IN SCHEDULE B PART II ARE NOTED OR DEPICTED HEREON.

11. UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED OR NOTED HEREON (IF ANY) HAVE BEEN COMPILED FROM RECORD MAPPING, VISIBLE EVIDENCE OR OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY OTHER SUCH FEATURES EXIST ON THE SITE. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG 1-800-922-4455.

MAP REFERENCES:

1. MAP SHOWING LAND OF BEL COMPO GOLF CLUB NOD ROAD AVON, CONNECTICUT SCALE 1" = 200' MARCH , 1996 SHEET 1 OF 1 BY NASCIMBENI & JAHNE SURVEYORS P.C.

2. SUBDIVISION PLAN PROPERTY OF BLUE FOX GOLF & TRAINING CENTER , LLC CONNEMARA COURT, LLC NOD ROAD AVON, CONNECTICUT SCALE 1" = 200' SHEET 1 OF 1 DEC.1996 REVISED 2/4/97 & 11/24/97 BY NASCIMBENI & JAHNE SURVEYORS, P.C.

3. LAND OF LAND OWNED BY CHESTER R. WOODFORD & ESTATE OF C. FRED WOODFORD WESTERLY OF NOD ROAD AVON, CONNECTICUT SCALE 1" = 200' FEBRUARY 1980 REVISED TO NOVEMBER, 1998 HODGE SURVEYING ASSOCIATES, P.C.

4. TOWN OF AVON MAP SHOWING EASEMENTS AND LAND TO BE ACQUIRED FROM CONNEMARA COURT, LLC BY THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION RELOCATION OF NOD ROAD AVON, CONNECTICUT SCALE METRIC 1: 500 MAY 1977 JAMES F. BURNES, JR. TRANSPORTATION CHIEF ENGINEER BUREAU OF ENGINEERING AND HIGHWAY OPERATIONS. TOWN NO. 4 PROJECT NO. 04-117 SERIAL NO. 3 SHEETS 1 AND 2 OF 2.

5. IMPROVEMENT LOCATION SURVEY EASEMENT MAP FOR SANITARY SEWER EASEMENT TO BE CONVEYED TO THE TOWN OF AVON ACROSS PROPERTY OF BLUE FOX RUN NOD ROAD AVON, CONNECTICUT SCALE 1" = 40' JULY 2000 REVISED JANUARY, 2005 SHEETS 1 OF 9 OF 9 BY HODGE SURVEYING ASSOCIATES, P.C.

6. EASEMENT MAP PREPARED FOR THE AVON WATER COMPANY ACROSS PROPERTY OF NOD ROAD PROPERTIES, LLC 27 NOD ROAD AVON, CONNECTICUT SCALE 1" = 40' 4/04/11 SHEETS 1 & 2 OF 2 REVISED TO 4/20/11 BY DENNO LAND SURVEYING & CONSULTING, LLC.

7. TOWN OF AVON MAP SHOWING LAND ACQUIRED FROM EST. ANTHONY ROTONDO ET AL BY THE STATE OF CONNECTICUT INTERSECTION IMPROVEMENTS – ROUTES 10 & 44 SCALE 1" = 40' JANUARY, 1990 REVISED 8-29-90 ROBERT W. GUBALA TRANSPORTATION CHIEF ENGINEER BUREAU OF HIGHWAYS.

8. MAP OF PROPERTY OWNED BY GEORGE T. MANION ET AL MOUNTAIN VIEW AVE. AVON, CT. JUNE 1937 SCALE 1" = 40' MERTON HODGE SURVEYOR REVISED AUG. 1939.

9. MAP SHOWING PROPERTY OWNED BY THE WOOD FORD FARM CORPORATION EAST MAIN STREET & NOD ROAD AVON, CONN. SCALE 1" = 40' JULY 1974 BY F.N. WHITTEMORE JR. LAND SURVEYOR.

AGRICULTURAL DISTRICT

ZONING DISTRICT	MINIMUM REQUIRED LOT AREA (S.F.)	MINIMUM PERMITTED LOT WIDTH (FT)	MINIMUM REQUIRED YARDS (FT.) FRONT	SIDE	REAR	MAX. BLDG. COVERAGE	MAX. PERMITTED HEIGHT
A	40,000	150	60	25	30	15%	35 FT

I HEREBY CERTIFY THAT THE INLAND WETLAND BOUNDARY LINES DEPICTED HEREON ARE SUBSTANTIALLY CORRECT

R C Russo

ROBERT RUSSO PROFESSIONAL SOIL SCIENTIST (CERTIFIED)

I HEREBY CERTIFY THAT TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

THIS MAP IS NOT VALID WITHOUT THE LIVE SIGNATURE AND IMPRESSION TYPE SEAL OF THE LAND SURVEYOR WHOSE NAME APPEARS HEREON.

PROGRESS 07-07-2022

TODD S. HESKETH, LS 17945

F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
Phone (860) 653-8000 Fax (860) 844-8600
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects www.fahesketh.com

Revisions:

No.	Date	Description
1	12-2-2019	COMMITMENT 11-21-2019
2	02-05-2020	CERTIFICATION
3	09-09-2020	ADD 100' WETLAND SETBACK
4	07-08-2022	MISC.

PROPERTY/LIMITED TOPOGRAPHIC SURVEY
PROPERTY OF
100 NOD WAY LLC
100 NOD ROAD
AVON, CONNECTICUT

Date: 06-20-2019 | Drawn by: CAD | Job no: 19144
Scale: 1" = 60' | Checked by: TSH | Sheet no: 1 OF 1

PS-1

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

October 12, 2021

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

Exhibit 6

Exhibit 7

2022 Town of Avon GIS Map

10/11/2022 12:06:51 PM

Scale: 1"=200'

Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

100 Nod Road
Avon, Connecticut

Wetland & Watercourse Delineation - Exhibit 8
Site Photos

Photo 01: View of onsite southern wetland & watercourse looking west from Nod Way (01/19/22).

Photo 02: View of the culvert under Nod Way for southern onsite wetland & watercourse (01/19/22).

100 Nod Road
Avon, Connecticut

Wetland & Watercourse Delineation - Exhibit 8
Site Photos

Photo 03: View within southern onsite wetland & watercourse facing west (01/19/22).

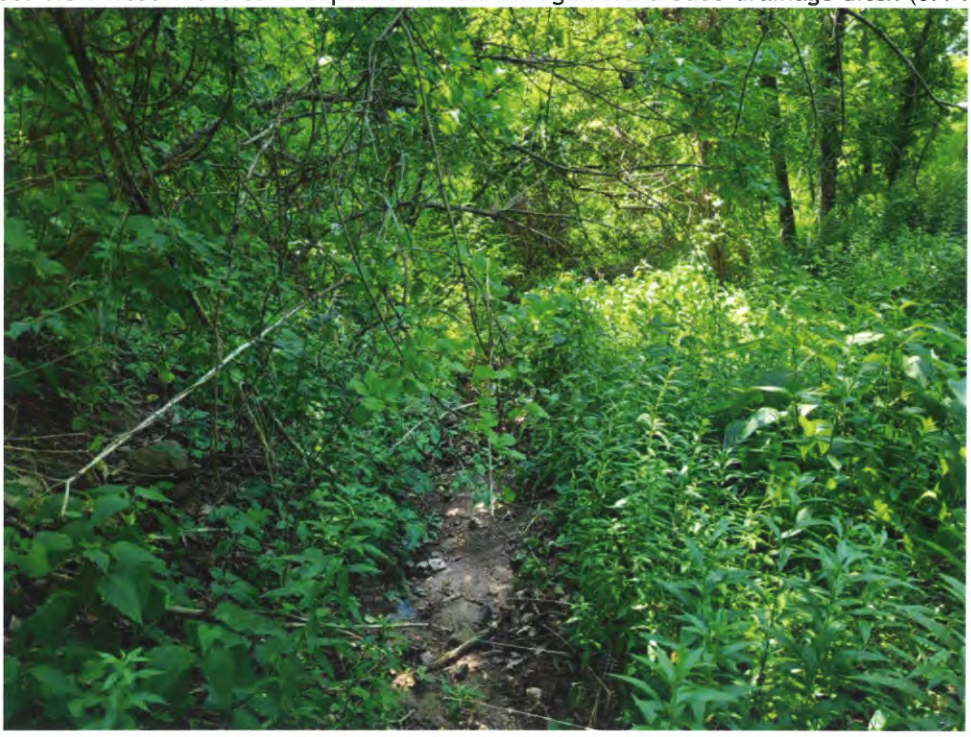
Photo 04: View of the culvert under Nod Road for southern onsite wetland & watercourse (01/19/22).

100 Nod Road
Avon, Connecticut

Wetland & Watercourse Delineation - Exhibit 8
Site Photos

Photo 05: View east in the eastern portion of the unregulated eroded drainage ditch (07/12/22).

Photo 06: View west in the central portion of the unregulated eroded drainage ditch (07/12/22).



Wetland & Watercourse Delineation - Exhibit 8

Site Photos

Photo 07: View east in the central portion of the unregulated eroded drainage ditch (07/12/22).

Photo 08: View west in the central portion of the unregulated eroded drainage ditch (07/12/22).

SOIL LEGEND

UPLAND
37 MANCHESTER GRAVELLY SANDY LOAM
308 UDORTHENTS, SMOOTHED
704 ENFIELD SILT LOAM

WETLAND
1 AQUENTS

WILLIAM KENNY ASSOCIATES
LANDSCAPE ARCHITECTURE ▪ ECOLOGICAL SERVICES
1899 Bronson Road Fairfield CT 06824
203 366 0588 www.wkassociates.net

NOTES:
- *INFORMATION SHOWN ON THIS DRAWING, INCLUDING THE WETLAND BOUNDARY, IS APPROXIMATE. THE BOUNDARY IS NOT A SURVEYED REPRESENTATION OF WHAT WAS FIELD MARKED (FLAGGED).*
- *WETLAND AND SOIL INFORMATION PROVIDED BY WILLIAM KENNY ASSOC. OTHER INFORMATION TAKEN FROM A DRAWING PREPARED BY F. A. HESKETH & ASSOCIATES, INC.*
- ***37, 308, 704** AND **1** ARE SOIL MAPPING UNIT SYMBOLS. SEE WETLAND DELINEATION REPORT FOR THE SOIL MAP UNIT NAMES AND ADDITIONAL RELATED INFORMATION.*

I CERTIFY THAT THIS WETLAND MAP SUBSTANTIALLY REPRESENTS THE SOILS AND WETLANDS MAPPED IN THE FIELD

WILLIAM L. KENNY, SOIL SCIENTIST

EXHIBIT 9
WETLAND & WATERCOURSE MAP

100 NOD ROAD
AVON, CONNECTICUT

SCALE: NOT TO SCALE
DATE: OCTOBER 28, 2022

Ref. No. 5044

NORTH

Tab 6

WILLIAM KENNY ASSOCIATES
LANDSCAPE ARCHITECTURE ▪ ECOLOGICAL SERVICES

October 28, 2022

Inland Wetlands & Watercourses Commission
Town of Avon
60 West Main Street,
Avon, CT 06001

Re: Wetland and Watercourse Assessment
100 Nod Road, Avon, Connecticut

Dear Members of the Commission:

William Kenny Associates LLC (WKA) investigated the approximate 9.3-acre undeveloped property located at 100 Nod Road in Avon, Connecticut to inventory and assess the existing and proposed wetland and watercourse conditions related to a proposed residential development with the construction of 13 single-family residences, eight multi-family buildings and associated drives and other site improvements. The following includes the methods and results of this investigation. Wetlands were field delineated on November 5, 2021 by WKA. Additional field investigations were conducted throughout several site visits in 2022 by WKA. The assessment of proposed conditions is based on a review of the following:

- The drawing titled *Nod Road Reconstruction General Plan,* developed by the State of Connecticut Department of Transportation (CTDOT) and dated 1997.
- A letter from the Connecticut Department of Energy & Environmental Protection (CTDEEP) titled *NDDB Determination Number: 202107152* and dated June 1, 2021.
- The drawing set titled *Eagle's Point A Planned Residential Community,* prepared by F.A. Hesketh & Associates, Inc., dated October 28, 2022.
- *Storm Water Management Report*, prepared by F.A. Hesketh & Associates, Inc., dated October 28, 2022.

In summary, we find that the proposed residential development will not adversely impact wetlands and watercourses or their capacity to provide typical wetland and watercourse functions on or off the property. No activities are proposed within wetlands and watercourses and, as such, no direct impacts will occur. Further, indirect impacts will be avoided through the implementation and maintenance of soil erosion and sediment control measures during construction and stormwater management best management practices (BMPs) following construction. The onsite wetlands and watercourses and the proposed development area are in separate watersheds. Additionally, save for the extension of a proposed water main, the proposed development activities are located more than 100 feet from the onsite wetlands and watercourses. As such, the development will not cause any adverse impacts from stormwater runoff during or after construction to onsite wetlands and watercourses. The only proposed development

1899 Bronson Road
Fairfield CT 06824
203 366 0588
www.wkassociates.net

activities that are within 100 feet of inland wetlands or watercourses are portions of the development activities for proposed lots 10 and 11 and the extension of a proposed water main. These activities include the construction of a portion of the house and driveway on lot 11 and related site improvements on both lots and the extension of the existing water main south of the property within Nod Road northward to the development site. The upland review area for these regulated activities is associated with either an off-site and upstream wetland and watercourse or within a paved public road. To protect on and offsite wetlands and watercourses from short-term adverse impacts, soil erosion and sedimentation controls are proposed to be installed preceding and in tandem with construction activities. To protect offsite wetlands and watercourses from long-term adverse impacts, stormwater management BMPs, specifically three water quality treatment basins, will be installed and maintained according to Town and State standards. These systems will provide mitigation for stormwater runoff generated from proposed impervious surfaces and are designed so that nearly all stormwater runoff is contained onsite and that there is no increase in peak runoff.

Existing Site Conditions

The approximate 9.3-acre undeveloped property is located at 100 Nod Road in Avon, Connecticut. Nod Road borders the property to the west and Nod Way borders the property to the north, east and south. Blue Fox Run Golf Course is located to the west of the property and the Hunters Run Development is located to the east. The Farmington River is located approximately 1,300 feet west of the property and Talcott Mountain is located approximately 2,000 feet to the east. No land-development improvements are currently present at the site besides remnants of a concrete foundation and a stone retaining wall. These are in the southern and southeastern portions of the site. The property is relatively flat to the north and the south. However, in the central and western portions of the property, various fill piles, likely from the construction of the new Nod Road or demolition of the existing structures, create variable topography. Surface water and subsurface groundwater generally flows to the west. However, the fill piles along the central and western portions of the site generally restrict surface water flow.

Historic aerial photographs from 1934 to 2016 were used to identify land-use changes at the site throughout the years, including the relocation of Nod Road and creation of Nod Way around 1997. Documentation from the CTDOT was used to investigate further the long-term changes, including modifications to the subject property. From 1934 to 1970 the property was maintained as a farm with various fields that stretched from the former Nod Road (Nod Way) in the east, all the way to the west (on the current Blue Fox Run Golf Course) up to the Farmington River. Around 1997, the new Nod Road location was constructed, establishing the current western property boundary. The road construction resulted in several changes to the pre-existing flow of surface and subsurface water on and offsite. A portion of the stream and bordering wetland near the southern portion of the property were eliminated with the road construction. A segment of the stream immediately east of the new road location was channelized and wetlands were disturbed. The new roads included curbing and new catch basins, which capture and divert stormwater runoff. Due to the curbing and related catch basins and piping, stormwater runoff from portions of Nod Way and other land to the east is directed to one outlet pipe that discharges

to the central portion of the property. Most of the stormwater runoff that flows from this pipe infiltrates through onsite soils and leaves the site as groundwater, not surface water. To accommodate surface water that might flow from the site, the construction of the new Nod Road, west of the site, includes a culvert below the road that outlets at land to the west. The other major change to the natural flow of surface and subsurface water that resulted from the relocation of Nod Road and construction of Nod Way was that a watercourse near the north end of the property (that is evident in 1986 to 1995 historic aerial photographs) that originally entered the property from the east, under the road, and flowed along Nod Way heading further north, was piped for about 590 linear feet underneath Nod Way. Today, it outlets approximately 200 feet from the northwestern property corner just east of a manmade pond after passing beneath a cart path on the neighboring gold course. In addition to the changes to the natural drainage of the property and nearby land, historic aerial photographs from 2004 show evidence of the planting of conifers along Nod Road on soil berms created at the time of the road construction. As of the 2016 aerial photograph, the dwelling on the property had been demolished and the site was abandoned.

The vegetative cover at the property primarily consists of a woodland in the southern portion of the property and a meadow in the northern and central portions. The woodland consists of a dense stand of young red maple and American hornbeam in its northern portion and a less dense southern portion consisting of a planted row of eastern white pine bordering the onsite wetland and watercourse and some mature black locust, weeping willow, and ash trees. Due to the denseness of the canopy in the northern portion of the woodland, very little to no shrubs, vines or groundcovers are present in this area. In the less dense southern portion, some invasive multiflora rose and common privet shrubs are present. Invasive oriental bittersweet vines are also common in the southern portion of the woodland and are ensnaring the planted eastern white pines. Groundcovers are only found in the southern portion of the woodland and are limited to native goldenrod and invasive garlic mustard.

The meadow consists of a more diverse successional area in the southern and central portions and a more maintained open area in the northern portion. Young boxelder maple trees are most dominant in the southern portion of the meadow and are interspersed with aspens. In the central portion of the meadow, young black locusts, and eastern white pine saplings, as well as more mature shagbark hickories, red oaks and white oaks that border the access to the site, are present. Some staghorn sumac borders Nod Way in the northern portion of the meadow. Invasive multiflora rose shrubs and other brambles are interspersed throughout the southern portion of the meadow. Oriental bittersweet vines are present throughout the meadow ensnaring lone trees or forming thick shrub-like mats. Goldenrod is a common meadow plant. The southern portion of the meadow is more diverse and includes other groundcovers such as asters and little bluestem. Invasive Japanese knotweed borders the northern property boundary along Nod Way.

Additional vegetative communities include a planted row of conifers interspersed with deciduous trees along the soil berm that borders Nod Road to the west and a patch of lawn at the southernmost point of the property. The planted conifers include spruce and eastern white pine, and the deciduous trees include black locust and ash. Multiflora rose shrubs, oriental bittersweet

vines, goldenrod, and soft rush groundcovers are also within this area. The lawn area has a mix of Carolina horsenettle, common milkweed and great mullein intermixed with the maintained lawn. There is limited deadwood at the site and surface stones are also limited to areas surrounding fill piles from the past dwelling's demolition. Upland soils primarily consist of excessively to well-drained silty and sandy loams formed from glacial outwash or well to somewhat poorly drained human-altered soils, specifically along the soil berm.

One inland wetland and watercourse system is present at the property. The wetland and watercourse, which consists of a small stream and bordering woodland wetland fringe, is in the southern portion of the property. The stream extends and flows east to west, entering the property to the east from a culvert beneath Nod Way and exiting to the west through a culvert under Nod Road. This wetland and watercourse system is in a separate watershed from the rest of the property. At the time of investigation, the stream's banks were frozen, and the maximum water depth ranged from half a foot deep to one foot deep. The streambed consists of cobbles and gravel. The southern bank of the stream is much steeper than the northern bank, which on the northern bank, a line of eastern white pine trees had been planted. The woodland fringe of the stream has a few ash saplings along the banks as well as native spicebush and red osier dogwood shrubs and invasive multiflora rose and Japanese barberry shrubs. Oriental bittersweet and wild grapevines grow along these shrubs and entwine themselves onto the eastern white pines bordering the stream. This has resulted in some smaller pines toppling over into the stream. At the western end of the stream, where it enters the culvert along Nod Road, the wetland fringe encompasses a small depressional area covered in deadwood and groundcovers. This depressional area was the channel path before the construction of Nod Road and alteration of the channel location. Arrow-leaved tearthumb, Carolina horsenettle, asters and invasive garlic mustard are within this portion of the wetland. Wetland soils are primarily poorly drained and are forming from human-altered deposits.

The primary characteristics of the onsite wetland and watercourse system are noted in the following table.

***Table One:** Wetland & Watercourse Primary Characteristics*

WETLAND ID	PRINCIPAL SOURCE(S) OF HYDROLOGY	WATER TABLE TYPE	HGM CLASSIFICATION	USFWS CLASSIFICATION	VEGETATION COVER TYPE(S)
STREAM & WOODLAND WETLAND FRINGE	SURFACE & GROUND WATER INTERCEPTION	APPARENT	RIVERINE	R2UB1[1]	WOODLAND

[1]*Riverine (R); Lower Perenial (2); Unconsolidated Bottom (UB); Cobble-Gravel (1)*

The primary function of the stream is water conveyance and groundwater discharge, which are being performed at a high level. The stream and woodland wetland fringe also export detritus to a moderate degree. The system also contributes to the abundance and diversity of wetland flora and fauna; however, the prevalence of invasive vegetation portions of the system diminishes its ability to provide for these functions.

Another stream is located offsite to the east of the northern portion of the property. The stream flows into a culvert beneath Nod Way. The culvert extends about 590 linear feet along Nod Way and below Nod Road before it ends northwest of the property, west of Nod Road. From there, the offsite stream flows further northwest, away from the site. This stream belongs to a different watershed than the onsite stream. Both streams, on and offsite, drain toward the Farmington River, west of the property.

According to CT DEEP Natural Diversity Data Base (NDDB) Determination No.: 202107152 the development site is within an area where a state-listed species, eastern box turtles (*Terrapene carolina-carolina*) have been documented. Eastern box turtles are listed as state species of special concern because of road mortality, habitat fragmentation and poaching on a dwindling population. The development site has the potential to serve as habitat for eastern box turtles, specifically due to the site containing "*well-drained forest bottomlands and a matrix of open deciduous forests, early successional habitat, fields, gravel pits and powerlines*" as referenced in the NDDB determination.

Proposed Site Conditions

The proposed development includes a fourteen-lot residential subdivision with the construction of thirteen single-family residences on thirteen lots (approximately 0.2 acres each) and the construction of eight multi-family buildings on one lot of approximately 6.5 acres. Additional improvements include paved walks, drives and parking areas, landscape walls and planting and site utilities. Public sanitary sewer lines and water mains will service each residence and the multi-family buildings. The only portions of the proposed development activities that fall within a 100-foot upland review area for a wetland or watercourse are within the northeastern and southwestern portions of the development. The northwestern construction activities are within the 100-foot upland review area of the offsite and upstream wetland and watercourse. These activities include the construction of a portion of the house and driveway on lot 11 and related site improvements on both lots. Although these activities are within 100 feet of the watercourses, the associated land area and improvements do not drain to the northern offsite stream because it is in a different drainage area. Southwestern construction activities within the 100-foot upland review area of the onsite, southern wetland and watercourse are the extension of a water main within the paved Nod Road. These activities will not adversely impact the southern wetland and watercourse, as the water main extension work will occur entirely within the paved street and will be relatively brief and will result in only relatively narrow and short segments of trenching that will be backfilled daily.

Overall, the development will result in an increase in impervious coverage. To mitigate and manage stormwater runoff from these impervious surfaces, three water quality treatment basins are proposed. These basins will manage runoff from each of the single-family residences as well as the multi-family buildings and the associated impervious surfaces. In addition to managing onsite stormwater runoff, the development has been designed to also manage the stormwater runoff from Nod Way and from land to the east, that currently discharges to the property via a culvert from Nod Way.

To conserve and protect eastern box turtles that might be present onsite as noted in the CT DEEP NDDB Determination No.: 202107152, a Turtle Management Plan will be prepared and followed. The Turtle Management Plan will be in accordance with the standards indicated by the CT DEEP in their "recommended protection strategies for turtles". The plan will entail maintaining complete enclosure of the development site with silt fencing firmly keyed to substrate to prevent turtles from entering the active work zone. Entrances to and from the work site will have exclusionary fencing erected at the end of each workday to prevent turtles from entering the work area during the evening. Exclusionary fencing will be checked each day prior to construction activities to verify no openings were created for turtle entrance. If turtles are found within the development site, they will be removed carefully, and their existence will be reported to the CT DEEP.

Potential Impacts and Mitigation

Land development has the potential to cause direct and indirect impacts to inland wetlands and watercourses in the short- and long-term from activities such as vegetation clearing, soil filling, excavation and/or pollution of stormwater. The proposed site improvements are designed to avoid direct and indirect impacts in the short and long-term through the incorporation of various BMPs such as a soil erosion and sediment control measures and stormwater management measures.

No activities are proposed within wetlands and watercourses, and, as such, no direct impacts will occur.

In the short-term, wetlands can be indirectly impacted from sediment-laden stormwater from the proposed construction activities. There is little to no potential for indirect adverse impacts from sedimentation or turbid stormwater runoff from the site because little to no stormwater runoff is expected to leave the property and because the nearest downstream inland wetland and watercourse is more than 200 feet from the property. The nearest upstream inland wetland and watercourse from the property is less than 100 feet from the northwestern corner of the property. Although this portion of development falls within the 100-foot review area of both these wetland and watercourse systems, adverse impacts to them are not expected to occur due to either the northern offsite watercourse being upstream of the development, or the activity proposed within the review area of the southern onsite watercourse being entirely confined within the paved Nod Road. Nonetheless, extensive control measures are proposed to be installed and maintained in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* published by the CT DEP to manage the land disturbance from the development. The primary proposed sediment control measures are temporary perimeter sediment-control fencing and sediment traps. These, and other control measures such as a stabilized construction entrance, will be installed before grubbing and grading the remaining portions of the property to be developed. Construction sequencing has also been provided by the engineer for the proposed development. As construction progresses, other soil erosion and sediment control measures will be used such as erosion control blankets on steep slopes, sediment trapping sacks in proposed catch basins and riprap pads at pipe outlets. These control measures have been provided by the engineer to maximize protection to wetlands and

watercourses and the monitoring and maintenance of all control measures are required to ensure efficacy throughout all phases of construction.

In the long-term, and if not properly mitigated, wetlands and watercourses can be indirectly adversely impacted by stormwater runoff that flows from buildings, pavement, and vegetated surfaces. This will not occur with the proposed development due to the proposed stormwater management plan. The development will result in an increase in impervious cover at the property. As such, the development includes a stormwater management plan to mitigate for changes to stormwater runoff resulting from the increase in impervious cover. Three water quality treatment basins are the primary stormwater management measures and are proposed along the western and north-central portions of the property, extending north to south. These basins are proposed to be dry infiltration basins, designed to capture 100 percent of the water quality volume generated from both the proposed thirteen single-family residences, the multi-family buildings, and other proposed impervious surfaces. These basins will allow captured stormwater to settle and gradually infiltrate surrounding soils. The basins will also allow for pollutants carried by stormwater runoff to be adsorbed or transformed via biofiltration due to the installation of a variety of native vegetation within the basins. Red maple, pin oak, American elm, serviceberry, white fir, eastern white cedar, white spruce, and eastern white pine tree saplings as well as silky dogwood, grey dogwood, red osier dogwood, elderberry and arrowwood viburnum shrubs are proposed to be planted in and along the basins. These native plantings will also provide ecological benefits by providing habitat and foraging opportunities for mammals and birds. Hooded outlets are also proposed in key catch basins to trap floating volatile pollutants and debris. A subsurface pipe network, which extends east to west through the site, will convey offsite stormwater runoff from Nod Way and land to the east. The pipe will be perforated for about half its length, allowing stormwater to infiltrate the surrounding soils, maintaining the existing drainage patterns while also allowing for a means to convey stormwater westward in a critical storm event. According to the project engineer, the implementation and maintenance of these BMPs and drainage easement will result in no increase to the peak discharge rate of runoff from the site.

The implementation of these stormwater management features will prevent adverse indirect impacts from stormwater runoff to wetlands or watercourses, including the Farmington River, which is approximately 13,00 feet west of the site. The two tributaries within the scope of this development that drain into the Farmington River are the northern, offsite piped watercourse and southern onsite watercourse. Additionally, groundwater also feeds the Farmington River. The southern onsite watercourse and the proposed development are within separate drainage areas. As such, no impacts to it, nor the Farmington River further downstream will occur. The northern offsite watercourse is upstream of the proposed development. Its closest downstream approach to the development site is where it enters a culvert beneath Nod Way. Stormwater runoff from the proposed development will not affect this watercourse as it is retained onsite and not connected in any way to this watercourse. As such, this too will not impact the Farmington River. The last method of onsite stormwater reaching the Farmington River is through groundwater discharge. As the development will retain stormwater onsite, allow it to infiltrate and be cleaned by surrounding soils, and then pass as groundwater approximately 1,300 feet west

below ground, still receiving treatment along the way, impacts resulting from groundwater discharge from the development will also not impact the Farmington River.

Wetlands Functions and Values: Existing versus Proposed Conditions

A comparison of the capacity of the onsite wetland and watercourse systems to perform typical wetland and watercourse functions before and after the completion of the proposed site improvements. This comparison was generated by evaluating the existing wetland functions and anticipated wetland functions after construction of the development within the context of typical wetlands functions and values as established by Normandeau Associates, Inc. in the 1998 publication, *A Rapid Procedure for Assessing Wetland Functional Capacity.* Wetland functions are those self-sustaining properties of a wetland that exist in absence of society.

The comparison of the existing wetland functions and the anticipated wetland functions following implementation of the proposed development revealed that the wetland functions will be maintained from the existing condition. A summary of this evaluation is presented in the table below.

Table Two: *Wetland and Watercourse Functions: Existing versus Proposed Conditions*

WETLAND FUNCTIONS	RELATIVE CAPACITY TO PERFORM FUNCTION		FUNCTIONAL DETAILS
	EXISTING	PROPOSED	
STREAM & WOODLAND WETLAND FRINGE			
Modification of Groundwater Discharge	*MODERATE*	*MODERATE*	***Unchanged*** *- The capacity of the wetland to influence the amount of water moving from ground water to surface water will not be altered with the proposed development.*
Modification of Groundwater Recharge	*LOW*	*LOW*	***Unchanged*** *- The capacity of the wetland to influence the amount of water moving from surface water to ground water will not be altered with the proposed development.*
Storm and Flood Water Storage	*LOW*	*LOW*	***Unchanged*** *- The capacity of the wetland to store floodwater will not be altered with the proposed development.*
Modification of Water Quality	*LOW*	*LOW*	***Unchanged*** *- The capacity of the wetland to modify water quality will not be altered with the proposed development.*
Export of Detritus	*MODERATE*	*MODERATE*	***Unchanged*** *- The capacity of the wetland to export organic detritus from the wetland to the adjacent and downstream aquatic ecosystems will not be altered with the proposed development.*
Contribution to Abundance and Diversity of Wetland Flora	*MODERATE*	*MODERATE*	***Unchanged*** *- The wetland's capacity to contribute to the abundance and diversity of wetland flora will not be altered with the proposed development.*

Contribution to Abundance and Diversity of Wetland Fauna	*MODERATE*	*MODERATE*	***Unchanged** - The wetland's capacity to contribute to the abundance and diversity of wetland fauna will not be altered with the proposed development.*

Conclusions

We completed an assessment of existing and proposed wetland conditions at 100 Nod Road in Avon, Connecticut. Based on this assessment, we conclude that the proposed development will not adversely impact inland wetlands or watercourses on or off the site. Thank you for your consideration of this information. If you should have any questions or comments, please do not hesitate to contact us at (203) 366-0588.

Sincerely,

William L. Kenny, PWS, PLA
Principal

Alexander Wojtkowiak
Soil Scientist

Ref. No. 5044

Tab 7

HINCKLEY ALLEN

MEMORANDUM

TO: Chair Feldman, Commission Members and Mr. Peck

SUBJECT: Nod Road Reconstruction, 1997

DATE: November 15, 2022

As discussed at Tab 1, prior to 1997, Nod Road, north of Route 44, featured a sharp turn to the east and then a sharp turn back to the west. The land between these curves had been historically part of a farm, but in the 1990's was part of the Blue Fox Run golf course. In 1997, the Town of Avon straightened the road, by paving a connection between the two curves resulting in the 9.3 acre parcel that is the subject of this application.

To construct Nod Road, the Town redirected and channelized an existing watercourse on-site at the south end of the newly-created 9.3 acre parcel; and did the same to a small watercourse at the northeast corner of the new parcel. Both streams now enter and exit the subject property from culverts installed as a result of the Town's roadwork in 1997 under Nod Way and Nod Road. The onsite watercourse flows east to west and is a segment of a small stream, with a bordering fringe of woodland wetland. This stream enters the subject property to the east from the culvert under Nod Way, and exits the property to the west from the culvert under Nod Road. On the east side of Nod Way, is a small stream that ends at a subsurface culvert. The culvert extends and conveys water several hundred feet to a point that is northwest of the northwestern property corner, on the west side of Nod Road. The 1997 Connecticut DOT Nod Road Reconstruction Plans detail excavation, regrading and installation of 25m trapezoidal channels for drainage regarding both sites. See D-QQ-162-64 at Tab 7.

Attached are the 1993 wetlands permits from the Town for the 1997 reconstruction, as well as illustrative plans. Although the reconstruction required a water diversion permit from the State DEEP, we have found no such record of a permit.

Thus, the regulated watercourses on the subject property are the relatively recent result of regulated activities conducted by the Town of Avon. This wetlands application preserves the existing drainage and discharge put in place by the Town.

CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATEWIDE INLAND WETLAND & WATERCOURSE ACTIVITY REPORTING FORM

In accordance with the requirements of Section 22a-39-14 of the Regulations of Connecticut State Agencies, this form is to be completed for each action. Completed forms for all reportable actions during a calendar month shall be mailed to the Commissioner by the local agency no later than the 15th day of the month following the month in which the action was taken. (See instructions on back)

1. **TOWN:** Avon

2. **LOCATION:** (original scale copy of the USGS QUAD Map with the site outlined or pinpointed)
   USGS QUAD MAP NAME OR UNIT: Avon, Conn.

3. **APPLICANT'S OR VIOLATOR'S NAME:** Town of Avon

4. **PROJECT NAME:** Proposed Road Reconstruction - Nod Road

5. **ACTIVITY *TYPE* CODE:** (see list of codes on back, max. of 4 codes) ..... [10]
   If type code is 12 or 13, briefly describe the activity:

6. **ACTIVITY *PURPOSE* CODE:** (see list of codes on back, max. of 4 codes) ..... [E]

7. **ACREAGE OF WETLANDS AND WATERCOURSES ALTERED:** (or proposed to be altered, temporary or permanent)(for ALL agency permits, denials and enforcement actions)

   A. Wetland Soil(s) Area Altered:..... [.11 ACRES]
   Wetland soil symbols (e.g. Lg, PkA, Rn) ..... Sta/WWP

   B. If soil type is not available specify the area as follows:
   Swamp ... [_____ACRES] Marsh ... [_____ACRES]
   Bog ... [_____ACRES]

   C. Open Water Body Area Altered: ..... [0 ACRES]

8. **ACREAGE OF WETLANDS OR WATERCOURSES CREATED:** ..... [0 ACRES]

9. **LINEAR FEET OF STREAM ALTERATION** ..... [0 FEET]

10. **TOTAL ACREAGE OF PROJECT SITE:** ..... [78.05 ACRES]

For Local Agency Use Only

11. REPORTING MONTH: 5/93

12. PUBLIC HEARING HELD: Y (N)

13. ACTION: *enter letter* A
    A. permit issued
    B. permit denied
    C. permit extend/amend
    D. map amendment
    E. enforcement
    F. jurisdictional ruling

14. AGENT: M.J. Tierney, Clerk

For State Use Only

GIS CODE: _____

DATE RECEIVED

DEP/rev/10/91

TOWN
OF
AVON

60 WEST MAIN ST.
AVON, CT 06001
TEL. (203) 677-2634

LEGAL NOTICE
TOWN OF AVON

At its meeting on May 18, 1993, the Inland Wetlands Commission of the Town of Avon voted as follows:

APPL. # 366 - Town of Avon, Applicant; Chester R. Woodford, Barbara W. Little, Janet Carville and Donald Carville, Owners.

Request to 1) Excavate for drainage within 80' of a watercourse and within 40' of wetlands; 2) Install drainage within 80' of a watercourse and within 40' of wetlands; 3) Regrade within 80' of a watercourse and within 40' of wetlands; 4) Loam and seed within 80' of a watercourse and within 40' of wetlands; 5) Excavate for drainage within wetlands; 6) Install drainage within wetlands; 7) Regrade within wetlands; and 8) Loan and seed within wetlands. Location: Lot #63 Nod Road, Assessor's Map No. 4, Parcel No. 63. APPROVED WITH CONDITIONS.

Copy of this notice is on file in the office of the Town Clerk, Town Hall, Avon, CT 06001. Dated at Avon this 24th day of May, 1993.

INLAND WETLANDS COMMISSION
H. SCOTT SMITH, CHAIRMAN
REBECCA BLANKENBICKER, SECRETARY

Filed May 24, 1993
Carla B. Goldman
T. Clerk

TOWN OF AVON

FOUNDED IN 1645 INCORPORATED IN 1830

60 WEST MAIN ST.
AVON, CT 06001
TEL. (203) 677-2634

May 13, 1993

Mr. Philip K. Schenck
Town Manager
Town of Avon
60 West Main Street
Avon, Connecticut 06001

Dear Mr. Schenck:

Re: IWC Application #366

At its meeting on May 4, 1993, the Inland Wetlands Commission of the Town of Avon voted to receive the subject application - request to 1) Excavate for drainage within 80' of a watercourse and within 40' of wetlands; 2) Install drainage within 80' of a watercourse and within 40' of wetlands; 3) Regrade within 80' of a watercourse and within 40' of wetlands; 4) Loam and seed within 80' of a watercourse and within 40' of wetlands; 5) Excavate for drainage within wetlands; 6) Install drainage within wetlands; 7) Regrade within wetlands; and 8) Loan and seed within wetlands. Location: Lot #63 Nod Road, Assessor's Map No. 4, Parcel No. 63.

A Summary Ruling was voted for this application.

Sincerely yours,

Mary Jane Tierney

Mary Jane Tierney, Clerk
Inland Wetlands Commission

cc: IWC Chairman
PZC Chairman
NRC Chairman

Application #366

PRELIMINARY PROCEEDINGS
ON PERMIT APPLICATION

OWNER Chester R. Woodford, Barbara H. Little, Janet Carroll, Donald Carroll ~~Town of Avon~~

APPLICANT Town of Avon

LOCATION Lot #63 - Nod Road

ACTIVITY

		Dates
1.	Initial submission received by Clerk	4/30/93
2.	Fee received ($)	NC
3.	Initial review	5/4/93
4.	Request for additional information	
	Submission date	
5.	Official RECEIPT of application	5/4/93
6.	✓ SUMMARY PROCEEDING ____ PLENARY PROCEEDING	
7.	Notification of RECEIPT of application	
	Applicant	5/13/93
	Planning and Zoning Commission	5/13/93
	Natural Resources Commission	5/13/93
	Town Manager	5/13/93
	Other	
	*Town Clerk of adjoining municipality	

*If (1) any portion of the property affected by a decision of IWC is within 500' of boundary of adjoining municipality; (2) a significant portion of traffic to completed project will use streets within adjoining municipality to enter or exit the site; (3) a significant portion of the sewer or water drainage from project will flow through and significantly impact drainage or sewerage system within adjoining municipality; (4) water runoff from improved site will impact streets or other municipal or private property within adjoining municipality. Notice must be made by REGISTERED MAIL within 7 days of date of receipt.

Lot #63 - Nod Road
Location

APPLICATION # 366

SUMMARY PROCEEDING

1.	Official receipt of application	5/4/93
2.	Latest meeting for transfer to plenary proceeding (within 4 weeks of line 1)	
3.	Latest meeting for final action as summary proceeding (within 65 days of line 1)	
4.	Transferred to plenary proceeding	
5.	Permit: ✓ APPROVED ____ DENIED	5/18/93
6.	Letter to Applicant (within 15 days after line 5)	5/24/93
7.	Publication of legal notice	5/27/93
8.	Bonding requirements satisfied	
9.	Conservation restriction filed	
10.	Mylar submitted, signed, and filed in map room	5/18/93/5/19/93

TOWN
OF
AVON

60 WEST MAIN ST.
AVON, CT 06001
TEL. (203) 677-2634

May 24, 1993

Mr. Philip K. Schenck, Jr.
Town Manager
Town of Avon
60 W. Main Street
Avon, Connecticut 06001

Dear Mr. Schenck:

Re: **APPL. # 366** - Town of Avon, Applicant; Chester R. Woodford, Barbara W. Little, Janet Carville and Donald Carville, Owners. Request to 1) Excavate for drainage within 80' of a watercourse and within 40' of wetlands; 2) Install drainage within 80' of a watercourse and within 40' of wetlands; 3) Regrade within 80' of a watercourse and within 40' of wetlands; 4) Loam and seed within 80' of a watercourse and within 40' of wetlands; 5) Excavate for drainage within wetlands; 6) Install drainage within wetlands; 7) Regrade within wetlands; and 8) Loan and seed within wetlands. Location: Lot #63 Nod Road, Assessor's Map No. 4, Parcel No. 63.

At its meeting on May 18, 1993, the Inland Wetlands Commission of the Town of Avon voted to officially **APPROVE** the above application in accordance with your plan entitled "Proposed Road Reconstruction" (Map showing proposed wetland activity for: Nod Road), dated April, 1993, **SUBJECT TO THE FOLLOWING CONDITIONS:**

1. Standard erosion control methods (Connecticut Guidelines for Soil Erosion and Sediment Control, January, 1985) shall be utilized during construction.

2. Construction activities shall be done in accordance with the final site plan submitted to and endorsed by the Chairman of the Inland Wetlands Commission. No regulated activity shall be undertaken until such mylar has been submitted to and endorsed by the Commission Chairman.

3. The Inland Wetlands Commission Enforcement Officer, Steven Kushner, must be notified 48 hours in advance of any work within a regulated area.

4. The applicant/contractor shall schedule a preconstruction meeting with the Inland Wetlands Enforcement Officer to be held no sooner than two weeks before the wetland activities are to begin. The applicant shall, at that time, review with the Inland Wetlands Enforcement Officer the procedures to be taken to protect the wetland areas prior to and during construction. At this time, the permit will be issued subject to compliance with the letter of approval.

THIS IS NOT A PERMIT TO BEGIN CONSTRUCTION. Please read the attached cover sheet or contact the Inland Wetlands Commission Clerk with respect to the procedure for the issuance of the required permit.

Please note that this approval is valid for a period of **two** years from the date of approval. If construction has not started during this period, an extension should be requested 30 days prior to the expiration date.

Also, please note that this approval granted does not relieve the applicant from his responsibility to apply for any other permits required by local, state, and federal agencies. Specifically, the applicant is advised that a permit under Section 404 of Public Law 92-500 may be required. Additional information and applications regarding this Section 404 Permit Program may be obtained from the following: Chief, Regulatory Branch, New England Division, U. S. Army Corps of Engineers, 424 Trapelo Road, Waltham, Massachusetts 02254-9149, telephone 1-800-343-4789.

Please submit one (1) set of fixed-line photo mylar(s) and one (1) blue-line copy of the approved map(s).

Sincerely yours,

Mary Jane Tierney

Mary Jane Tierney, Clerk
Inland Wetlands Commission

HAND DELIVERED

pc: IWC Chairman
IWC Enforcement Officer
IWC Inspector
Town Engineer
Building Inspector
Health Department

TOWN OF AVON
INLAND WETLANDS COMMISSION

WETLANDS

PERMIT APPLICATION

Application # 366

APR 30

1. APPLICANT

Name Town of Avon

Business Address & Phone	60 West Main Street Avon, CT 06001 677=2634	Home Address & Phone	---- ---- ----

2. OWNER(S) OF RECORD

Name Chester R Woodford, Barbara W Little, Janet Carville & Donald Carville

Business Address & Phone	Woodford Farms 276 Nod Road 677-0115	Home Address & Phone	Same

3. DESCRIPTION OF PARCEL

Location Lot #63 - Nod Road
Area (acres) 78.05 Zoned A
Assessor's Map No. 4 Parcel No. 63

4. PERMIT APPLICATION DESCRIPTION

Complete attached page 2.

5. NAMES AND ADDRESSES OF ADJACENT PROPERTY OWNERS

Complete attached page 3.

6. This application is required pursuant to Title 22A of the Connecticut General Statutes and of Section 5 of the Town of Avon Inland Wetlands and Water Courses Regulations. Applications received pursuant to the above do not relieve the applicant of his responsibility for making application to other local, state, or federal agencies. Specifically, the applicant is advised that a permit under Section 404 of Public Law 92-500 may be required. Additional information and applications regarding this Section 404 Permit Program may be obtained from the following: Chief, Regulatory Branch, New England Division, Corps of Engineers, 424 Trapelo Road, Waltham, MA 02154 (Telephone 617/894-2400, Ext. 332).

7. The undersigned warrants the truth of all statements contained herein and in all supporting documents to the best of his knowledge and belief. Furthermore, the applicant agrees that submission of this application constitutes permission for and consent to Commission inspections of the site of proposed activity.

Philip K. Schenck / Philip K Schenck, Jr - Town Manager
(Applicant's Signature) (Print or Type Name and Title)

8. The undersigned owner(s) of record consent(s) to the submission of this application and to inspections of the site.

Donald R. Carville / Janet & Donald Carville
(Owner's Signature) (Print or Type Name)

Janet R. Carville

Application # 366

Proposed Regulated Activity and Location (List Individually)	Area (acres)	Soil Type	Wetland Type*	Wetland Functions**	Effect of Proposed Activity on Wetlands Function
1. Excavate for Drainage within 80' from a water course, 40' from a wetlands.	.06	StA WwA	WC	E & SC	No effect on Wetland function.
2. Install drainage 40' from a wetlands within 80' from a water course.		"	"	"	"
3. Regrade 40' from a wetlands within 80' from a water course.					
4. Loam & Seed within 80' from water course & 40'from wetlands.					
1 Excavate for drainage in a wetlands.	.11	StA WwA	FPS	E & SC	No effect on Wetland function.
2. Install drainage in a wetlands.		"	"	"	
3. Regrade in a wetlands.		"	"	"	
4. Loam & Seed in wetlands.		"	"	"	

*Wetland Types:

Poorly Drained Soil (PDS)
Very Poorly Drained Soil (VPDS)
Flood Plain Soil (FPS)
Alluvial Soil (AS)
Watercourse (WC)
Waterbody (WB)
Marsh Area (MA)
Intermittent Stream (IS)

**Wetland Functions:

Water Quality (WQ)
Flood Control (FC)
Wildlife Habitat (WH)
Erosion and Sedimentation Control (E&SC)
Other

Application # 366

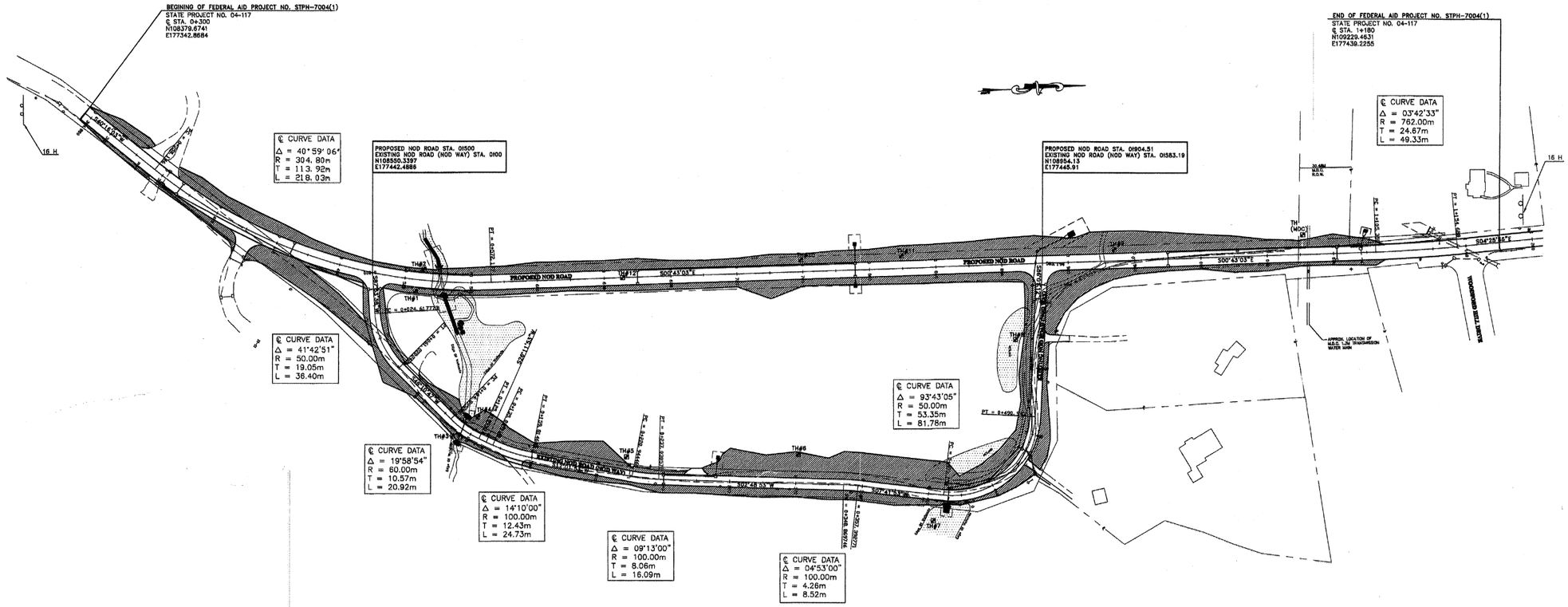
Please list below the names and mailing addresses of the owners of record of all properties that abut the parcel for which this application is made. This information is available from records in the office of the Assessor. If possible, this list should be prepared by the project land surveyor or professional engineer. This information will be used to notify abutting property owners of any public hearing which may be scheduled.

Address Abutting Property			Name of Owner	Mailing Address of Owner
Map #	Street	Parcel #		
4	Nod Road	63A	Jack A Broitman & Jansen	215 Nod Road
4	Nod Road	64	Brooke Gregory	245 Nod Road

STATE OF CONNECTICUT – DEPT. OF TRANSPORTATION FORM NO.DOT-11A REV.1-88

FHWA REGION	STATE	TOWN	FED AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
4	CONN.	AVON	STPH-7004(2)	04-117	1997		2	

NOD ROAD RECONSTRUCTION



LEGEND

- TURF ESTABLISHMENT
- APPROXIMATE LOCATION OF SERIES 16 CONSTURCTION SIGNS (EXACT LOCATION TO BE DETERMINED BY THE ENGINEER)
- TEST HOLE LOCATION

INDEX AND TURF ESTABLISHMENT PLAN

SCALE APPROX: 1"=100'

REVISIONS			
NO.	DATE	DESCRIPTION	REV. SHEET NO.

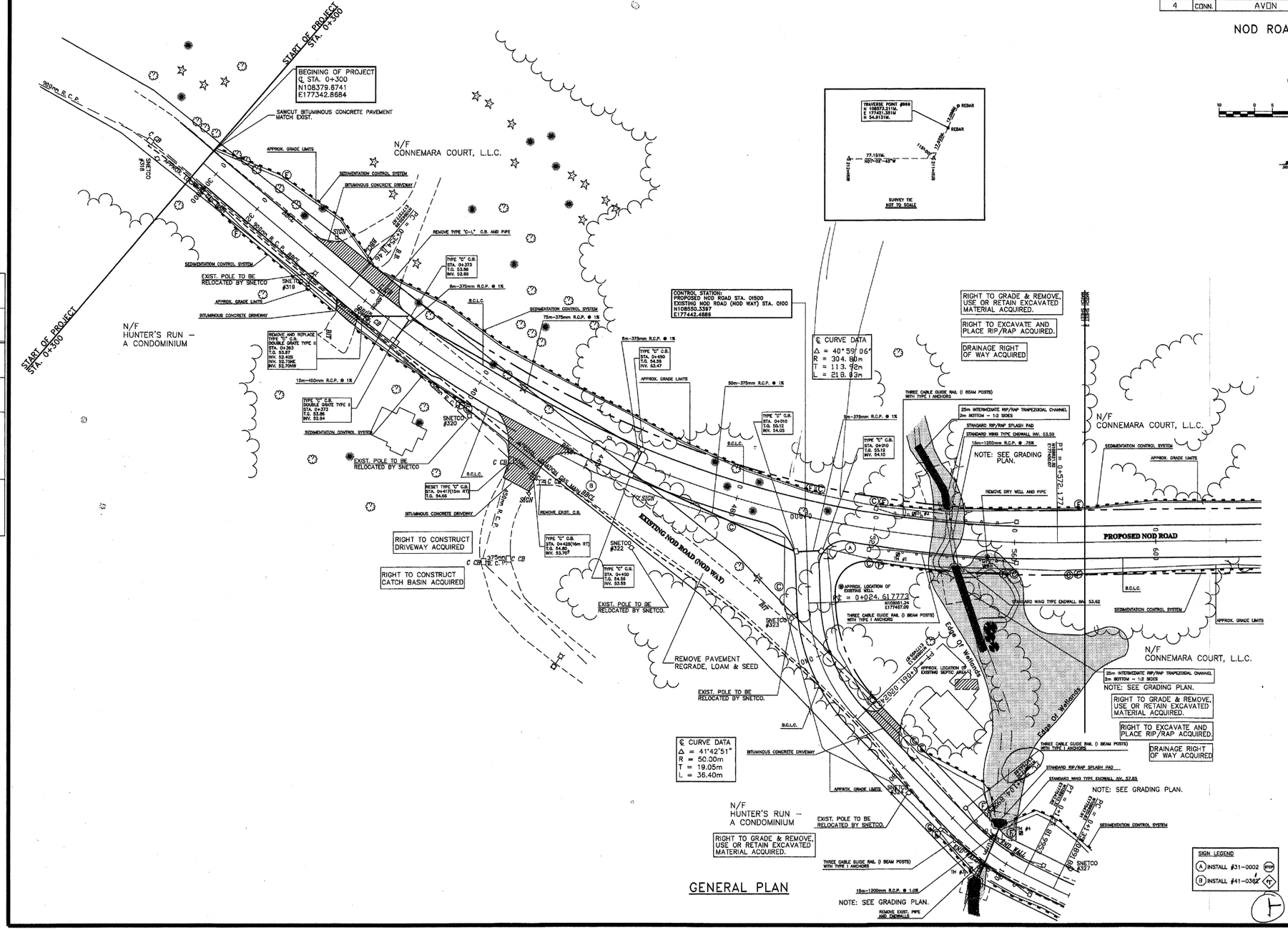
D-QQ-157

STATE OF CONNECTICUT – DEPT. OF TRANSPORTATION FORM NO.ENG.11A REV.1-85

FHWA REGION	STATE	TOWN	FED AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
4	CONN.	AVON	STPH-7004(2)	04-117	1997		10	

NOD ROAD RECONSTRUCTION

GRAPHIC SCALE
(IN METERS)
10 0 5 10 20 30 40 50
1 : 500



PROFILE	Surveyed	DATE	BY
NOTEBOOK	Plotted		
NO.	Traced		
	Designed		
	Mate Cert. Noted		
	Top Field Chk. Noted		

REVISIONS			
NO.	DATE	DESCRIPTION	REV. SHEET NO.

D-22-164

STATE OF CONNECTICUT – DEPT. OF TRANSPORTATION FORM NO.ENG.11A REV.1-86

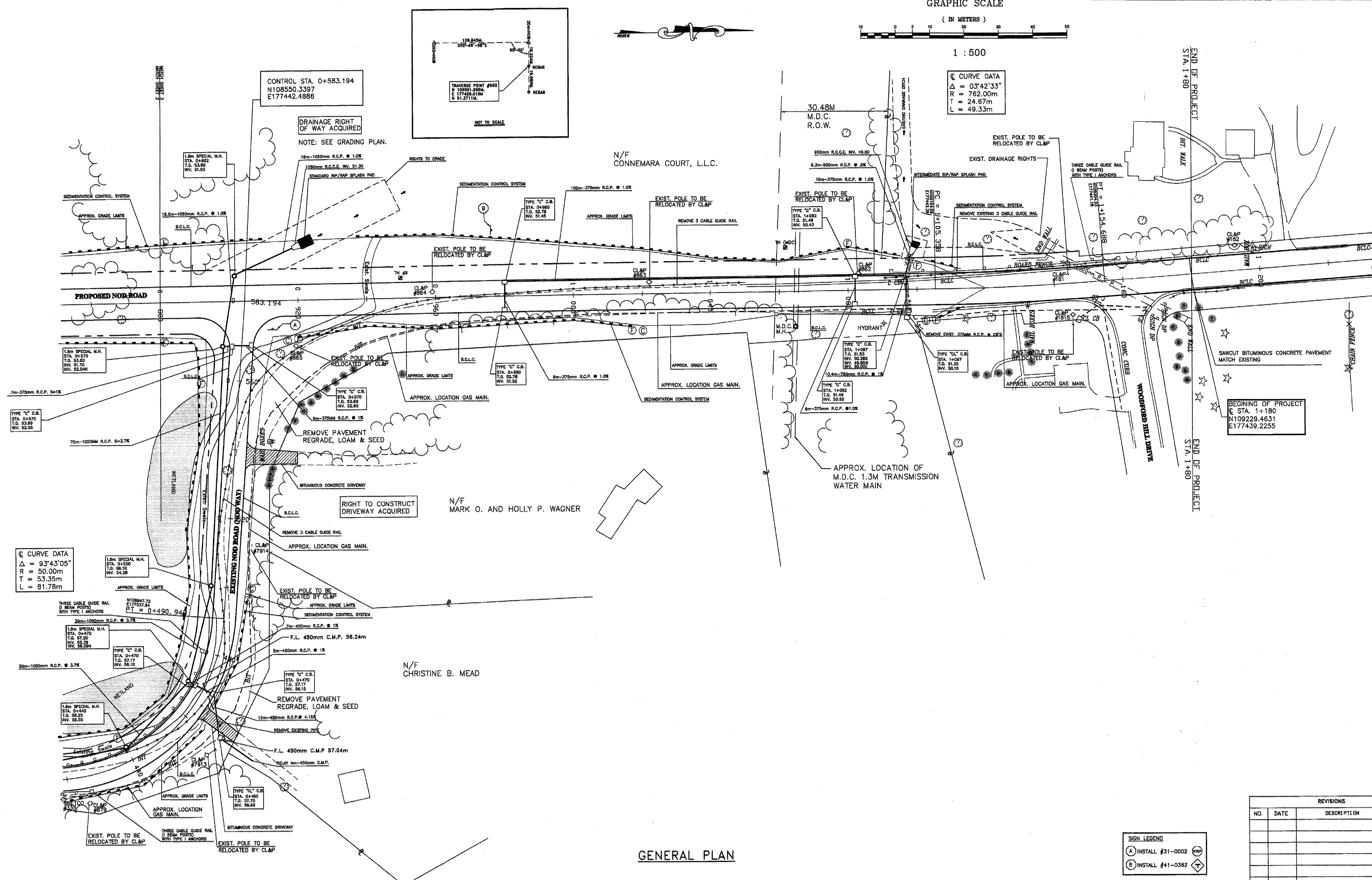
FHWA REGION	STATE	TOWN	FED AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
4	CONN.	AVON	STPH-7004(2)	04-117	1997		16	

NOD ROAD RECONSTRUCTION

GRAPHIC SCALE

(IN METERS)

1 : 500



GENERAL PLAN

SIGN LEGEND

(A) INSTALL #31-0002

(B) INSTALL #41-0362

REVISIONS			
NO.	DATE	DESCRIPTION	REV. SHEET NO.

PROFILE	NOTEBOOK	NO.
Surveyed	Plotted	Traced
Designed	New Const. Noted	Top Field Chk. Noted
BY	DATE	CHECKED BY	DATE

D-QQ-169

STATE OF CONNECTICUT – DEPT. OF TRANSPORTATION FORM NO.ENG-11A REV.1-80

FHWA REGION	STATE	TOWN	FED AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
4	CONN.	AVON	STPH-7004(2)	04-117	1997		7	

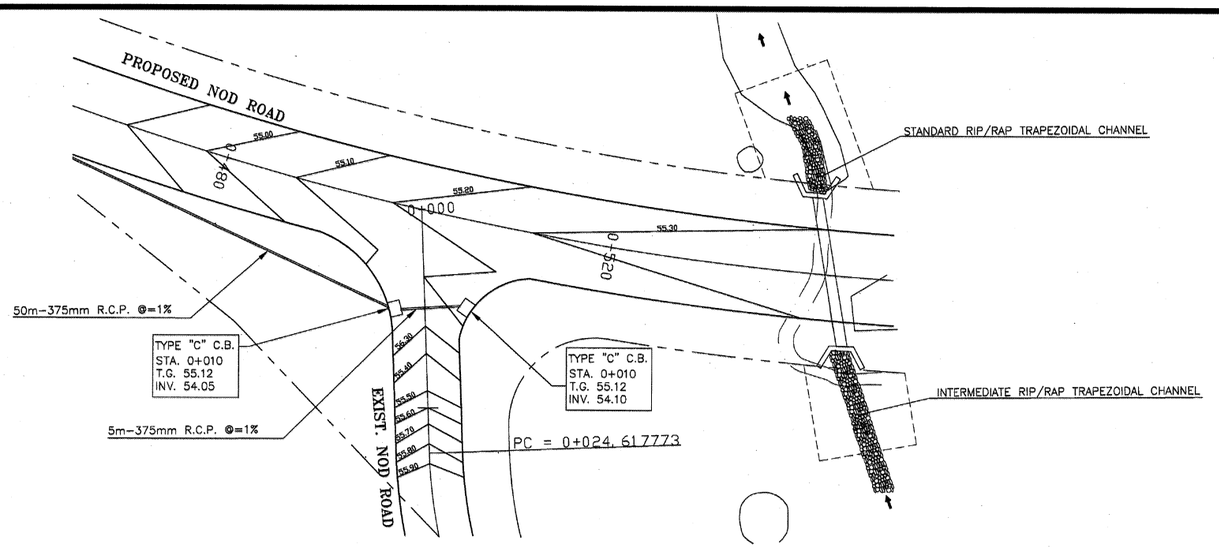
NOD ROAD RECONSTRUCTION

GRAPHIC SCALE
(IN METERS)

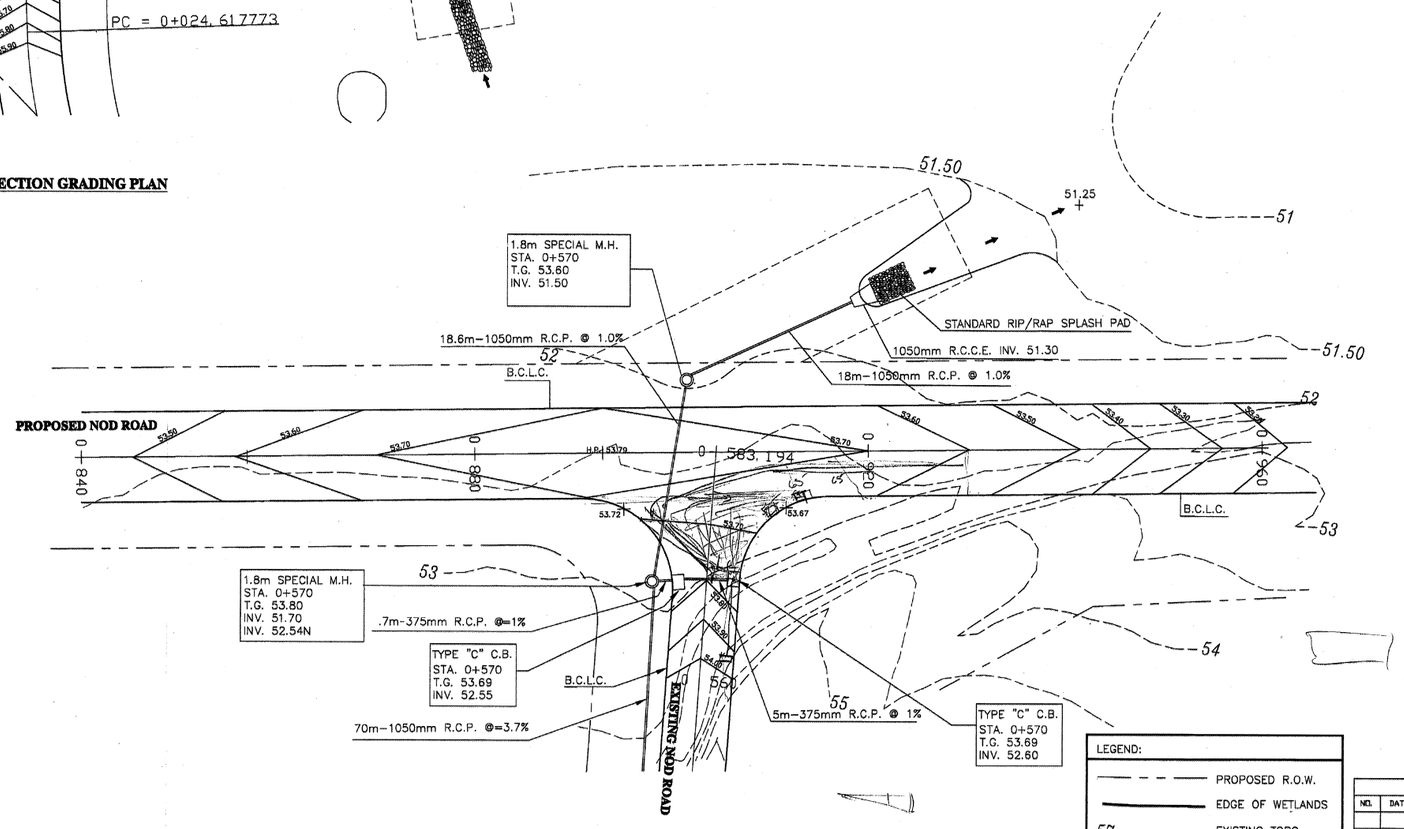
0 0 2.5 5 10 15 20 25

1:250

NORTH



INTERSECTION GRADING PLAN



INTERSECTION GRADING PLAN
GRADING PLAN FOR 1050MM R.C.C.E.
(STA. 0+920 LEFT PROPOSED NOD RD.)

LEGEND:

- PROPOSED R.O.W.
- EDGE OF WETLANDS
- 57 EXISTING TOPO.
- 56 PROPOSED TOPO.
- EXISTING STREAM

REVISIONS			
NO.	DATE	DESCRIPTION	REV. SHEET NO.

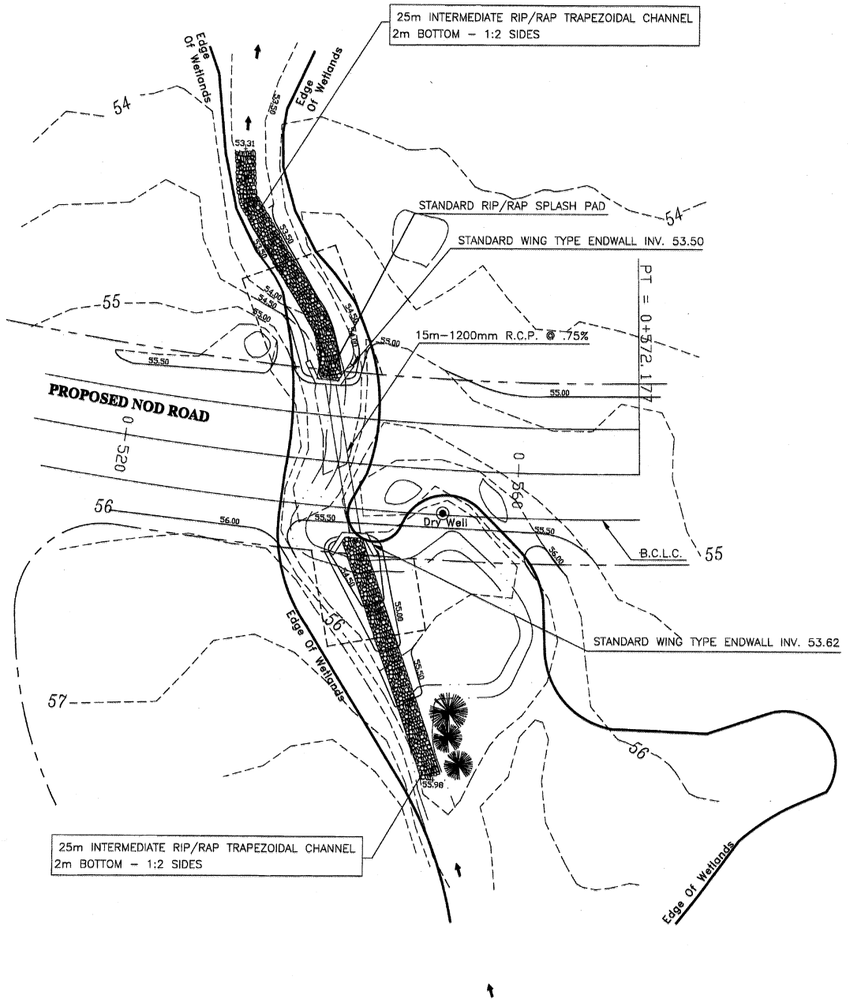
PROFILE	BY	DATE	CHECKED BY	DATE
NOTEBOOK NO.	Surveyed			
	Plotted			
	Traced			
	Designed			
	New Const. Noted			
	Top. Field Calc. Noted			

D-QQ-162

STATE OF CONNECTICUT – DEPT. OF TRANSPORTATION FORM NO.CND.11A REV.1-88

FHWA REGION	STATE	TOWN	FED AID PROJ. NO.	PROJ. NO.	YEAR	ROUTE NO.	SHEET NO.	TOTAL SHEETS
4	CONN.	AVON	STPH-7004(2)	04-117	1997		5	

NOD ROAD RECONSTRUCTION



STANDARD WING TYPE ENDWALL GRADING PLAN

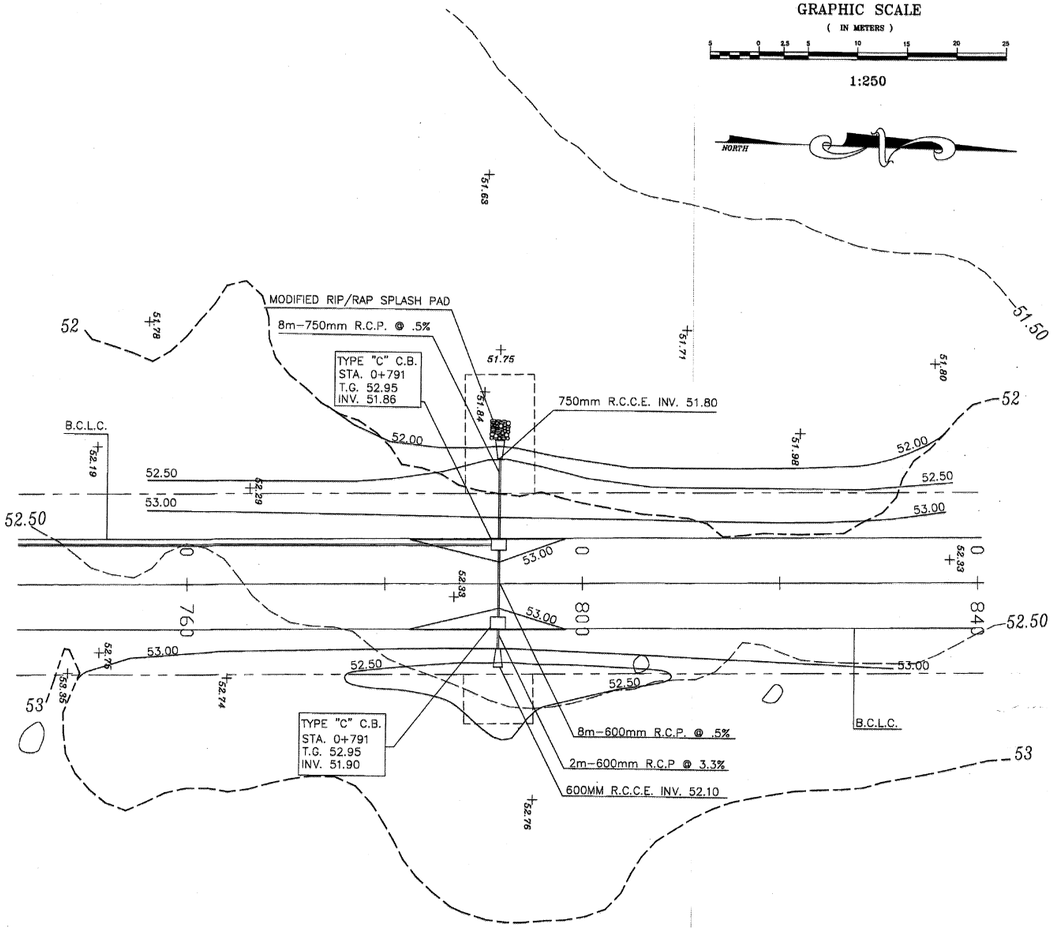
APPROX. STA. 0+540 PROPOSED NOD ROAD

GRAPHIC SCALE
(IN METERS)

5 0 2.5 5 10 15 20 25

1:250

NORTH



GRADING PLAN FOR 750MM R.C.C.E.

(STA. 0+791 LEFT PROPOSED NOD RD.)

LEGEND:

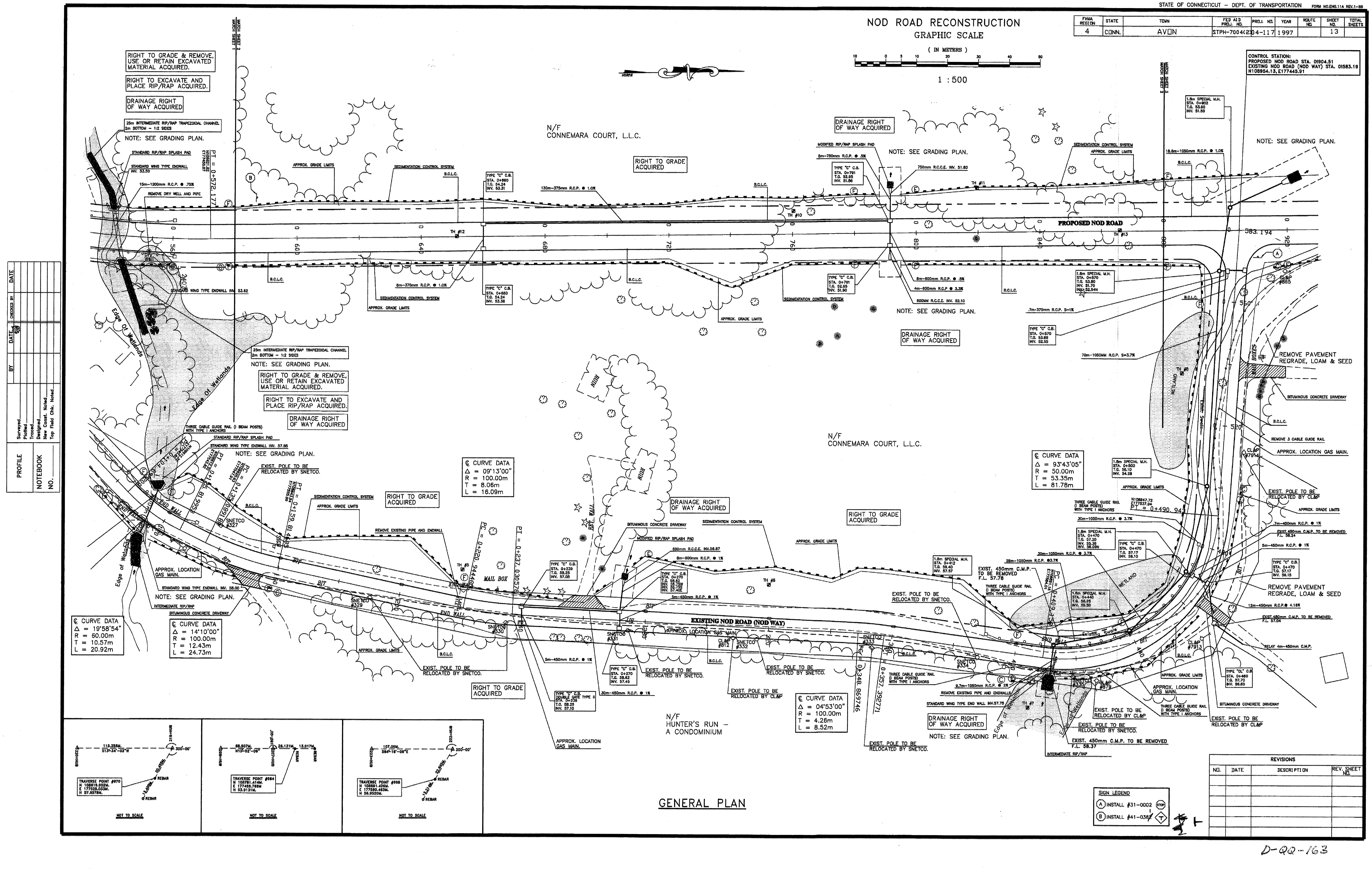
- PROPOSED R.O.W.
- EDGE OF WETLANDS
- 57 EXISTING TOPO.
- 56 PROPOSED TOPO.
- EXISTING STREAM

REVISIONS			
NO.	DATE	DESCRIPTION	REV. SHEET NO.

PROFILE NOTEBOOK NO. ____

Surveyed ____ BY ____
Plotted ____ DATE ____
Traced ____ CHECKED BY ____
Reviewed ____ DATE ____
New Const. Noted ____
Top Field Chk. Noted ____

D-00-160



STATE OF CONNECTICUT - DEPT. OF TRANSPORTATION
NOD ROAD RECONSTRUCTION
GRAPHIC SCALE
(IN METERS)
1 : 500
FHWA REGION 4
STATE CONN.
TOWN AVON
FED AID PROJ. NO. STPH-7004(2)
PROJ. NO. 04-117
YEAR 1997
SHEET NO. 13
CONTROL STATION:
PROPOSED NOD ROAD STA. 01904.51
EXISTING NOD ROAD (NOD WAY) STA. 01583.19
N108954.13, E177445.91
RIGHT TO GRADE & REMOVE, USE OR RETAIN EXCAVATED MATERIAL ACQUIRED.
RIGHT TO EXCAVATE AND PLACE RIP/RAP ACQUIRED.
DRAINAGE RIGHT OF WAY ACQUIRED
NOTE: SEE GRADING PLAN.
N/F CONNEMARA COURT, L.L.C.
RIGHT TO GRADE ACQUIRED
PROPOSED NOD ROAD
EXISTING NOD ROAD (NOD WAY)
N/F HUNTER'S RUN - A CONDOMINIUM
Edge Of Wetlands
WETLAND
REMOVE PAVEMENT REGRADE, LOAM & SEED
EXIST. POLE TO BE RELOCATED BY SNETCO.
EXIST. POLE TO BE RELOCATED BY CL&P
APPROX. LOCATION GAS MAIN.
EXIST. 450mm C.M.P. TO BE REMOVED
℄ CURVE DATA Δ = 19°58'54" R = 60.00m T = 10.57m L = 20.92m
℄ CURVE DATA Δ = 14°10'00" R = 100.00m T = 12.43m L = 24.73m
℄ CURVE DATA Δ = 09°13'00" R = 100.00m T = 8.06m L = 16.09m
℄ CURVE DATA Δ = 04°53'00" R = 100.00m T = 4.26m L = 8.52m
℄ CURVE DATA Δ = 93°43'05" R = 50.00m T = 53.35m L = 81.78m
SIGN LEGEND
(A) INSTALL #31-0002
(B) INSTALL #41-0367
REVISIONS
NO. DATE DESCRIPTION REV. SHEET NO.
GENERAL PLAN
NOT TO SCALE
PROFILE
NOTEBOOK NO.
Surveyed Plotted Traced Designed New Const. Noted Top Field Chk. Noted
BY DATE CHECKED BY DATE
D-QQ-163

Tab 8

STORM WATER MANAGEMENT REPORT

EAGLES' POINT
100 Nod Road
Avon, CT

Prepared For:

100 Nod Way LLC

Prepared By:

F. A. Hesketh & Associates, Inc.
3 Creamery Brook
East Granby, CT 06026

F. A. Hesketh
& Associates, Inc.

October 28, 2022

Table of Contents

1. Introduction

This storm water management report has been prepared to demonstrate that the storm water management practices for the proposed development meet the requirements of Town of Avon, follow sound engineering practices, and protect adjacent landowners and downstream water resources from adverse storm water impacts.

This report presents hydrologic analysis of both pre- and post-developed conditions to demonstrate that the redevelopment of the parcel will result in a net decrease in peak rate of discharge and a net decrease in total volume of runoff from the development.

This report also presents a detailed pipe to pipe design analysis to demonstrate that the proposed storm drain system that will convey runoff from areas upgradient of and through the parcel will have adequate capacity to convey runoff for a 100-year return-period storm event.

2. Development Description

The proposed development parcel is comprised of 9.30 acres and is located on the east side of Nod Road in Avon. It is bordered by Nod Way to the north, east, and south and Nod Road to the west. The site is currently vacant, but historically was occupied by a single-family home that fronted on Nod Way and a number of farm buildings. Residential uses are found to the north, east and south. A golf course (Blue Fox Run) is located to the west, on the west side of Nod Road. The location of the site and its environs are depicted on Figure 1, Vicinity Map.

The proposal includes subdivision of the parcel into 13 single-family home lots ranging from 0.20 to 0.26 acres, and a larger 6.52-acre piece that will include eight separate building structures in a common-interest ownership community. The eight buildings will include a total of 42 town-house units. A new private driveway that intersects with Nod Road and Nod Way will provide access to the town house units. Each of the single-family homes will have driveway access directly to Nod Way.

A number of new storm drain collection systems are proposed to manage stormwater runoff within the site and to convey runoff currently entering the parcel from a storm drain system on Nod Way and convey it through the parcel. The storm drain systems will consist of catch basins, manholes and culverts. Water quality/infiltration basins are also integrated into the design. These basins are sized to capture and treat runoff generated by the developed portions of the parcel and infiltrate it into the underlying sands and gravels.

The proposed development will be serviced by existing sanitary sewers available in Nod Way. Sanitary sewage from the proposed development will be handled by new gravity sanitary sewers, a new, small pump station and a new sanitary force main. The sewage will be discharged into the existing sanitary sewer in Nod Way. Potable water will be brought to the site via an extension of the existing 12" CT Water Co. water main currently

located on Nod Road south of the site. Electric and communications services will be provided via existing services in Nod Road and Nod Way.

3. Background of Stormwater Management

Historically, the development parcel received run-on from significant watershed areas east of the site. The sources of run-on included:

1. a watercourse that conveyed flow from an area east of the development parcel, passed under the former Nod Road (now Nod Way) and then traversed the northern boundary of the parcel in what appears to be a man-made ditch that ran adjacent to the south side of the former Nod Road (North Watercourse);
2. a watercourse that conveyed runoff from an area east of the development parcel, passed under the former Nod Road and traversed the southern tip of the parcel (South Watercourse); and
3. overland flow from the area directly to the east of the development parcel which appears to have been discharged across the former Nod Road and onto the development site.

The sources of the historic run-on are depicted graphically on Figure 2.

The Town of Avon developed plans for the relocation of Nod Road in 1997 and constructed the roadway improvements shortly thereafter. (See Figure 2.) The improvements included eliminating the serpentine configuration of the former Nod Road (now Nod Way) in the area of the development parcel and constructing a new, straight length of roadway adjacent to what is now the golf course and what now defines the western property boundary of the development parcel. The serpentine section was reconstructed and renamed Nod Way and the new straight section, Nod Road.

Part of the town roadway reconstruction included installation of a new storm drain system to replace the open drainage ditch that ran along the northern boundary of the development parcel and which previously conveyed the North Watercourse. With the installation of the new storm drain, the open ditch was filled. This system included approximately 680 linear feet of 42-inch diameter concrete culvert, several manhole structures and concrete flared end outlet structure. New storm drain catch basins were installed in the northern section of Nod Way and interconnected with 42-inch storm drain system. The outlet structure for this 42-inch system was installed on the west side of Nod Road to discharge via a new excavated ditch to a large manmade pond located on the golf course.

The town roadway reconstruction also included adding new cross culverts and reshaping and armoring the channel of the South Watercourse to convey runoff though the southern tip of the development parcel from the east side of Nod Way to the west side of the new Nod Road segment via culverts installed under the two roadways. To better handle the overland runoff that entered the parcel from the area to the east, a new storm drain system was constructed on Nod Way at the approximate center of the eastern boundary of the development parcel. These improvements included installation of catch basins to collect

runoff in Nod Way and runoff from overland areas to the east and a new 24-inch diameter stormwater outfall onto the subject development parcel in the areas just north of the driveway curb cut.

Improvements on the new straightened length of Nod Road included construction of a new storm drain system in Nod Road near the center of the eastern boundary of the development parcel. This system collects runoff from both Nod Road and the subject development parcel and discharges the runoff via a 30-inch diameter stormwater outfall west of Nod Road. A new 24-inch diameter culvert inlet is integrated into this system to drain runoff from the development parcel through the 30-inch culvert to the west side of Nod Road. During significant rainfall events, flow from this 30-inch outfall is directed to an excavated drainage ditch constructed by the town that runs northerly along the west side of Nod Road and eventually discharges to the large manmade pond on the golf course via a 12" culvert somewhat in proximity to the 42-inch outlet described above.

The improvements described above are shown generally on the attached Figure 2.

4. Hydrologic Analysis

The design of the stormwater management systems for the proposed development is aimed at mitigating total peak rate of runoff and total volume of runoff generated by the development and in promoting stormwater infiltration from the developed portion of the site. In addition, the design provides for bypassing off-site flow that enters the site from off-site areas to the east and then directing them to the existing discharge locations described in Section 3 above.

Hydrologic analysis was conducted for both the existing condition and the proposed developed condition of the site to determine peak flow of runoff and total volume of runoff, under both conditions, to the point of analysis, Design Point B. Design Point B is the ultimate discharge point west of the development parcel for storm drainage discharges from the proposed development. It includes discharges from the outfall of the existing 30-inch diameter Nod Road cross culvert and contributions from the development parcel that drain into the 42-inch drainage system in Nod Way. Design Point B is depicted on Drawings DA-1 and DA-2.

Hydraflow Hydrographs 2007 computer software was utilized in the analysis. Because of the small size of the watersheds, the Rational Method was used in the analysis. For longer flow paths, times of concentration were calculated using the TR55 methods provided in the Hydraflow software. For smaller watersheds, a time of concentration of 10 minutes was assumed.
Surficial Soil mapping indicate that the site soils in the areas of proposed development are predominately Agawam (Hydrologic Group B soils), Manchester (Hydrologic Group A soils), and Wethersfield and Winooski series soils (Hydrologic Group C soils). (See Attachment 1.) The majority of the proposed developed area of the site fall under Hydrologic Group A and B soils.

Rational Method Runoff Coefficients for the various land-use types were based on the following values (per Tables 6-4 and 6-5 of CT DOT Drainage Manual):

- C=0.90 for impervious areas (i.e. rooftops and paved areas);
- C=0.15 for all landscaped areas (Type A and B soils); and
- C=0.12 for all wooded areas (Type A and B soils)

An ascending limb factor of 1.0 and a descending limb factor of 1.667 were used for the Rational Method unit hydrograph. Analysis was performed for the 2-, 5-, 10-, 25-, 50-, and 100-year return period storm events, using the current point precipitation frequency estimates (NOAA Atlas 14 data) for the subject parcel published on the NOAA website. Precipitation data is included in Attachment 2. Times of concentration for the analysis were determined using TR-55 methods for overland, shallow concentrated and channelized flow for the larger watersheds, and assumed to be ten minutes for the smaller watersheds.

The majority of runoff from the proposed developed portion of the site under both existing and proposed conditions ends up at the inlet of an existing 30-inch diameter Nod Road cross culvert that outfalls west of Nod Road, adjacent to the golf course. A small portion of the eastern portion of the development parcel with frontage along Nod Way drains to and gets picked up by a storm drain system in Nod Way. This same storm drain system also collects runoff from an approximate 10-acre area east of Nod Way and discharges onto the subject development parcel through a 24-inch culvert outfall. This 24-inch outfall was modeled as Design Point A which is depicted on Drawings DA-1 and DA-2. Flow from the outfall of the 24-inch culvert discharges onto the site, combines with the flow from the proposed developed portion of the site and ultimately flows to and discharges the site through the existing 30-inch diameter Nod Road culvert.

A small portion of the northern area of the development parcel immediately adjacent to Nod Way flows to and gets picked up by the town storm drain system in Nod Way. This storm drain system is comprised of a number of lengths of 42-inch diameter storm drain culverts and manholes designed to convey runoff from a larger off-site watershed area north and east of the proposed development parcel (North Watercourse) and a number of interconnected catch basins designed to collect roadway and adjacent runoff along Nod Way. The systems traverses Nod Road and outfalls west of the roadway on the golf course property north and west of the proposed development parcel. The amount of runoff from the development parcel that drains to this storm drain system is di minimis. The analysis, however, includes a comparison of both existing and proposed flow contributions from the development parcel to this system. For the hydrologic analysis, the total flow to the area west of Nod Road was included in the analysis with the outflow from the 30-inch Nod Road cross culvert and modeled as Design Point B which is depicted on Drawings DA-1 and DA-2.

A small portion of the 9.3-acre development parcel drains into a watercourse that traverses the southern tip of the parcel (South Watercourse). This watercourse is hydrologically separated from the development portion of the parcel. There will be no changes to this watercourse or its contributory area from the proposed development. This

watercourse and its contributory catchment area are therefore not included in this hydrologic analysis.

Existing Condition Analysis

Under existing site conditions, three watersheds were identified and analyzed:

1) A watershed that collects runoff along a portion of Nod Way and off-site areas to the east which discharge onto the subject parcel via a storm drain outlet. This watershed is identified as WS-EAST-EX on Figure DA-1.
2) A watershed that collects on-site runoff and discharges to the inlet of the existing 30-inch diameter Nod Road cross culvert. This watershed is identified as WS-SITE-EX on Figure DA-1.
3) A watershed that collects runoff from Nod Road and immediate adjacent areas that discharges into the existing storm drain systems in Nod Road and the northern portion of the development parcel that drains to Nod Way that are hydrologically connected to the Nod Road cross culverts. This watershed is identified as WS-NOD RD-EX on Figure DA-1.

Travel times for the existing conditions watersheds analyzed were calculated using the TR-55 methodologies provided in the Hydraflow program. A time of concentration of 18 minutes was calculated by the program for the existing site condition for WS-EAST-EX. A time of concentration of 17 minutes was calculated by the program for the existing site condition for WS-SITE-EX. WS-NOD RD-EX is relatively small and is mostly impervious but does include a small wooded and landscaped portion at its furthest up-gradient reaches so a time of concentration of 10 minutes was assumed for this watershed. Weighted coefficients were calculated for each watershed by utilizing areas determined by AutoCAD poly line delineations and the coefficients presented above for the various land-use types. The weighted coefficient calculations are presented in Attachment 3.

The existing-conditions drainage area map, Figure DA-1, shows the existing condition watersheds, flow paths and parameters used for the time of concentration determination, and areas of various land-use types. Figure DA-1 also shows the design points for the Hydraflow analysis, Design Point A (flow to the parcel boundary from areas to the east) and Design Point B (flow to points west of Nod Road).

Proposed Condition Analysis

The same design points were utilized on the proposed-condition analysis, Design Point A (flow to the parcel boundary from areas to the east) and Design Point B (flow to points west of Nod Road). The post-developed contribution areas are substantially similar to those of existing conditions. Because on-site detention and infiltration are proposed through three separate infiltration/detention structures, the watershed that includes the developed portion of the parcel has been subdivided into three sub-watersheds, each of which is the contributory area to proposed detention/infiltration basins.

Under proposed site conditions, five (5) watersheds were identified and analyzed:

1) The watershed that collects runoff along a portion of Nod Way and off-site areas to the east and which discharges onto the subject parcel via the 24-inch storm drain outlet. This watershed is identified as WS-EAST-PR on Figure DA-2.
2) The watershed that collects runoff from Nod Road and immediate adjacent areas that discharges into the existing storm drain system in Nod Road and the northern portion of the development parcel that drains to Nod Way that are hydrologically connected to the Nod Road cross culverts. This watershed is identified as WS-NOD RD-PR on Figure DA-2.
3) Three separate watershed areas that collects on-site runoff, convey the runoff to one of three water quality basins with overflow to ultimately discharge to Design Point B. These watersheds are identified as WQB1, WQB2, and WQB3 and are shown on Figure DA-2. They consist of watersheds within the developed area of the site including paved parking areas and drives, roof runoff and adjacent landscaped areas. Each water shed drains to a specific water quality/infiltration basin deigned to capture and treat the minimum water quality volume for its contributory area. Overflow from the basins will be directed to an internal piping system where outflow will be conveyed to the existing 30-inch diameter Nod Road cross culvert. The basins will be excavated into the natural sandy subsoils to promote infiltration of the more frequent storm events.

Travel times for the proposed conditions watersheds analyzed were calculated using the TR-55 methodologies provided in the Hydraflow program. A time of concentration of 20 minutes was calculated by the program for the proposed site condition for WS-EAST-EX. This time of concentration for this watershed includes channel flow travel in the pipe that traverses the site from Design Point A to Design Point B. For the internal watersheds WQB1, WQB2 and WQB3, a time of concentration of ten minutes was assumed. WS-NOD RD-PR is relatively small and is mostly impervious but does include a small wooded and landscaped portion at its furthest up-gradient reaches, so a time of concentration of 10 minutes was assumed for this watershed.

Weighted coefficients were calculated for each watershed by utilizing areas determined by AutoCAD poly line delineations and the coefficients presented above for the various land-use types. The weighted coefficient calculations are presented in Attachment 3. The proposed-conditions drainage area map, Figure DA-2, shows the proposed condition watersheds, flow paths and parameters used for the time of concentration determination, and areas of various land-use types.

The Hydraflow model calculates the peak rate of discharge for the proposed development conditions by combining the outflow hydrographs from both the un-detained watersheds and the outflow hydrographs from the water quality basins. Both un-detained watersheds and the peak rates of inflow and outflow for each basin were modeled for the 2-, 5-, 10-, 25-, 50- and 100-year storm events by the program.

To be conservative, groundwater infiltration was not modeled in the exercise. It is assumed that during the storm event, no infiltration takes place in the basins, but that between storm events, water would drain from the basins, via infiltration, to render the basins empty at the start of the subsequent storm.

The stage-storage relationships for the basins were calculated by the model using the conical method by inputting the elevation and area of contours within the basins. Contour areas were determined by polyline delineations in the AutoCAD drawings.

The stage-discharge relationship for each basin outlet were modeled by the program, following input of the outlet geometry. For the water quality basins, the outlet structures consist of CT DOT Type 'C-L', Double Grate Type 1, catch basins with standard frame and grates modeled as overflow risers.

Stage-Storage and Stage-Discharge relationships for the water quality basins are presented in the model input/output, which is included as Attachment 3.

The basins were designed to act as infiltration basins. They were sized to detain in excess of the minimum water quality volume for their contributory area. There are no orifices or weirs in the outlet structure, only the frame and grate at the top of the structure. During intense rainfalls, the basins would be anticipated to fill, and stormwater exit through the grate of the outlet structure.

Water Quality Basin 2 and Water Quality Basin 3 were sized to capture and detain 100 percent of the volume of all modeled storm events from the 2- through 100-year storm event. Water Quality Basin 1 was sized to capture and detain 100 percent of the volume of all modeled storm events from the 2- through 10-year storm event. The model assumes that the basins are dry at the onset of the modeled storm event. Although some infiltration will occur during the storm event, to be conservative in the analysis, no infiltration was modeled.

To assess the potential capacity of the underlying soils to infiltrate stormwater runoff, a total of nine test pits were conducted throughout the site. Attachment 4 includes a summary of the test pit data and a map depicting test pit locations.

The test pit data indicate that the subsoils consist of sandy materials and that the standing groundwater is below the proposed bottom of basin elevations. Test pits were advanced below the proposed bottom elevations of the water quality basins. At each location, a 3-inch-diameter PVC standpipe was placed in the excavation and pushed into the undisturbed soils at the bottom of the pit and the pits were backfilled.

To obtain empirical data on the ability of the underlying sands to infiltrate water, in-situ falling head tests were conducted in each of the standpipes. The tests consisted of pouring water in each pipe to completely fill the pipe, and the rate at which water fell in the pipe was measured.

The data obtained from the tests was analyzed to estimate the infiltrative capacity of the underlying soils. The tests indicate that the site soils are suitable for infiltration. Test Pit Location Plan, test pit logs, stand-pipe data, falling rate measurements, and related analysis are included in Attachment 4.

The data indicate that the underlying soils have a permeability rate sufficient to adequately drain the proposed water quality basins within the CT DEEP-recommended 24-to-72-hour period after a storm event and that the soils are suitable for the proposed infiltration proposed.

The Hydraflow model calculates the peak rate of discharge for the proposed development conditions by combining the outflow hydrographs from the un-detained watersheds and the outflow from the basins. The data shows that there is no increase in the peak rate of runoff to the receiving cross culverts in Nod Road (Design Point B) as a result of the proposed development.

The peak rates of discharge and total volume of runoff generated for the existing and proposed site conditions for the watersheds modeled for the 2-, 5-, 10-, 25-, 50- and 100-year storm events were computed by the program. Results of analysis are presented in Attachment 2 and total volumes of runoff are summarized in Table 1 below.

TABLE 1

COMPARISON OF EXISTING & PROPOSED CONDITIONS TOTAL VOLUME OF RUNOFF AND PEAK RATE OF DISCHARGE TO DESIGN POINT B

	Total Volume of Runoff (CF)		Peak Rate of Discharge (CFS)	
RETURN PERIOD	Exist. Condition	Proposed Condition	Exist. Condition	Proposed Condition
2-YEAR	17,600	12,800	12.2	7.6
5-YEAR	22,400	16,300	15.6	9.7
10-YEAR	26,400	19,200	18.3	11.4
25-YEAR	31,900	23,100	22.1	13.8
50-YEAR	36,100	27,100	25.0	15.6
100-YEAR	40,300	31,700	28.0	18.4

The analysis demonstrates that for each of the storm events analyzed, both the total runoff volume and total peak rate of discharge for the proposed developed conditions is less than the total runoff volume and total peak rate of discharge for the existing site conditions.

5. Pipe to Pipe Design Analysis

The proposed development will employ a number of storm drain systems which are depicted on the Grading and Drainage Plan in the submittal set. One storm drain system is designed to convey runoff from the existing 18-inch diameter culvert outfall at the eastern edge of the property and convey the runoff through the site to the existing Nod Road cross culvert. This pipe system is also designed to receive overflow from the three-water quality/infiltration basis in the developed portion of the site. This storm drain system has been designed to handle the peak flow for a 100-year storm event, in excess of Town of Avon requirements.

To design and analyze the system, a detailed, pipe to pipe analysis was conducted using Hydraflow Storm Sewers 2008 for Windows software. This software uses the Rational Method and Manning's Formula to compute peak flow to each inlet, basin or structure, and to calculate the capacity of individual culverts.

Input data includes the geometry and configuration of the storm drain system, catchment area of the inlets, weighted runoff coefficients, and times of concentration of flow to each inlet. The catchment areas were calculated based on proposed topography utilizing poly-line delineations in AutoCAD. The catchment areas are depicted graphically on Map DA-2. Where outflow form the individual water quality basins discharge to the system, the outflow calculated by the Hydraflow Hydrographs program is input as a know flow, Q, in the Hydraflow Storm Sewers program.

A weighted runoff coefficient was calculated based on percentages of landscaped and impervious areas within the catchment area. The following runoff coefficients were used in the post-development conditions hydrologic model: For impervious areas, C=0.9 was used; and for landscaped areas, C=0.20 was used, and for wooded areas, C=0.15 was used.

Manning roughness coefficient values of 0.012 or 0.013 were used for the culvert analyzed, N-12 pipe or RCP, respectively. Rainfall intensity data was taken from the point precipitation frequency estimates (NOAA Atlas 14 data) for the subject parcel published on the NOAA website. A copy of the Rainfall Intensity Curve is presented in Attachment 5.

The model calculated the capacity of the culvert and accounts for loss coefficients at bends and inlet and outlet control, whichever governs. Input data includes basin geometry, longitudinal slope, cross slope, and basin depression. State of CT DOT 'Type C or Type 'C-L' basins were modeled, as appropriate.

Results of analysis are attached and include summaries of system design based on CT DOT output formats. Program input and output data reports are presented in Attachment 5. The analysis indicates that the modeled storm drain system is designed to adequately convey the 100-year storm event.

It should be noted that the internal storm drain systems draining to the water quality basins were not modeled. The catchment areas of each of the individual basin inlets and overall watershed areas for the systems, as a whole, are relatively small. It is anticipated that none of these systems will require pipe sizes larger than 15 inches in diameter. Detailed analysis of these individual systems will be completed upon final site design and final architectural design coordination.

6. Water Quality Volume Computations

In accordance with Chapter 7 of the 2004 Stormwater Quality Manual, the water quality basins have been designed to capture and treat the minimum CT-DEEP Recommended water quality volume.

Three water quality basins are proposed as part of the stormwater management of the site runoff. The basins are designed to capture and treat more than the minimum required Water Quality Volume (WQV) recommended by the 2004 Connecticut Stormwater Quality Manual. (See Section 7.4.1 of the Manual). WQV calculations for each Water Quality Basin are provided below, using the DEEP formula:

Water Quality Volume:

Water Quality Volume recommended: WQV = (1")(R)(A)/12

WQV = Water Quality Volume
R = Vol. runoff coefficient = 0.05+0.009(I)
I = percent impervious cover
A = site area in acres

Calculations for determining the minimum-recommended WQV and for demonstrating that more than the minimum-recommended WQV is provided are included in Attachment 6.

For the watershed that is proposed to drain to Water Quality Basin 1, the minimum WQV recommended is 6,967 cubic feet. WQB#1 captures and treats 9,807 cubic feet of volume, or almost 140% larger than the minimum recommended.

For the watershed that is proposed to drain to Water Quality Basin 2, the minimum WQV recommended is 1,1935 cubic feet. WQB#2 captures and treats 7,328 cubic feet of volume, or just under seven times the minimum recommended.

For the watershed that is proposed to drain to Water Quality Basin 3, the minimum WQV recommended is 3,099 cubic feet. WQB#3 captures and treats 4,959 cubic feet of volume, or approximately 60% more than the minimum recommended.

7. Groundwater Recharge Volume Computations

Groundwater recharge will take place in all three of the water quality basins and perforated piping that interconnects WQB2 and WQB3 and 24-inch diameter perforated pipe that runs through the center of the development. The Water Quality Basins will be utilized to capture and infiltrate runoff into the underlying soils. Area soils are sandy in nature. For purposes of the groundwater recharge volume, we are assuming that infiltration will take place in the bottoms of the water quality basins and perforated piping trench interconnecting WQB2 and WQB3 for the period between storm events and that 100% of the detained water will infiltrate into the underlying soils.

Per Web Soil Survey, USDA NRCS (websoilsurvey.sc.egov.usda.gov), soil types in the developed portion of the site, are comprised of soils in Hydrologic Soil Group A, B and C, at 73.2%, 8.5% and 18.3% respectively (see Attachment 2). For sake of simplicity, and to be conservative in the calculation for the minimum-recommended groundwater recharge volume, we are assuming that all site soils are Type A soils.

The groundwater recharge volume (GRV) is calculated as follows:

Groundwater Recharge Volume Recommended:

GRV = (D)(A)(I)/12

GRV = groundwater recharge volume (ac-ft)

D = Depth of runoff to be recharged
A = Site Area (acres)*
I = Post-developed site imperviousness
* (includes watersheds for WQB1, WQB2, WQB3 and WS-NOD RD-PR)

GRV = [0.4 inches (10.08 Acres) (0.39)]/12 = 0.13104 Ac-Ft = 5,708 Cu. Ft.

Recommended GRV = 5,708 Cu. Ft.

Provided GRV = Volumetric Capacity of Basins, below Outlet Grate
= Vol. WQB1 + Vol. WQB2 + Vol. WQB3
= 9,807 Cu. Ft. + 7,832 Cu. Ft. + 2,636 Cu. Ft.
= 20,275 Cu. Ft. >> 5, 708 Cu. Ft.

VICINITY MAP

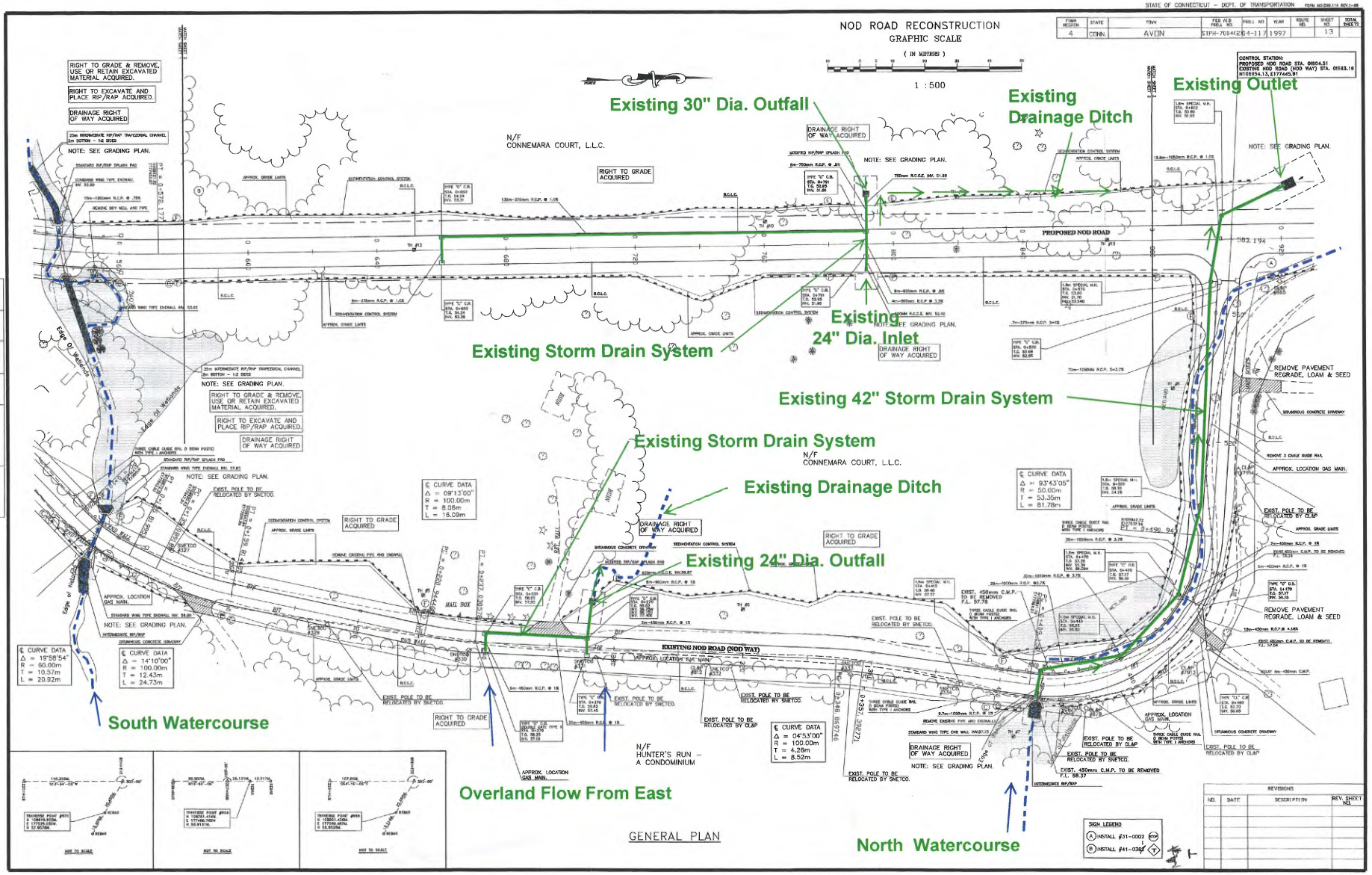
N
W E
S

CRCOG CAPITOL REGION COUNCIL OF GOVERNMENTS
Working together for a better region.

CRCOG makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

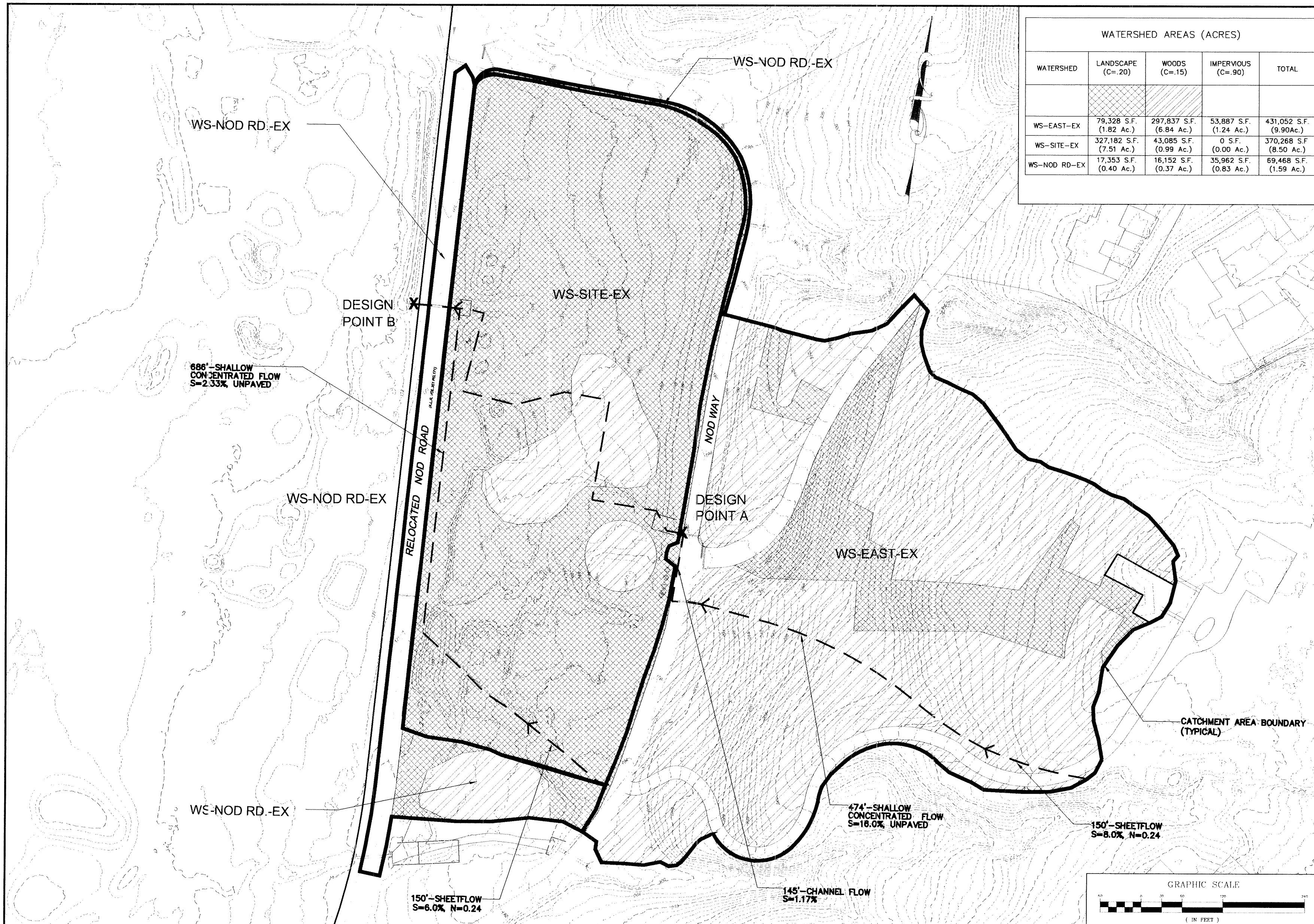
Figure 1

Scale
1:5,000
Created: 5/10/2022



D-Qa-163

Figure 2



WATERSHED AREAS (ACRES)				
WATERSHED	LANDSCAPE (C=.20)	WOODS (C=.15)	IMPERVIOUS (C=.90)	TOTAL
WS-EAST-EX	79,328 S.F. (1.82 Ac.)	297,837 S.F. (6.84 Ac.)	53,887 S.F. (1.24 Ac.)	431,052 S.F. (9.90Ac.)
WS-SITE-EX	327,182 S.F. (7.51 Ac.)	43,085 S.F. (0.99 Ac.)	0 S.F. (0.00 Ac.)	370,268 S.F (8.50 Ac.)
WS-NOD RD-EX	17,353 S.F. (0.40 Ac.)	16,152 S.F. (0.37 Ac.)	35,962 S.F. (0.83 Ac.)	69,468 S.F. (1.59 Ac.)

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FAH
Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects

Revisions:

No.	Date	Description

EXISTING CONDITIONS
DRAINAGE ANALYSIS PLAN
PREPARED FOR
100 NOD WAY LLC
100 NOD ROAD
AVON, CONNECTICUT

Date: 10-14-2022	Drawn by: DRT	Job no: 19144
Scale: 1"=60'	Checked by: GAH	Sheet no: 1 OF 1

DA-1

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WATERSHED AREAS (ACRES)

WATERSHED	LANDSCAPE (C=.20)	WOODS (C=.15)	IMPERVIOUS (C=.90)	TOTAL
WS-EAST-PR	78,979 S.F. (1.81 Ac.)	297,874 S.F. (6.84 Ac.)	55,275 S.F. (1.27 Ac.)	432,128 S.F. (9.92 Ac.)
WQB1	98,075 S.F. (2.25 Ac.)	0 S.F. (0.00 Ac.)	82,845 S.F. (1.90 Ac.)	180,920 S.F. (4.15 Ac.)
WQB2	31,764 S.F. (0.73 Ac.)	0 S.F. (0.00 Ac.)	13,398 S.F. (0.31 Ac.)	45,163 S.F. (1.04 Ac.)
WQB3	98,247 S.F. (2.26 Ac.)	0 S.F. (0.00 Ac.)	33,969 S.F. (0.78 Ac.)	132,216 S.F. (3.04 Ac.)
WS-NOD RD-PR	24,642 S.F. (0.57 Ac.)	16,224 S.F. (0.37 Ac.)	39,553 S.F. (0.91 Ac.)	80,419 S.F. (1.85 Ac.)

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Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects www.fahesketh.com - mail@fahesketh.com

No.	Date	Description

PROPOSED CONDITIONS DRAINAGE ANALYSIS PLAN
100 NOD WAY LLC
100 NOD ROAD
AVON, CONNECTICUT

Date: 10-14-2022 | Drawn by: DRT | Job No.: 19144
Scale: 1"=60' | Checked by: GAH | Sheet no.: 1 OF 1

DA-2

Attachment 1

Surficial Soils Map
And
On-site Soil Types

Soil Map—State of Connecticut
(100 NOD ROAD)

Map Scale: 1:1,500 if printed on B portrait (11" x 17") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

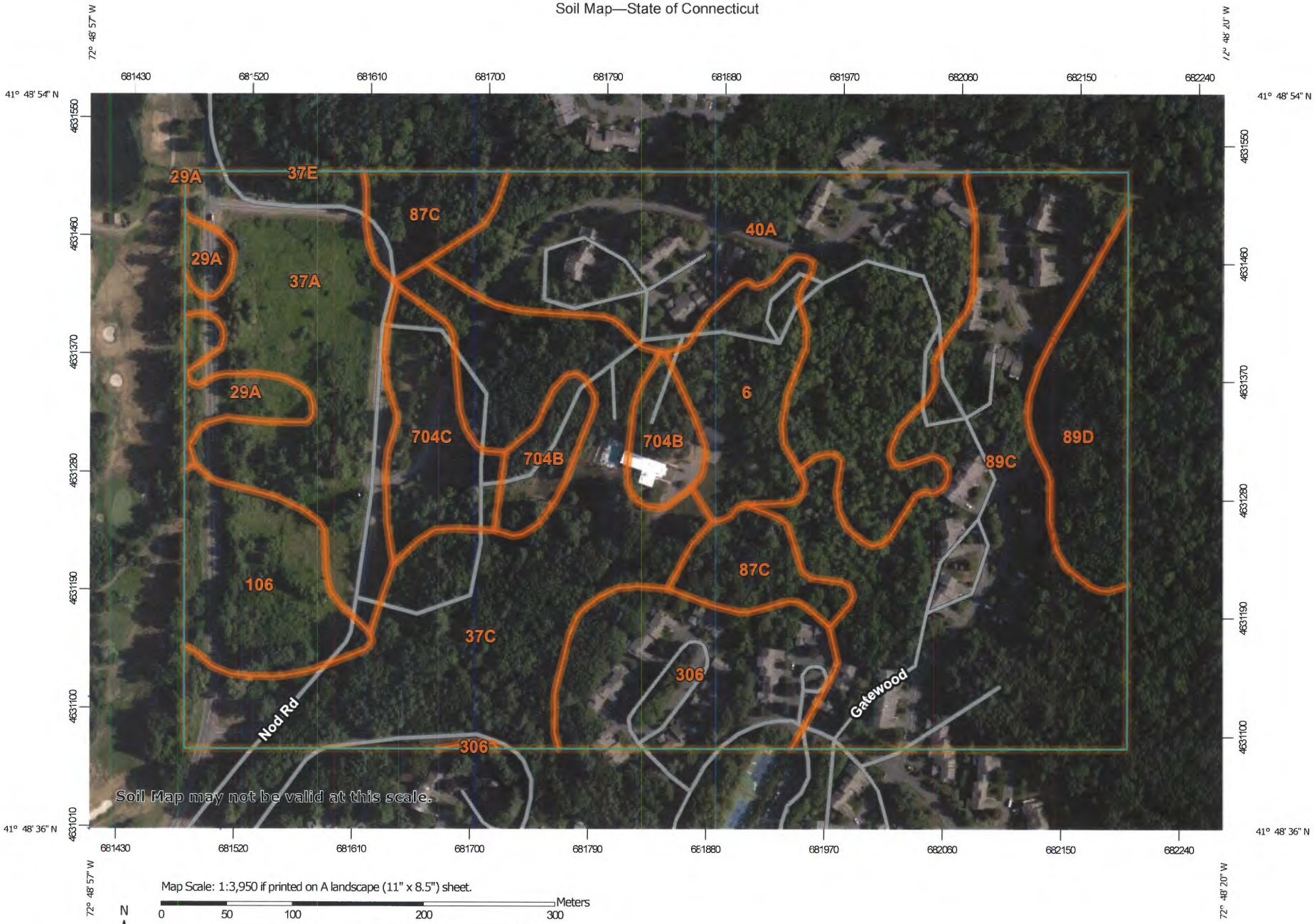
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
29A	Agawam fine sandy loam, 0 to 3 percent slopes	0.7	8.5%
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes	5.9	73.2%
87C	Wethersfield loam, 8 to 15 percent slopes	0.0	0.2%
106	Winooski silt loam	1.5	18.1%
Totals for Area of Interest		**8.1**	**100.0%**



Map Scale: 1:3,950 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

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

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony	3.3	4.2%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	1.5	1.9%
37A	Manchester gravelly sandy loam, 0 to 3 percent slopes	8.7	11.1%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	13.5	17.3%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	0.0	0.0%
40A	Ludlow silt loam, 0 to 3 percent slopes	13.8	17.6%
87C	Wethersfield loam, 8 to 15 percent slopes	3.2	4.1%
89C	Wethersfield loam, 3 to 15 percent slopes, extremely stony	15.9	20.4%
89D	Wethersfield loam, 15 to 35 percent slopes, extremely stony	3.6	4.6%
106	Winooski silt loam	3.9	5.0%
306	Udorthents-Urban land complex	5.5	7.1%
704B	Enfield silt loam, 3 to 8 percent slopes	2.4	3.1%
704C	Enfield silt loam, 8 to 15 percent slopes	2.8	3.6%
Totals for Area of Interest		**78.3**	**100.0%**

Attachment 2

NOAA Precipitation Data

NOAA Atlas 14, Volume 10, Version 3
Location name: Avon, Connecticut, USA*
Latitude: 41.8125°, Longitude: -72.8139°
Elevation: 187.05 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.19 (3.22-5.39)	5.02 (3.85-6.48)	6.38 (4.88-8.26)	7.51 (5.72-9.79)	9.07 (6.70-12.4)	10.2 (7.43-14.3)	11.5 (8.09-16.6)	12.8 (8.60-19.1)	14.8 (9.56-22.8)	16.4 (10.3-25.8)
10-min	2.96 (2.28-3.82)	3.55 (2.73-4.58)	4.52 (3.46-5.86)	5.32 (4.04-6.93)	6.42 (4.75-8.77)	7.25 (5.26-10.1)	8.12 (5.73-11.8)	9.09 (6.10-13.5)	10.5 (6.77-16.2)	11.6 (7.33-18.3)
15-min	2.32 (1.79-3.00)	2.79 (2.14-3.60)	3.54 (2.72-4.59)	4.17 (3.18-5.44)	5.04 (3.72-6.88)	5.69 (4.12-7.94)	6.37 (4.50-9.24)	7.13 (4.78-10.6)	8.21 (5.31-12.7)	9.08 (5.75-14.4)
30-min	1.57 (1.21-2.03)	1.89 (1.45-2.44)	2.41 (1.84-3.12)	2.84 (2.16-3.70)	3.43 (2.53-4.68)	3.88 (2.81-5.41)	4.34 (3.06-6.30)	4.86 (3.26-7.24)	5.60 (3.62-8.66)	6.20 (3.92-9.79)
60-min	0.991 (0.762-1.28)	1.19 (0.916-1.54)	1.52 (1.17-1.97)	1.79 (1.37-2.34)	2.17 (1.60-2.96)	2.45 (1.78-3.43)	2.75 (1.94-3.99)	3.08 (2.07-4.59)	3.55 (2.30-5.48)	3.93 (2.49-6.21)
2-hr	0.640 (0.496-0.819)	0.767 (0.594-0.984)	0.976 (0.752-1.26)	1.15 (0.880-1.49)	1.39 (1.03-1.89)	1.56 (1.14-2.18)	1.75 (1.25-2.55)	1.98 (1.33-2.93)	2.31 (1.50-3.56)	2.59 (1.65-4.08)
3-hr	0.491 (0.382-0.627)	0.590 (0.458-0.754)	0.752 (0.582-0.964)	0.885 (0.682-1.14)	1.07 (0.801-1.45)	1.21 (0.887-1.68)	1.35 (0.973-1.97)	1.53 (1.03-2.27)	1.81 (1.17-2.78)	2.04 (1.30-3.20)
6-hr	0.310 (0.243-0.393)	0.376 (0.294-0.477)	0.483 (0.377-0.616)	0.572 (0.443-0.733)	0.695 (0.524-0.941)	0.785 (0.582-1.09)	0.884 (0.641-1.29)	1.01 (0.682-1.48)	1.20 (0.781-1.83)	1.36 (0.870-2.13)
12-hr	0.190 (0.150-0.239)	0.233 (0.184-0.294)	0.305 (0.239-0.386)	0.364 (0.284-0.464)	0.446 (0.338-0.601)	0.506 (0.377-0.701)	0.572 (0.417-0.832)	0.655 (0.445-0.961)	0.785 (0.514-1.20)	0.899 (0.576-1.40)
24-hr	0.111 (0.088-0.139)	0.140 (0.111-0.175)	0.186 (0.147-0.234)	0.225 (0.176-0.284)	0.278 (0.212-0.373)	0.316 (0.238-0.438)	0.359 (0.265-0.524)	0.415 (0.283-0.607)	0.505 (0.332-0.768)	0.585 (0.376-0.908)
2-day	0.062 (0.050-0.077)	0.080 (0.064-0.099)	0.108 (0.086-0.135)	0.132 (0.104-0.166)	0.164 (0.127-0.221)	0.188 (0.143-0.260)	0.215 (0.160-0.315)	0.251 (0.172-0.365)	0.311 (0.205-0.471)	0.366 (0.235-0.565)
3-day	0.045 (0.036-0.056)	0.058 (0.046-0.072)	0.079 (0.063-0.098)	0.096 (0.076-0.121)	0.120 (0.093-0.161)	0.137 (0.105-0.190)	0.157 (0.118-0.230)	0.184 (0.126-0.268)	0.229 (0.151-0.347)	0.271 (0.175-0.417)
4-day	0.036 (0.029-0.045)	0.047 (0.037-0.058)	0.063 (0.051-0.079)	0.077 (0.062-0.097)	0.096 (0.075-0.129)	0.110 (0.084-0.152)	0.126 (0.095-0.184)	0.148 (0.101-0.214)	0.184 (0.121-0.277)	0.217 (0.140-0.334)
7-day	0.025 (0.020-0.030)	0.031 (0.025-0.039)	0.042 (0.034-0.052)	0.051 (0.041-0.064)	0.063 (0.050-0.084)	0.072 (0.056-0.099)	0.082 (0.062-0.120)	0.096 (0.066-0.139)	0.119 (0.079-0.178)	0.139 (0.090-0.214)
10-day	0.020 (0.016-0.025)	0.025 (0.020-0.031)	0.033 (0.027-0.041)	0.040 (0.032-0.049)	0.049 (0.038-0.064)	0.055 (0.043-0.075)	0.063 (0.047-0.090)	0.073 (0.050-0.105)	0.089 (0.059-0.133)	0.103 (0.067-0.158)
20-day	0.015 (0.012-0.018)	0.017 (0.014-0.021)	0.021 (0.017-0.026)	0.025 (0.020-0.030)	0.029 (0.023-0.038)	0.033 (0.025-0.044)	0.037 (0.028-0.052)	0.042 (0.029-0.060)	0.049 (0.033-0.074)	0.056 (0.037-0.086)
30-day	0.012 (0.010-0.015)	0.014 (0.011-0.017)	0.017 (0.014-0.020)	0.019 (0.016-0.023)	0.022 (0.018-0.029)	0.025 (0.019-0.033)	0.027 (0.020-0.038)	0.030 (0.021-0.043)	0.035 (0.023-0.052)	0.039 (0.025-0.059)
45-day	0.010 (0.008-0.012)	0.011 (0.009-0.014)	0.013 (0.011-0.016)	0.015 (0.012-0.018)	0.017 (0.013-0.022)	0.019 (0.014-0.025)	0.021 (0.015-0.028)	0.022 (0.016-0.032)	0.025 (0.017-0.037)	0.027 (0.018-0.041)
60-day	0.009 (0.007-0.011)	0.010 (0.008-0.012)	0.011 (0.009-0.014)	0.013 (0.010-0.015)	0.014 (0.011-0.018)	0.016 (0.012-0.020)	0.017 (0.013-0.023)	0.018 (0.013-0.026)	0.020 (0.013-0.029)	0.021 (0.014-0.032)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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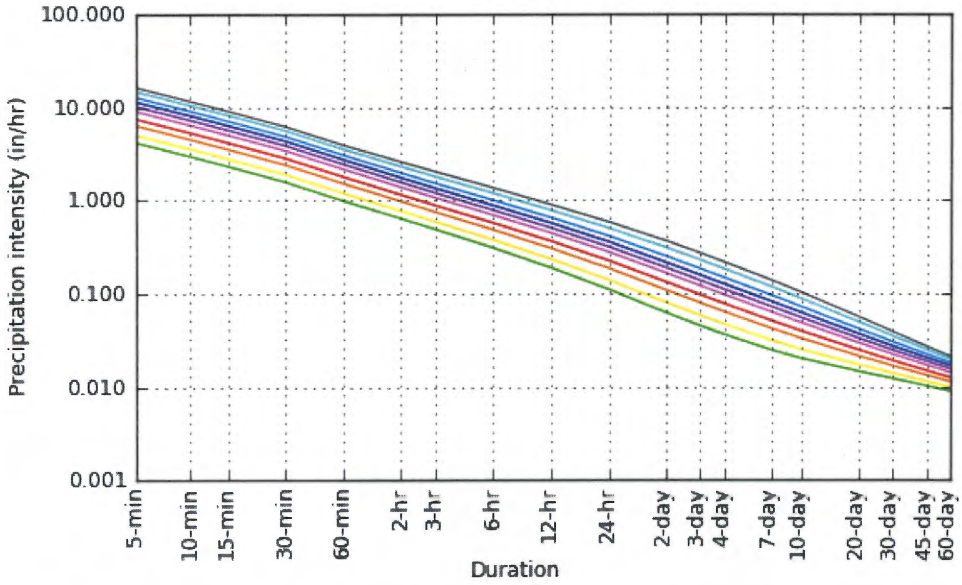
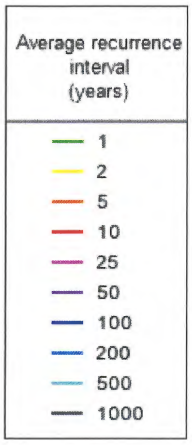
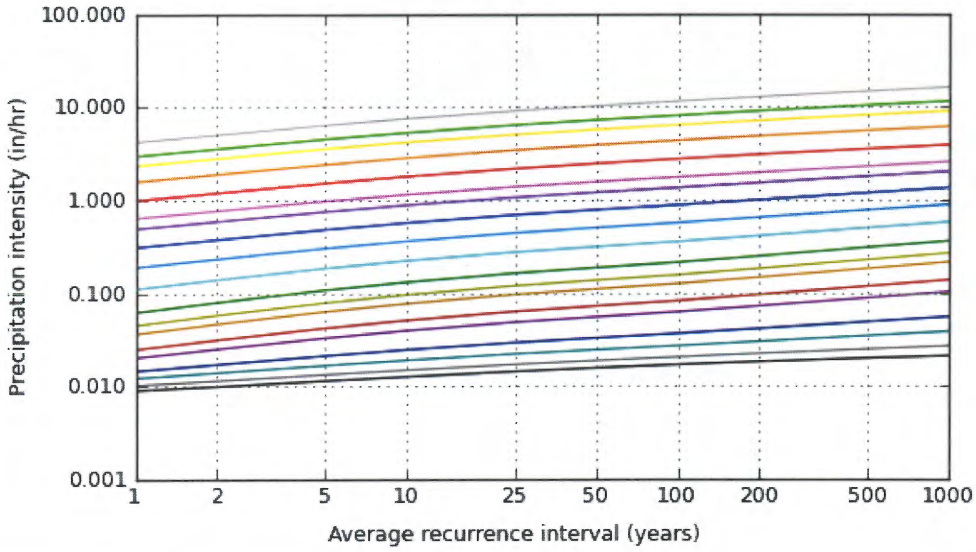
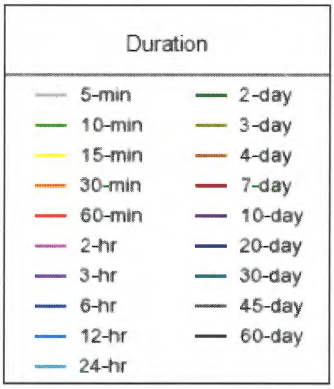
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 41.8125°, Longitude: -72.8139°









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Created (GMT): Thu Feb 3 14:49:24 2022

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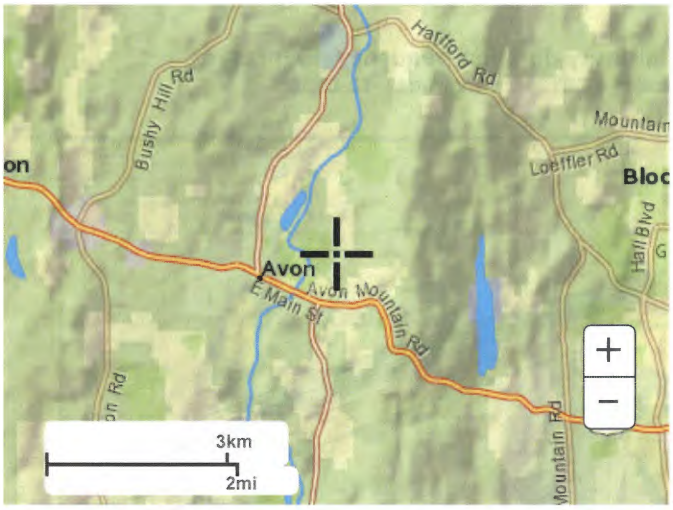
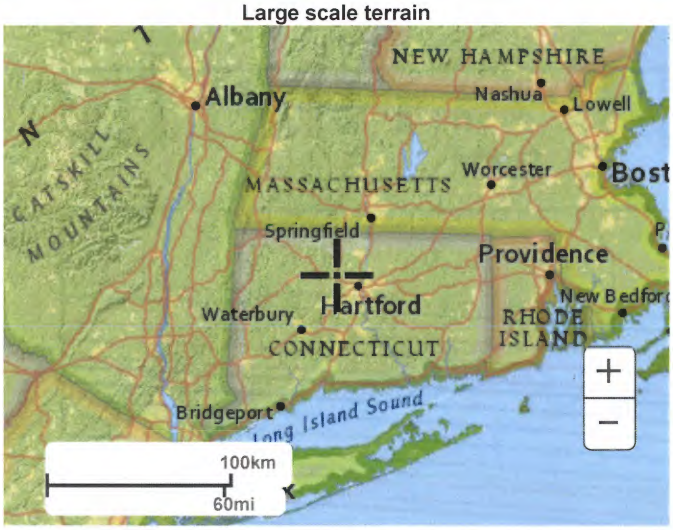
Maps & aerials

Small scale terrain

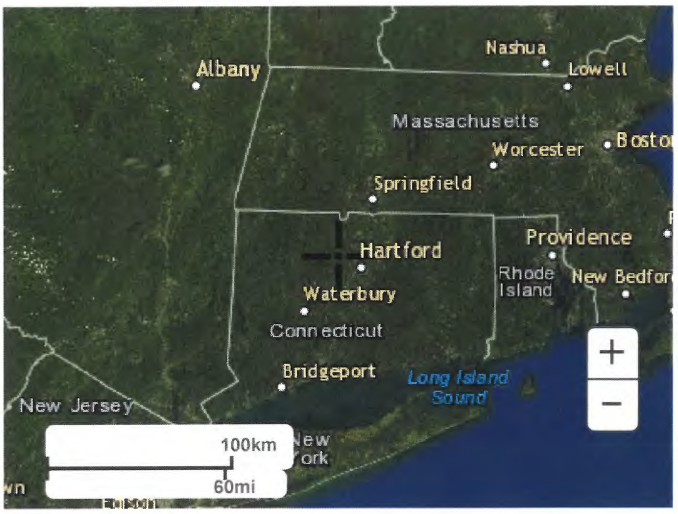


Large scale terrain



Large scale map

Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
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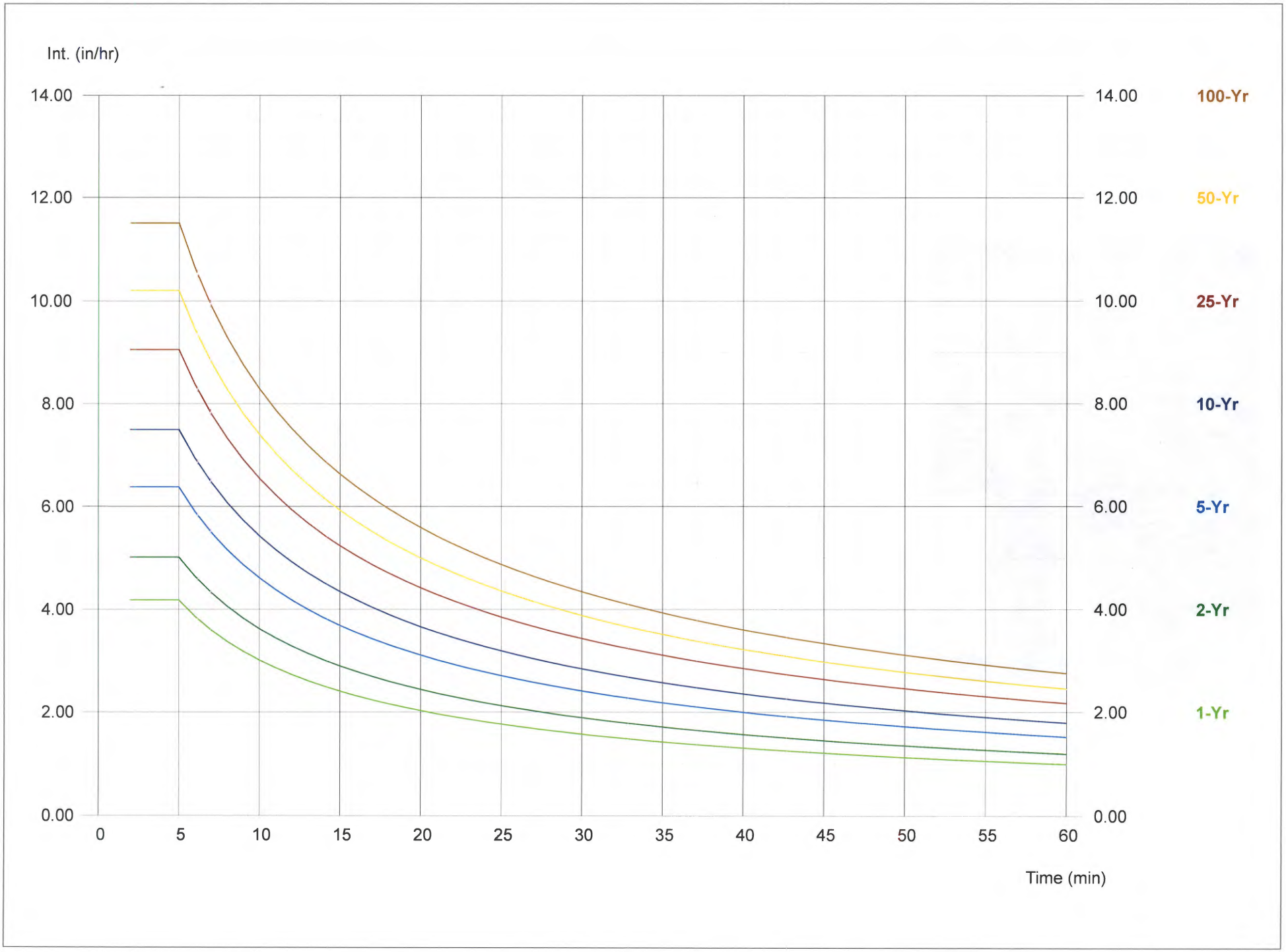
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Storm Sewer IDF Curves

IDF file: 02.03.2022 (IN PER HR).IDF



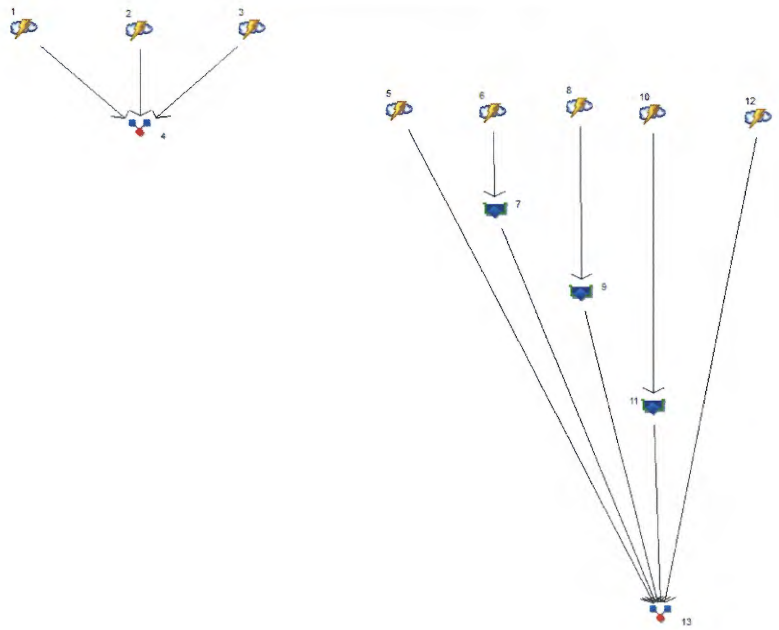
Attachment 3

Hydrologic Analysis

Rational Method

Hydraflow Table of Contents

Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	Rational	WS-EAST-EX
2	Rational	WS-SITE-EX
3	Rational	WS-NOD RD-EX
4	Combine	DESIGN POINT B-EX
5	Rational	WS-EAST-PR
6	Rational	WQB1 INFLOW
7	Reservoir	WQB1 OUTFLOW
8	Rational	WQB2 INFLOW
9	Reservoir	WQB2 OUTFLOW
10	Rational	WQB3 INFLOW
11	Reservoir	WQB3 OUTFLOW
12	Rational	WS-NOD RD-PR
13	Combine	DESIGN POINT B-PR

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	Rational	-------	-------	6.435	-------	8.195	9.657	11.64	13.18	14.73	WS-EAST-EX
2	Rational	-------	-------	4.344	-------	5.532	6.519	7.860	8.894	9.945	WS-SITE-EX
3	Rational	-------	-------	3.188	-------	4.055	4.775	5.756	6.507	7.292	WS-NOD RD-EX
4	Combine	1, 2, 3	-------	12.22	-------	15.56	18.33	22.10	25.01	27.97	DESIGN POINT B-EX
5	Rational	-------	-------	6.291	-------	8.015	9.445	11.39	12.89	14.41	WS-EAST-PR
6	Rational	-------	-------	7.818	-------	9.945	11.71	14.12	15.96	17.88	WQB1 INFLOW
7	Reservoir	6	-------	0.000	-------	0.000	0.000	0.000	0.596	1.891	WQB1 OUTFLOW
8	Rational	-------	-------	1.545	-------	1.965	2.314	2.789	3.153	3.533	WQB2 INFLOW
9	Reservoir	8	-------	0.000	-------	0.000	0.000	0.000	0.000	0.000	WQB2 OUTFLOW
10	Rational	-------	-------	4.185	-------	5.324	6.269	7.556	8.542	9.572	WQB3 INFLOW
11	Reservoir	10	-------	0.000	-------	0.000	0.000	0.000	0.000	0.000	WQB3 OUTFLOW
12	Rational	-------	-------	3.552	-------	4.518	5.321	6.414	7.251	8.125	WS-NOD RD-PR
13	Combine	5, 7, 9, 11, 12	-------	7.623	-------	9.709	11.44	13.80	15.61	18.41	DESIGN POINT B-PR

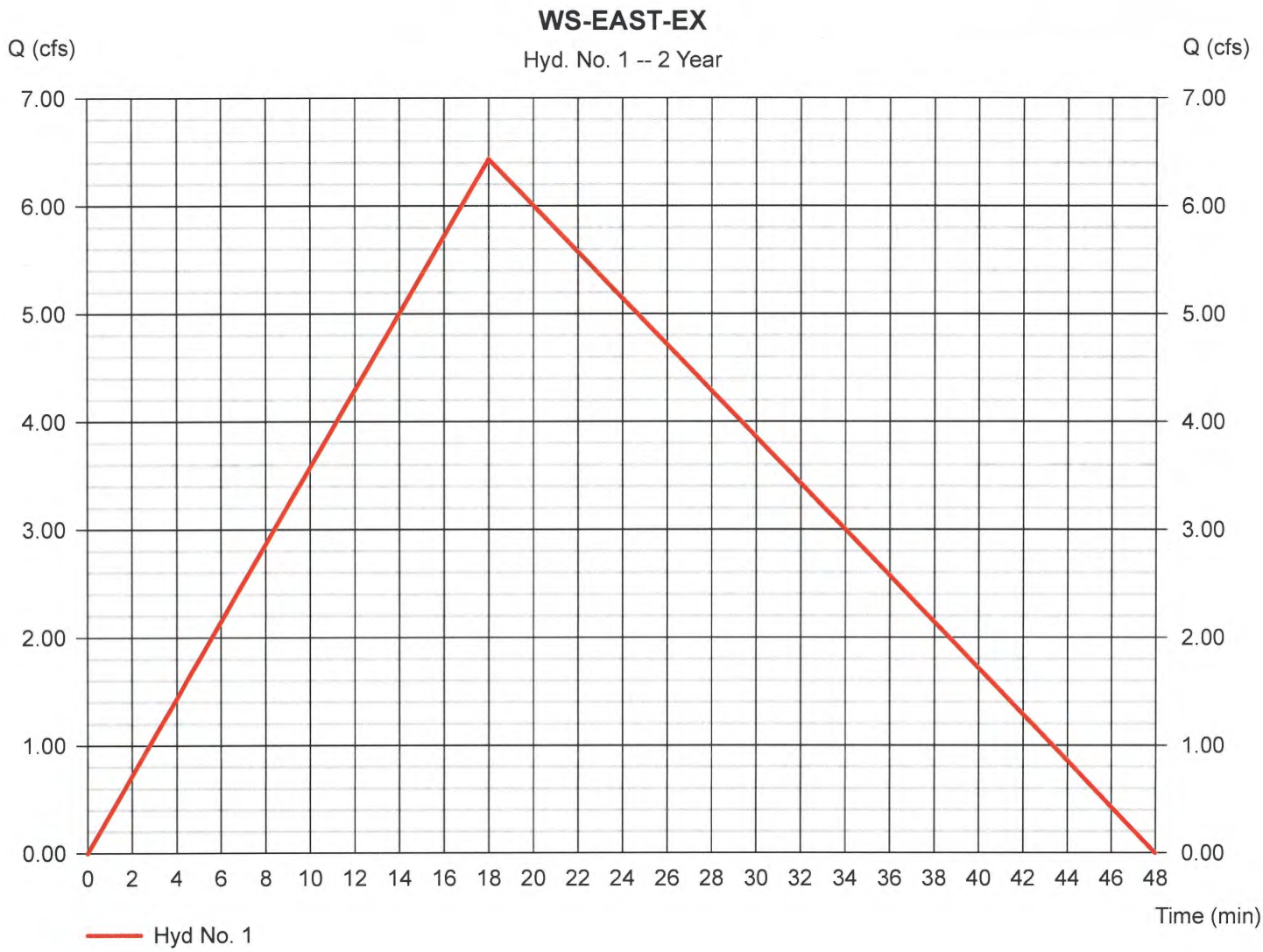
Hydrograph Report

Hyd. No. 1

WS-EAST-EX

Hydrograph type	= Rational	Peak discharge	= 6.435 cfs
Storm frequency	= 2 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 9,267 cuft
Drainage area	= 9.900 ac	Runoff coeff.	= 0.25*
Intensity	= 2.600 in/hr	Tc by TR55	= 18.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.820 x 0.20) + (6.840 x 0.15) + (1.240 x 0.90)] / 9.900



TR55 Tc Worksheet

Hyd. No. 1

WS-EAST-EX

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.400		0.011		0.011		
Flow length (ft)	= 150.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.31		0.00		0.00		
Land slope (%)	= 8.00		0.00		0.00		
Travel Time (min)	**= 16.77**	**+**	**0.00**	**+**	**0.00**	**=**	**16.77**
Shallow Concentrated Flow							
Flow length (ft)	= 474.00		0.00		0.00		
Watercourse slope (%)	= 16.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 6.45		0.00		0.00		
Travel Time (min)	**= 1.22**	**+**	**0.00**	**+**	**0.00**	**=**	**1.22**
Channel Flow							
X sectional flow area (sqft)	= 1.76		0.00		0.00		
Wetted perimeter (ft)	= 4.70		0.00		0.00		
Channel slope (%)	= 1.17		0.00		0.00		
Manning's n-value	= 0.013		0.015		0.015		
Velocity (ft/s)	= 6.42		0.00		0.00		
Flow length (ft)	= 145.0		0.0		0.0		
Travel Time (min)	**= 0.38**	**+**	**0.00**	**+**	**0.00**	**=**	**0.38**

Total Travel Time, Tc ..... 18.00 min

Hydrograph Report

Hyd. No. 2

WS-SITE-EX

Hydrograph type	= Rational	Peak discharge	= 4.344 cfs
Storm frequency	= 2 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 5,909 cuft
Drainage area	= 8.500 ac	Runoff coeff.	= 0.19*
Intensity	= 2.690 in/hr	Tc by TR55	= 17.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(7.510 x 0.20) + (0.990 x 0.15)] / 8.500

TR55 Tc Worksheet

Hyd. No. 2

WS-SITE-EX

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.31	0.00	0.00	
Land slope (%)	= 6.00	0.00	0.00	
Travel Time (min)	**= 12.51**	**+ 0.00**	**+ 0.00**	**= 12.51**
Shallow Concentrated Flow				
Flow length (ft)	= 686.00	0.00	0.00	
Watercourse slope (%)	= 2.33	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 2.46	0.00	0.00	
Travel Time (min)	**= 4.64**	**+ 0.00**	**+ 0.00**	**= 4.64**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

Total Travel Time, Tc ..... 17.00 min

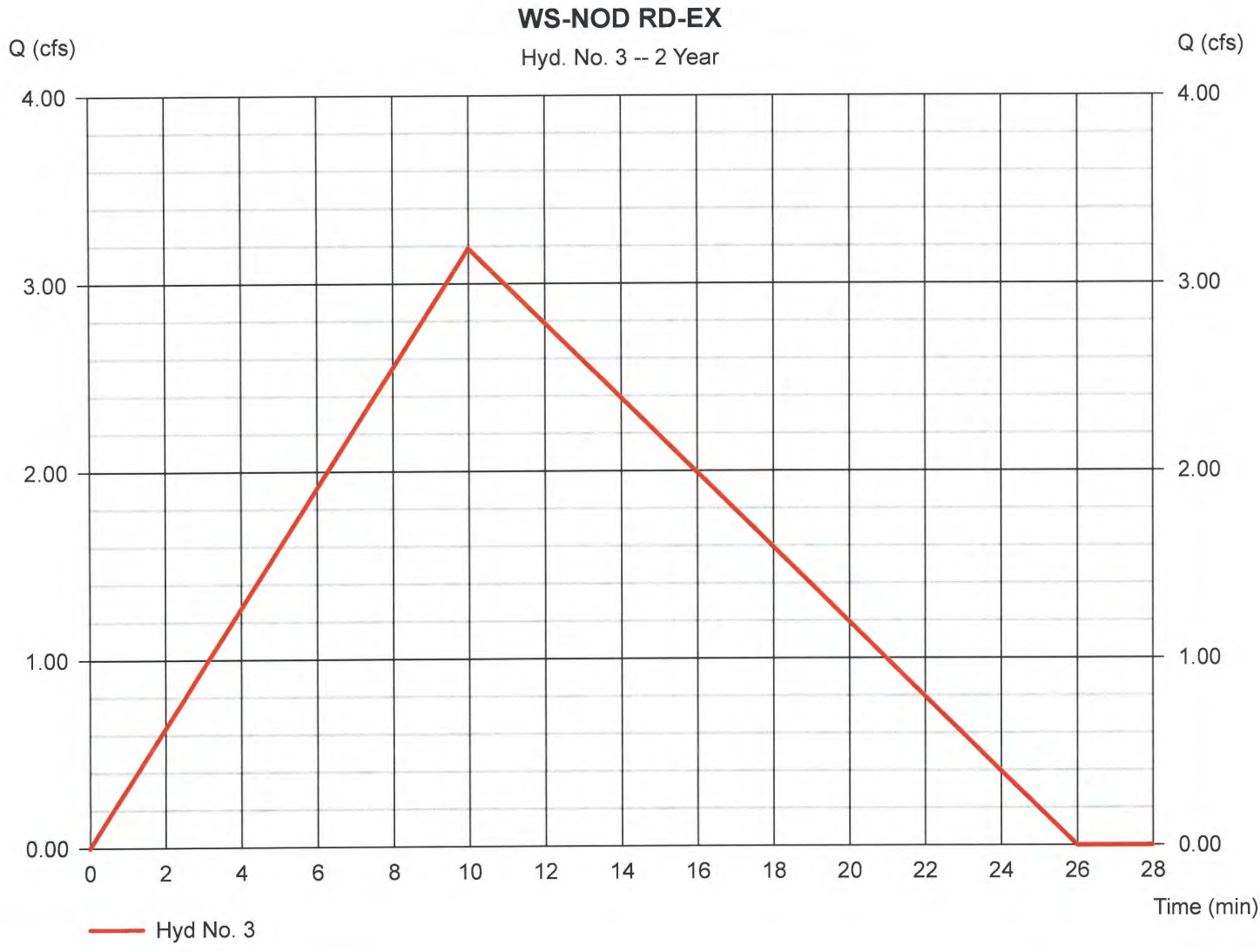
Hydrograph Report

Hyd. No. 3

WS-NOD RD-EX

Hydrograph type	= Rational	Peak discharge	= 3.188 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 2,551 cuft
Drainage area	= 1.600 ac	Runoff coeff.	= 0.55*
Intensity	= 3.623 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.400 x 0.20) + (0.370 x 0.15) + (0.830 x 0.90)] / 1.600

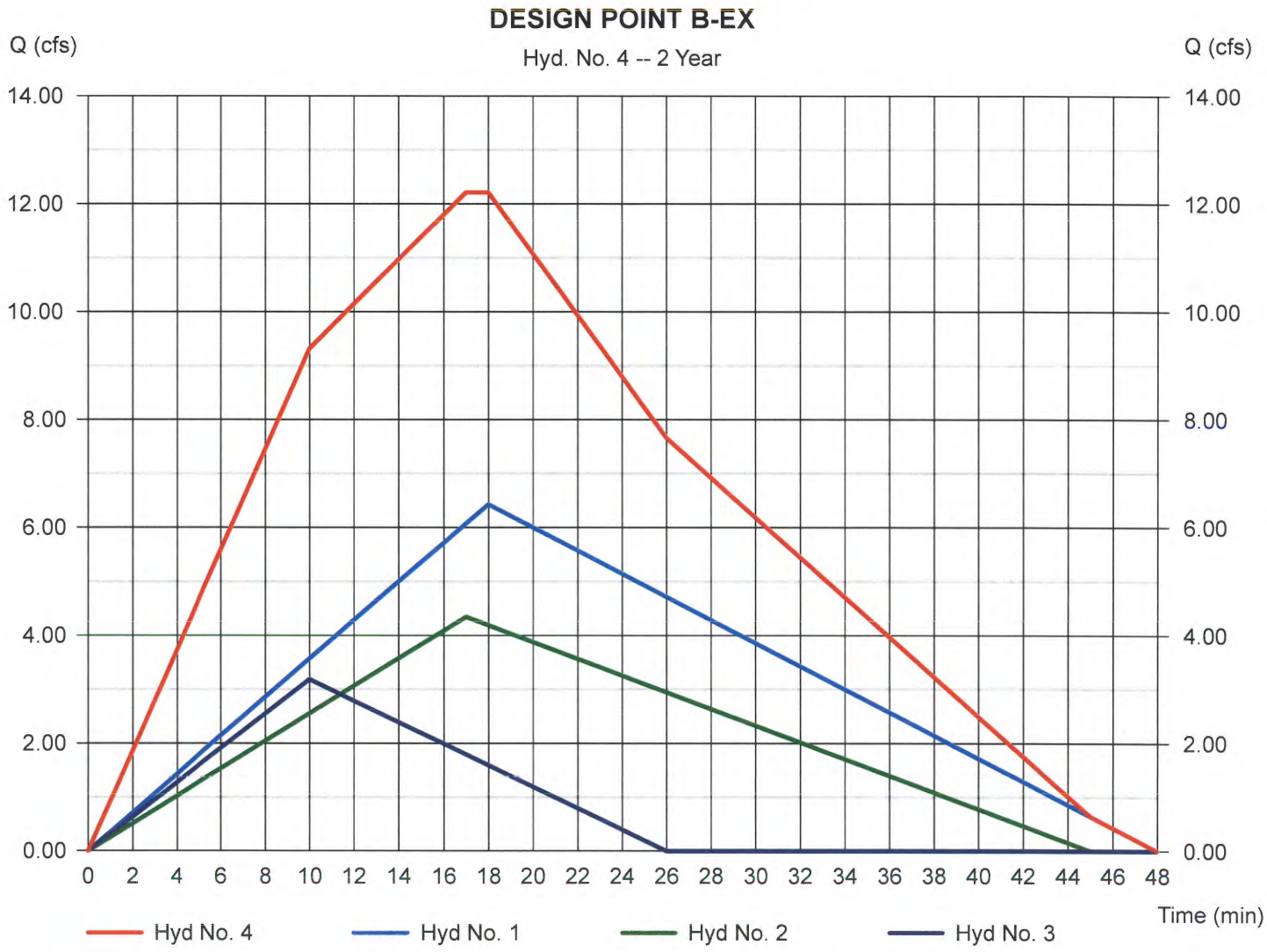


Hydrograph Report

Hyd. No. 4

DESIGN POINT B-EX

Hydrograph type	= Combine	Peak discharge	= 12.22 cfs
Storm frequency	= 2 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 17,617 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 20.000 ac



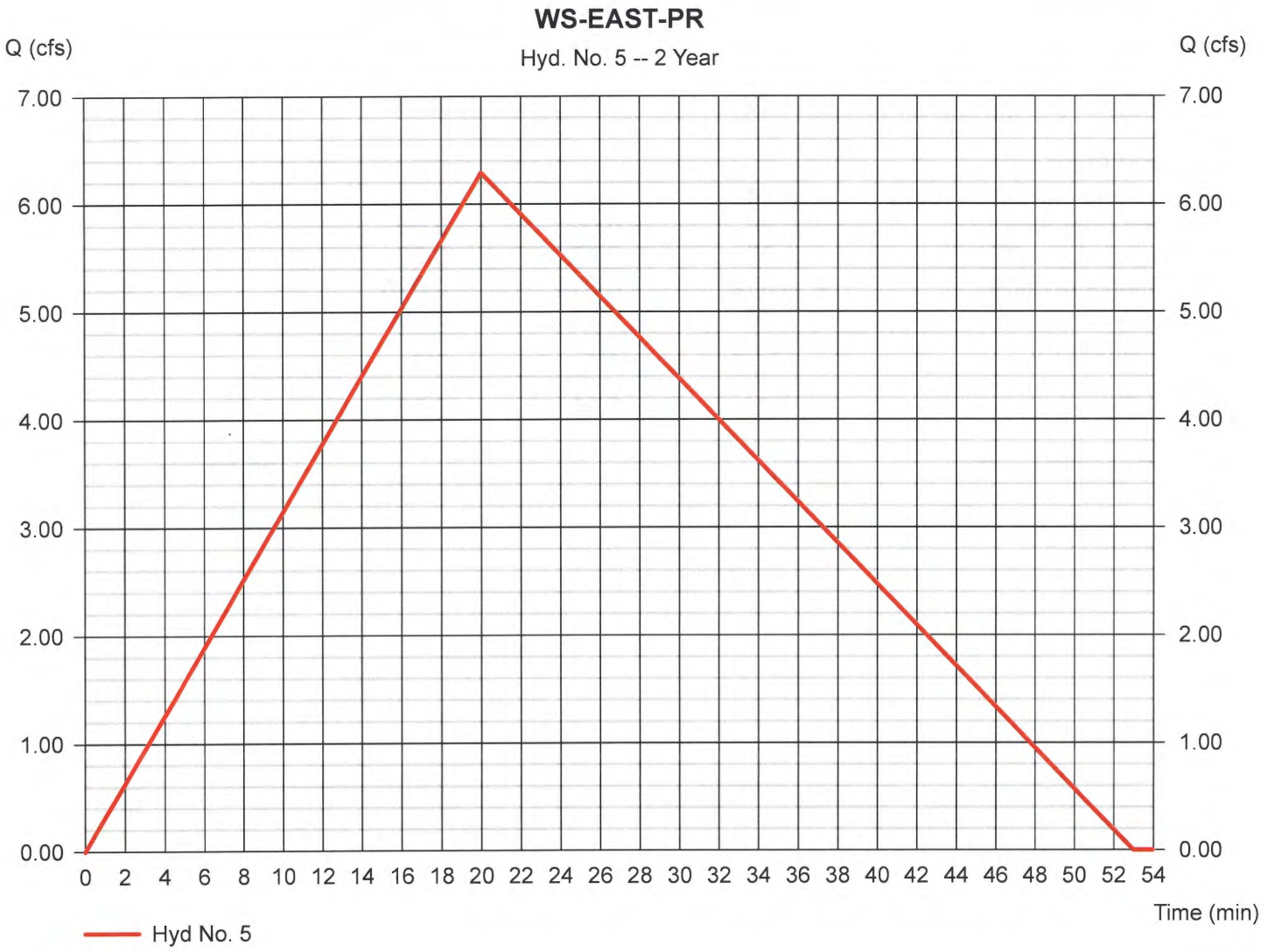
Hydrograph Report

Hyd. No. 5

WS-EAST-PR

Hydrograph type	= Rational	Peak discharge	= 6.291 cfs
Storm frequency	= 2 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 10,067 cuft
Drainage area	= 9.920 ac	Runoff coeff.	= 0.26*
Intensity	= 2.439 in/hr	Tc by TR55	= 20.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.810 x 0.20) + (6.840 x 0.15) + (1.270 x 0.90)] / 9.920



TR55 Tc Worksheet

Hyd. No. 5

WS-EAST-PR

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.400	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 3.31	0.00	0.00	
Land slope (%)	= 8.00	0.00	0.00	
Travel Time (min)	**= 16.77**	**+ 0.00**	**+ 0.00**	**= 16.77**
Shallow Concentrated Flow				
Flow length (ft)	= 474.00	0.00	0.00	
Watercourse slope (%)	= 16.00	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 6.45	0.00	0.00	
Travel Time (min)	**= 1.22**	**+ 0.00**	**+ 0.00**	**= 1.22**
Channel Flow				
X sectional flow area (sqft)	= 3.14	0.00	0.00	
Wetted perimeter (ft)	= 6.28	0.00	0.00	
Channel slope (%)	= 1.00	0.00	0.00	
Manning's n-value	= 0.012	0.015	0.015	
Velocity (ft/s)	= 7.80	0.00	0.00	
Flow length (ft)	= 754.0	0.0	0.0	
Travel Time (min)	**= 1.61**	**+ 0.00**	**+ 0.00**	**= 1.61**

Total Travel Time, Tc ..... 20.00 min

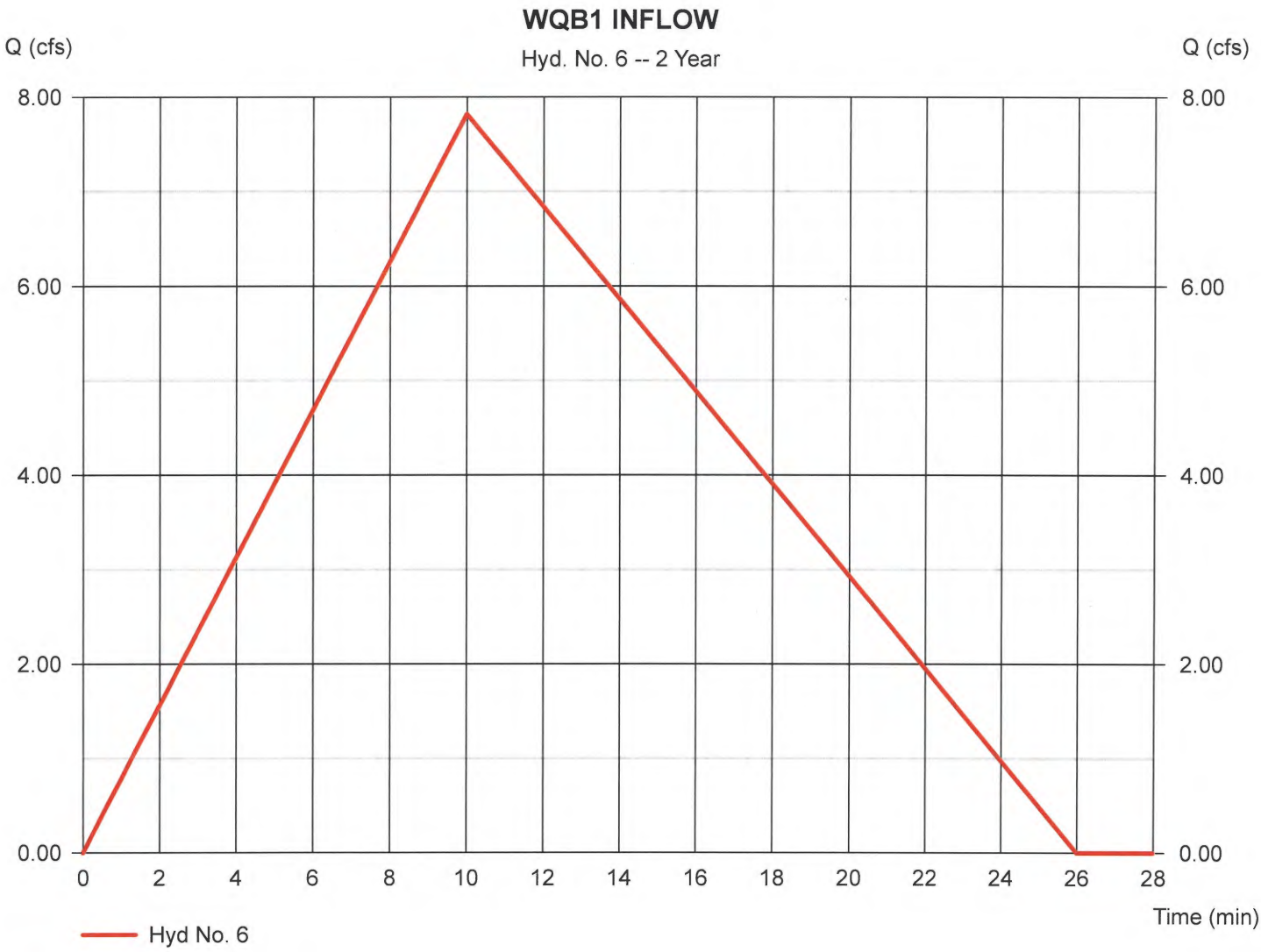
Hydrograph Report

Hyd. No. 6

WQB1 INFLOW

Hydrograph type	= Rational	Peak discharge	= 7.818 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 6,254 cuft
Drainage area	= 4.150 ac	Runoff coeff.	= 0.52*
Intensity	= 3.623 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(2.250 x 0.20) + (1.900 x 0.90)] / 4.150



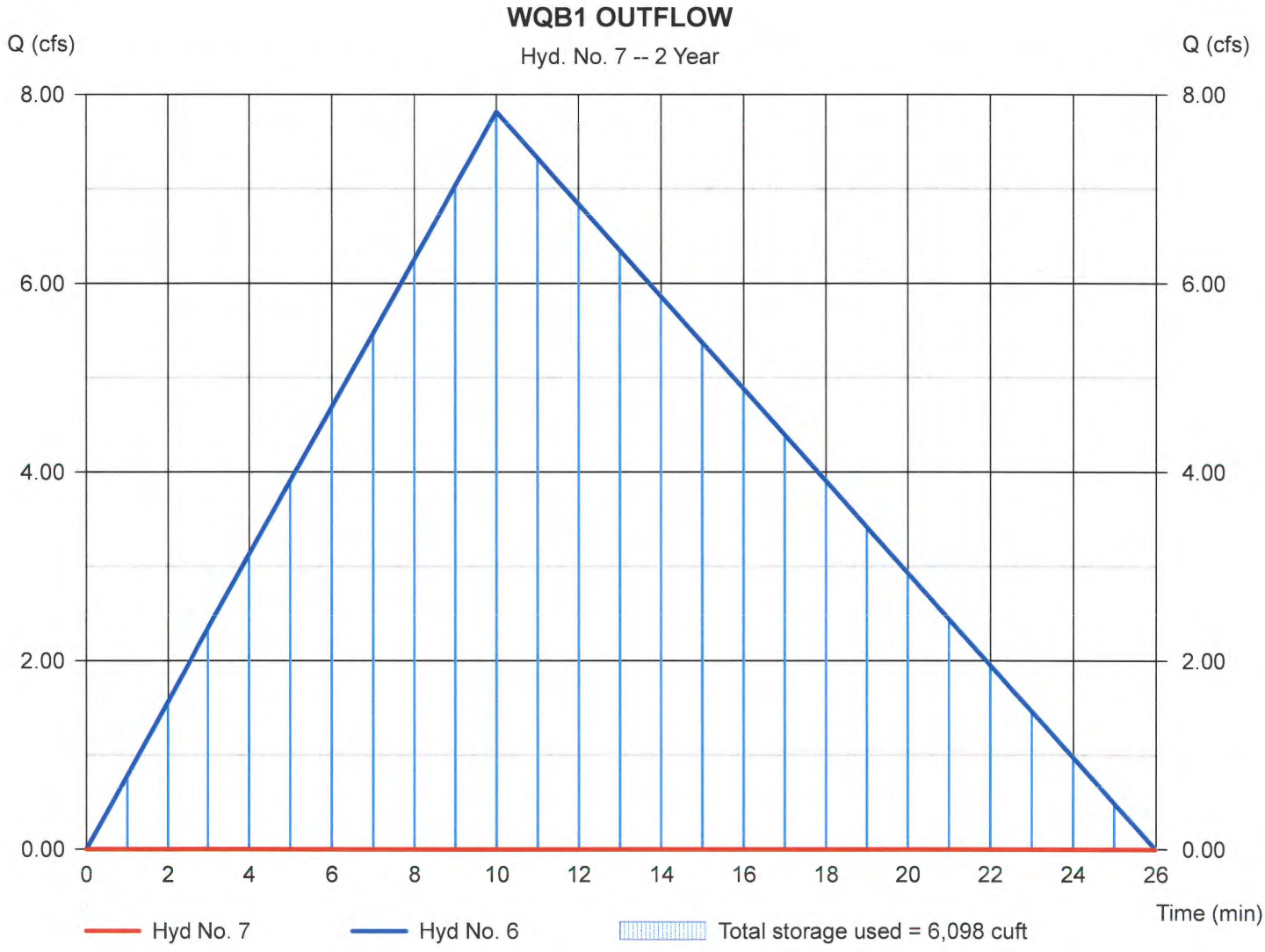
Hydrograph Report

Hyd. No. 7

WQB1 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 6 - WQB1 INFLOW	Max. Elevation	= 171.23 ft
Reservoir name	= WQB1	Max. Storage	= 6,098 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - WQB1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 170.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	170.00	3,581	0	0
1.00	171.00	5,473	4,493	4,493
2.00	172.00	8,668	7,009	11,502
3.00	173.00	11,718	10,154	21,656

Culvert / Orifice Structures

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

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 7.11	0.00	0.00	0.00
Crest El. (ft)	= 172.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

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

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	170.00	---	---	---	---	0.00	---	---	---	---	---	0.00
1.00	4,493	171.00	---	---	---	---	0.00	---	---	---	---	---	0.00
2.00	11,502	172.00	---	---	---	---	0.00	---	---	---	---	---	0.00
3.00	21,656	173.00	---	---	---	---	23.68	---	---	---	---	---	23.68

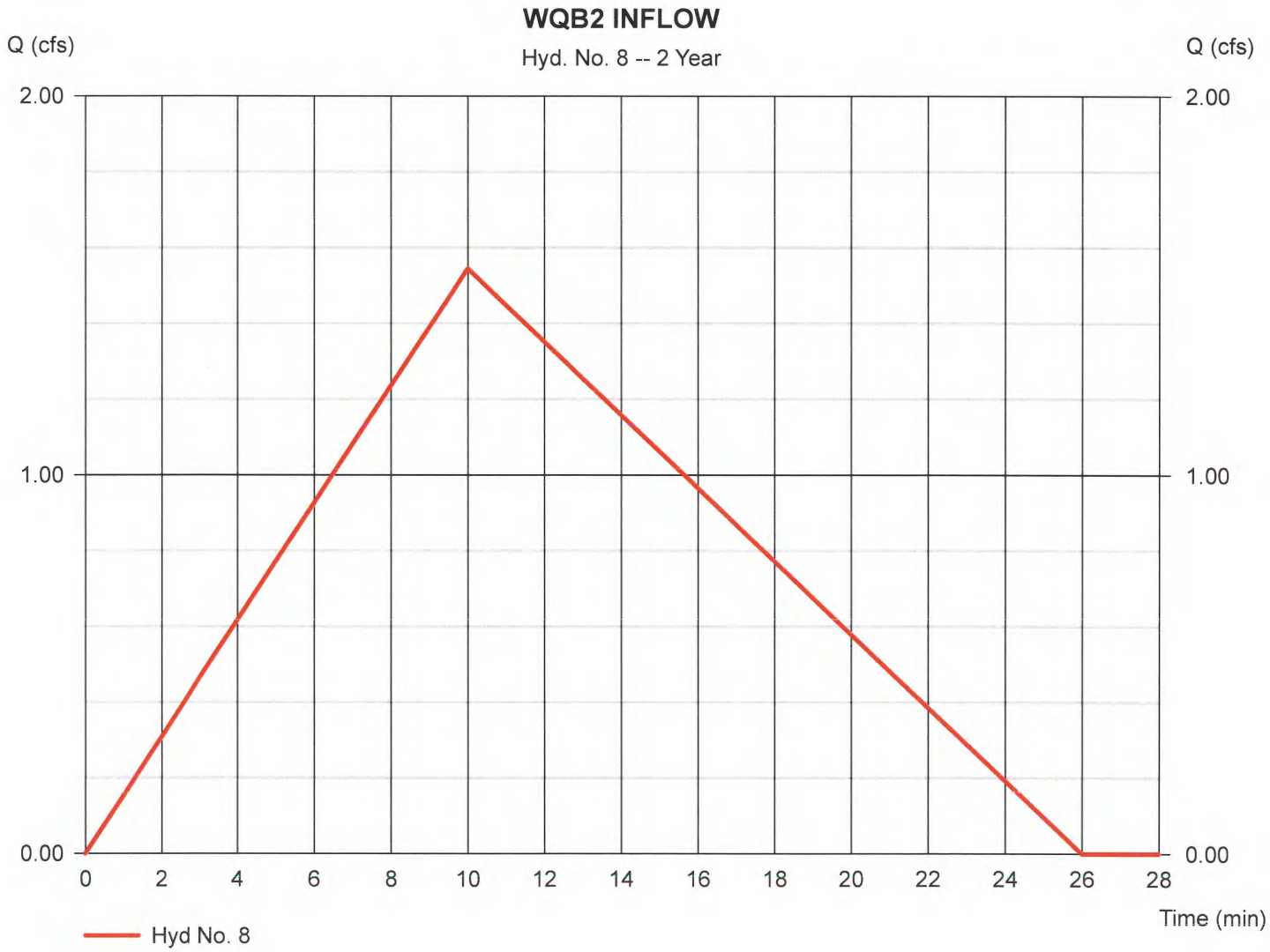
Hydrograph Report

Hyd. No. 8

WQB2 INFLOW

Hydrograph type	= Rational	Peak discharge	= 1.545 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 1,236 cuft
Drainage area	= 1.040 ac	Runoff coeff.	= 0.41*
Intensity	= 3.623 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(0.730 x 0.20) + (0.310 x 0.90)] / 1.040



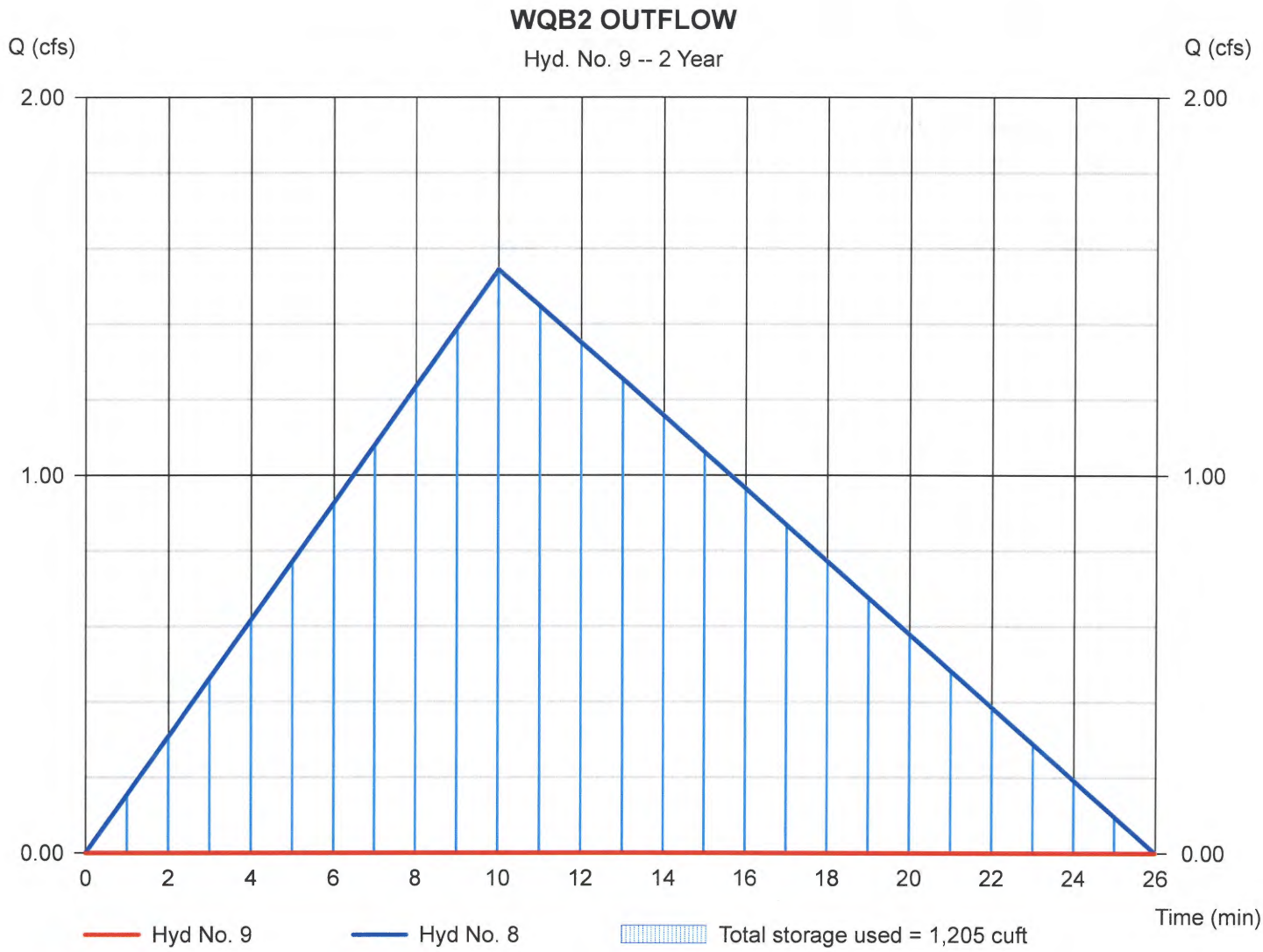
Hydrograph Report

Hyd. No. 9

WQB2 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - WQB2 INFLOW	Max. Elevation	= 175.75 ft
Reservoir name	= WQB2	Max. Storage	= 1,205 cuft

Storage Indication method used.



Pond Report

Pond No. 2 - WQB2

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 175.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	175.00	1,073	0	0
1.00	176.00	2,208	1,607	1,607
2.00	177.00	3,260	2,717	4,323
3.00	178.00	4,393	3,812	8,135
4.00	179.00	5,636	5,001	13,136

Culvert / Orifice Structures

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

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 7.11	0.00	0.00	0.00
Crest El. (ft)	= 178.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

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

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	175.00	---	---	---	---	0.00	---	---	---	---	---	0.00
1.00	1,607	176.00	---	---	---	---	0.00	---	---	---	---	---	0.00
2.00	4,323	177.00	---	---	---	---	0.00	---	---	---	---	---	0.00
3.00	8,135	178.00	---	---	---	---	0.00	---	---	---	---	---	0.00
4.00	13,136	179.00	---	---	---	---	23.68	---	---	---	---	---	23.68

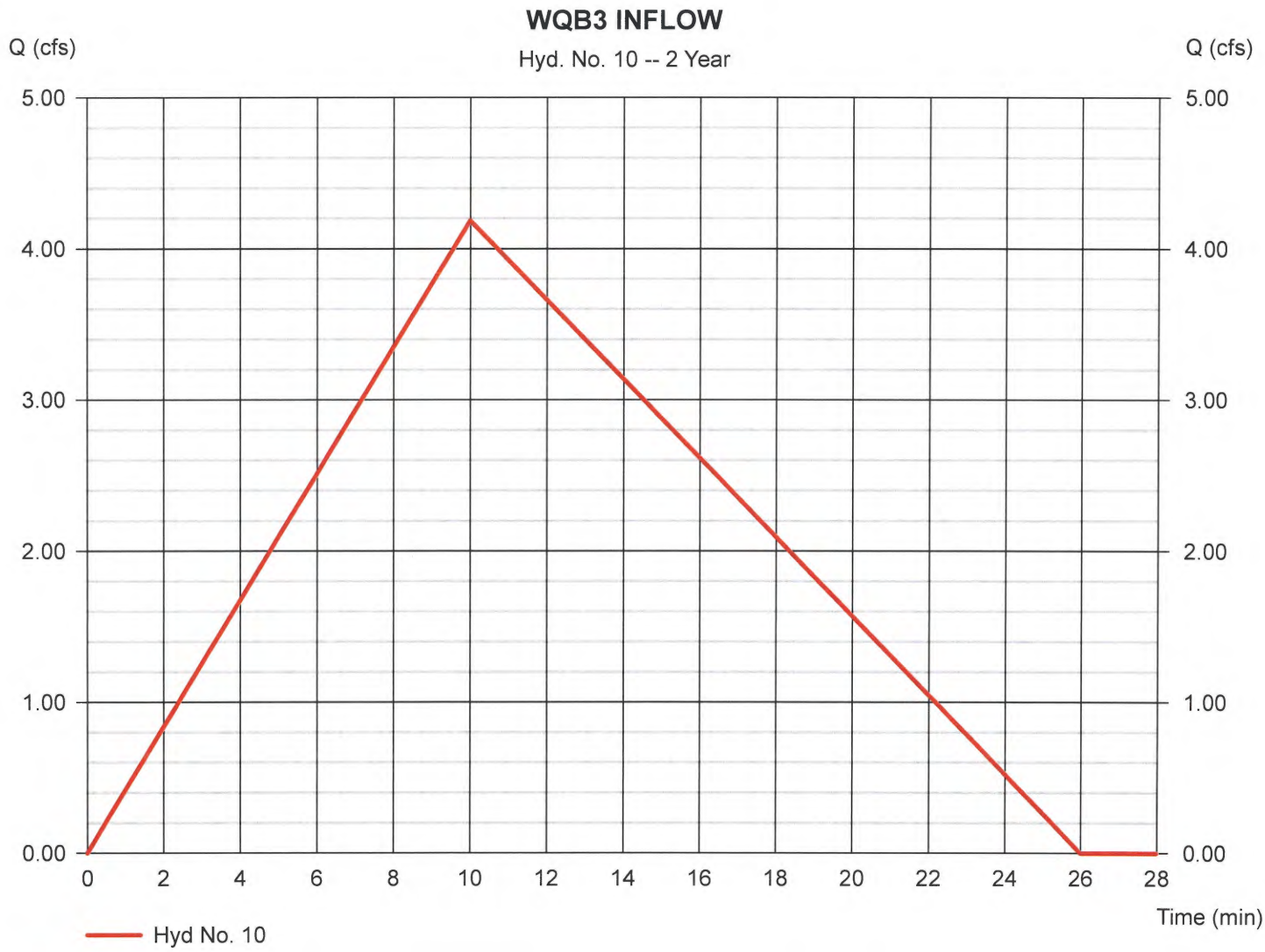
Hydrograph Report

Hyd. No. 10

WQB3 INFLOW

Hydrograph type	= Rational	Peak discharge	= 4.185 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 3,348 cuft
Drainage area	= 3.040 ac	Runoff coeff.	= 0.38*
Intensity	= 3.623 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(2.260 x 0.20) + (0.780 x 0.90)] / 3.040



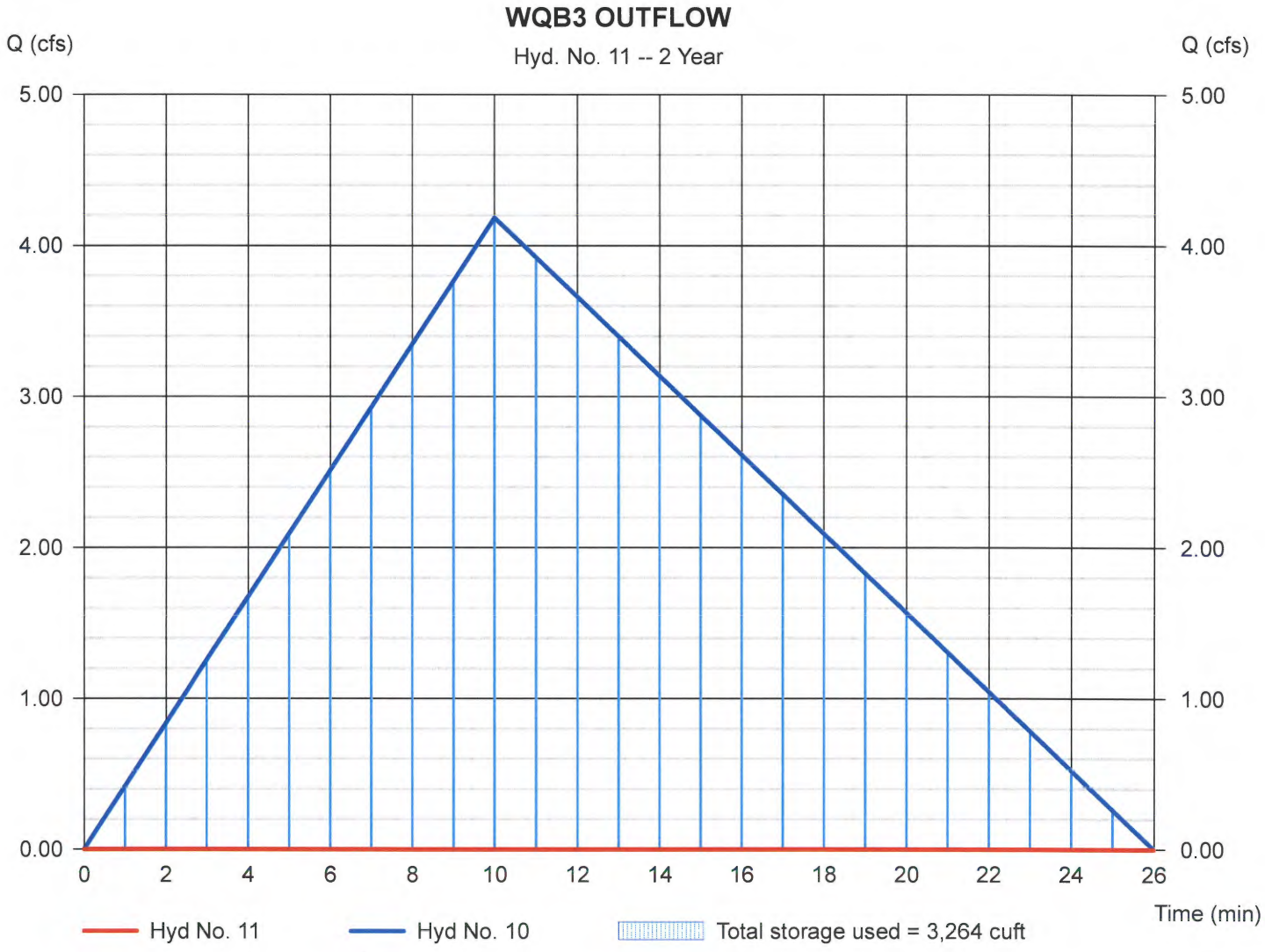
Hydrograph Report

Hyd. No. 11

WQB3 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - WQB3 INFLOW	Max. Elevation	= 177.13 ft
Reservoir name	= WQB3	Max. Storage	= 3,264 cuft

Storage Indication method used.



Pond No. 3 - WQB3

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 176.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	176.00	840	0	0
1.00	177.00	4,450	2,408	2,408
2.00	178.00	9,079	6,628	9,035
3.00	179.00	15,493	12,143	21,178

Culvert / Orifice Structures

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

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 7.11	0.00	0.00	0.00
Crest El. (ft)	= 178.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

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

TW Elev. (ft) = 0.00

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

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	176.00	---	---	---	---	0.00	---	---	---	---	---	0.00
1.00	2,408	177.00	---	---	---	---	0.00	---	---	---	---	---	0.00
2.00	9,035	178.00	---	---	---	---	0.00	---	---	---	---	---	0.00
3.00	21,178	179.00	---	---	---	---	23.68	---	---	---	---	---	23.68

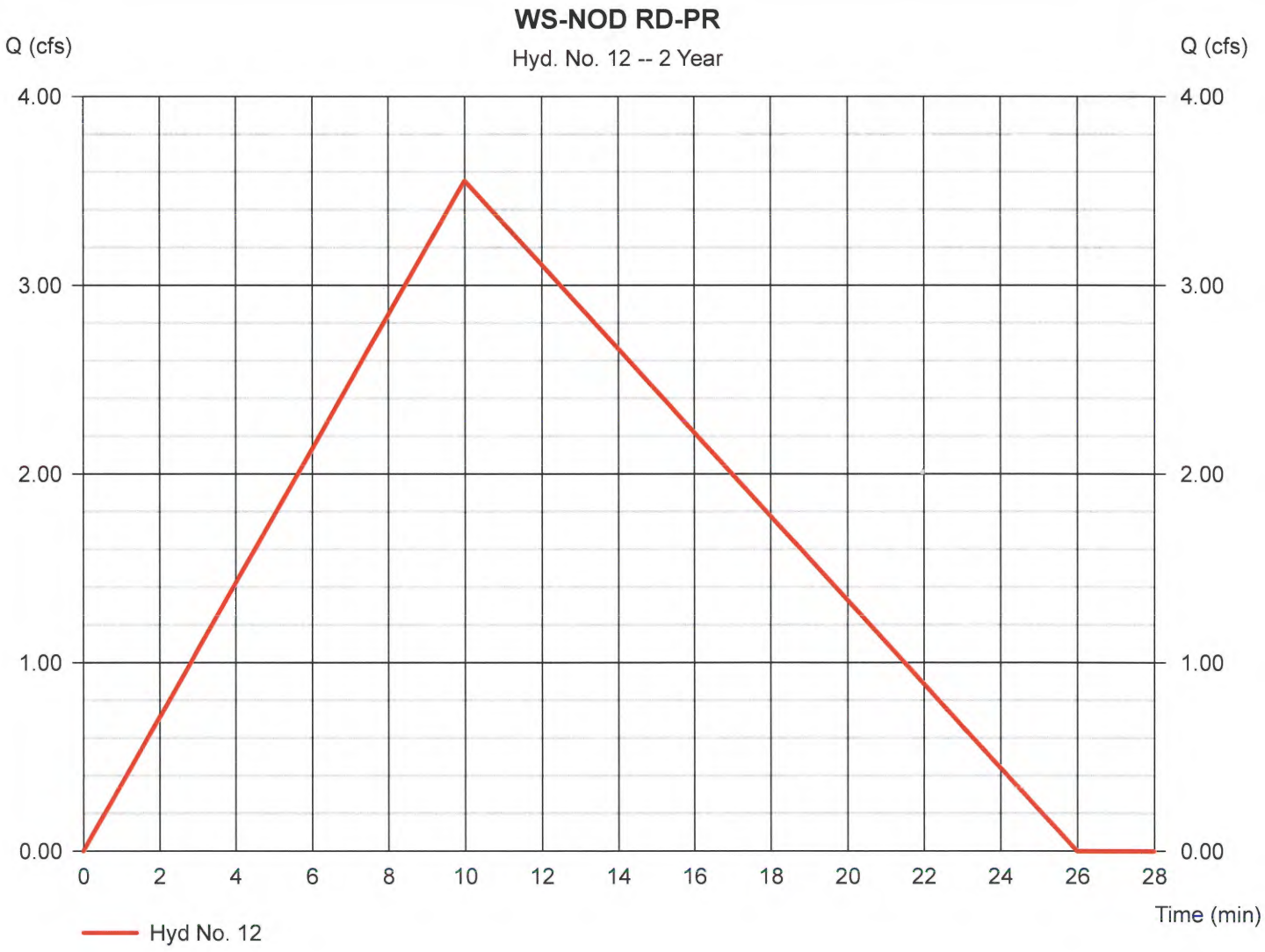
Hydrograph Report

Hyd. No. 12

WS-NOD RD-PR

Hydrograph type	= Rational	Peak discharge	= 3.552 cfs
Storm frequency	= 2 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 2,842 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.53*
Intensity	= 3.623 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.570 x 0.20) + (0.370 x 0.15) + (0.910 x 0.90)] / 1.850

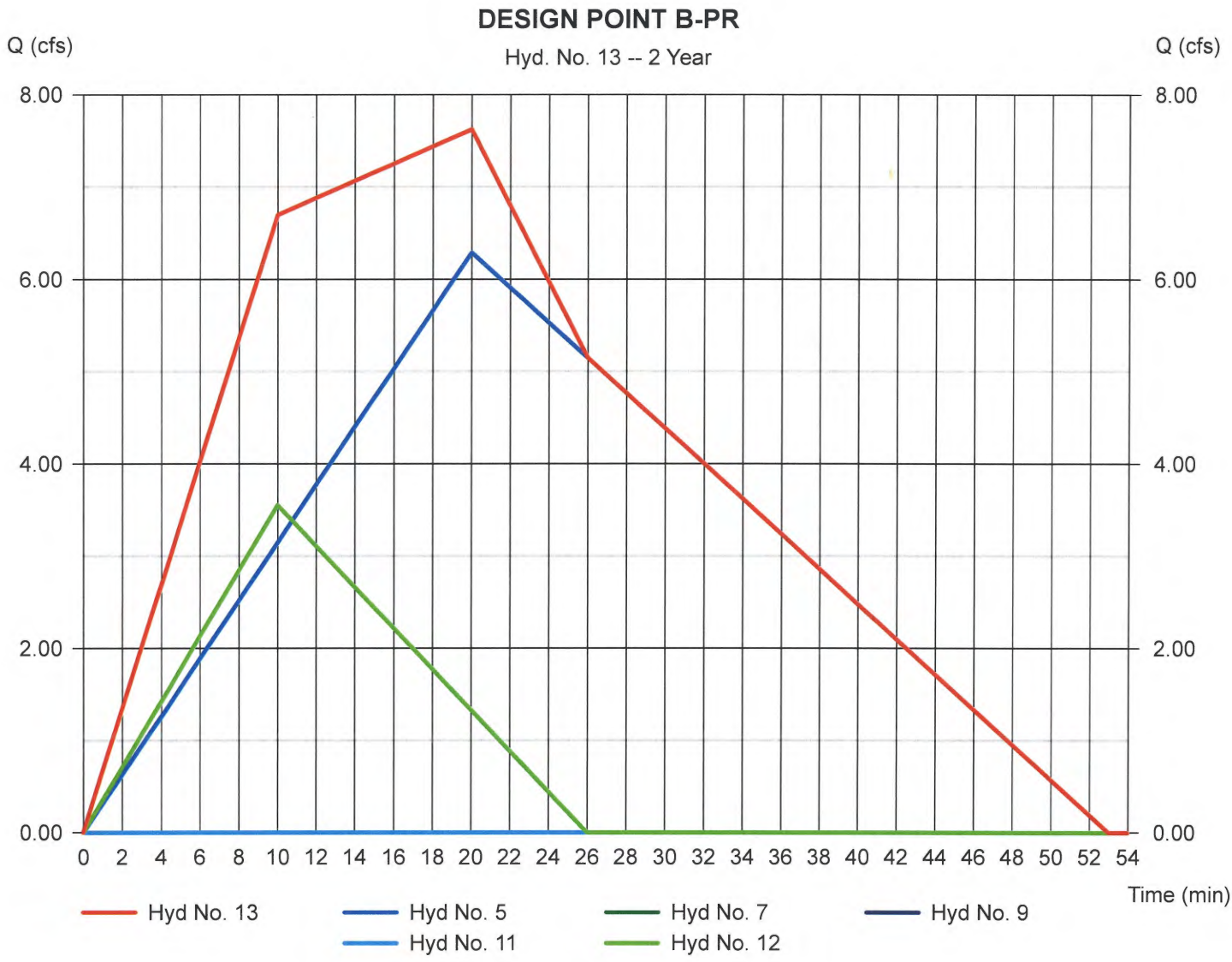


Hydrograph Report

Hyd. No. 13

DESIGN POINT B-PR

Hydrograph type	= Combine	Peak discharge	= 7.623 cfs
Storm frequency	= 2 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 12,774 cuft
Inflow hyds.	= 5, 7, 9, 11, 12	Contrib. drain. area	= 11.770 ac



Hydrograph Report

Hyd. No. 1

WS-EAST-EX

Hydrograph type	= Rational	Peak discharge	= 8.195 cfs
Storm frequency	= 5 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 11,803 cuft
Drainage area	= 9.900 ac	Runoff coeff.	= 0.25*
Intensity	= 3.311 in/hr	Tc by TR55	= 18.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.820 x 0.20) + (6.840 x 0.15) + (1.240 x 0.90)] / 9.900

Hydrograph Report

Hyd. No. 2

WS-SITE-EX

Hydrograph type	= Rational	Peak discharge	= 5.532 cfs
Storm frequency	= 5 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 7,525 cuft
Drainage area	= 8.500 ac	Runoff coeff.	= 0.19*
Intensity	= 3.426 in/hr	Tc by TR55	= 17.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(7.510 x 0.20) + (0.990 x 0.15)] / 8.500

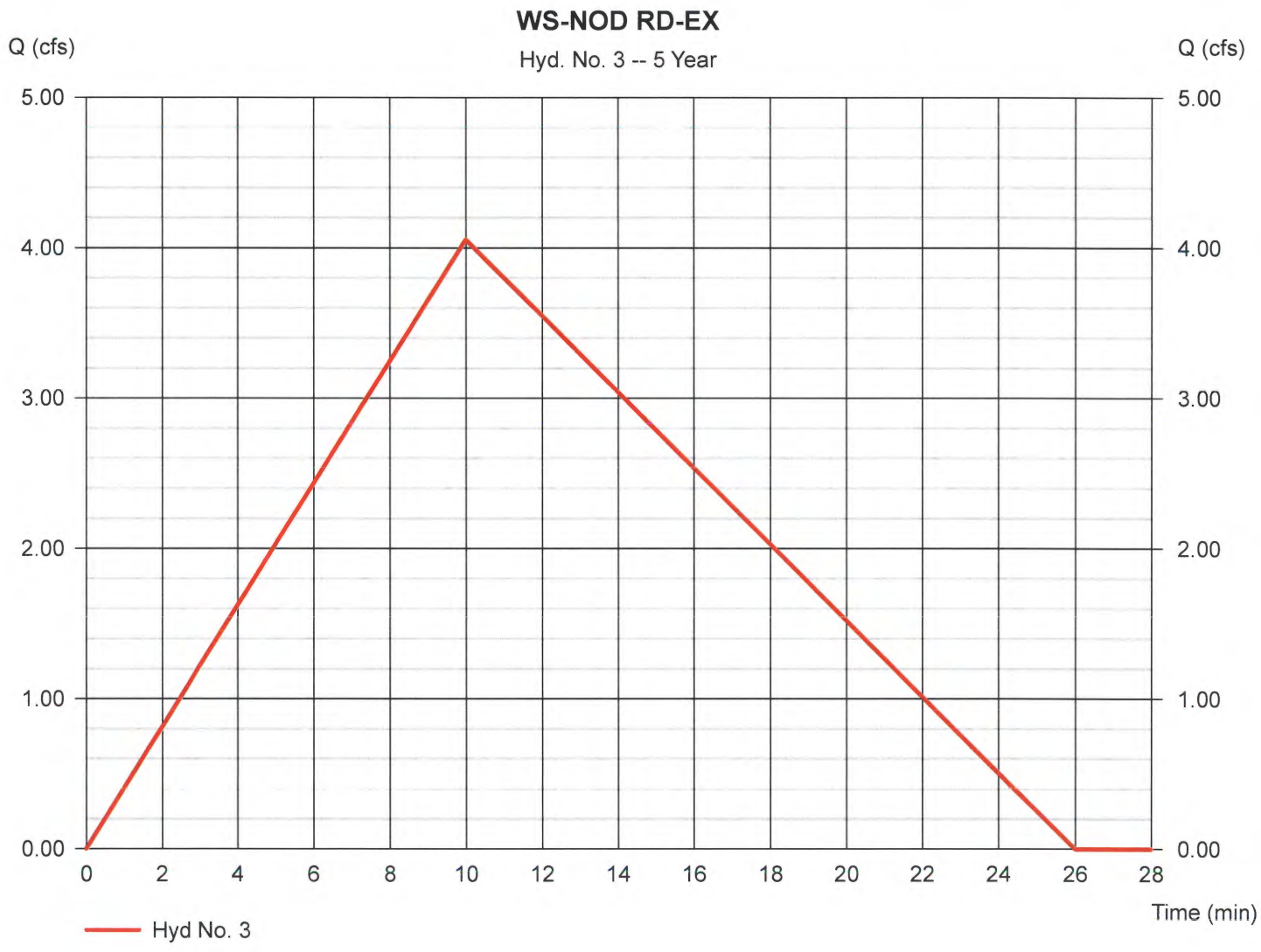
Hydrograph Report

Hyd. No. 3

WS-NOD RD-EX

Hydrograph type	= Rational	Peak discharge	= 4.055 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 3,245 cuft
Drainage area	= 1.600 ac	Runoff coeff.	= 0.55*
Intensity	= 4.608 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.400 x 0.20) + (0.370 x 0.15) + (0.830 x 0.90)] / 1.600

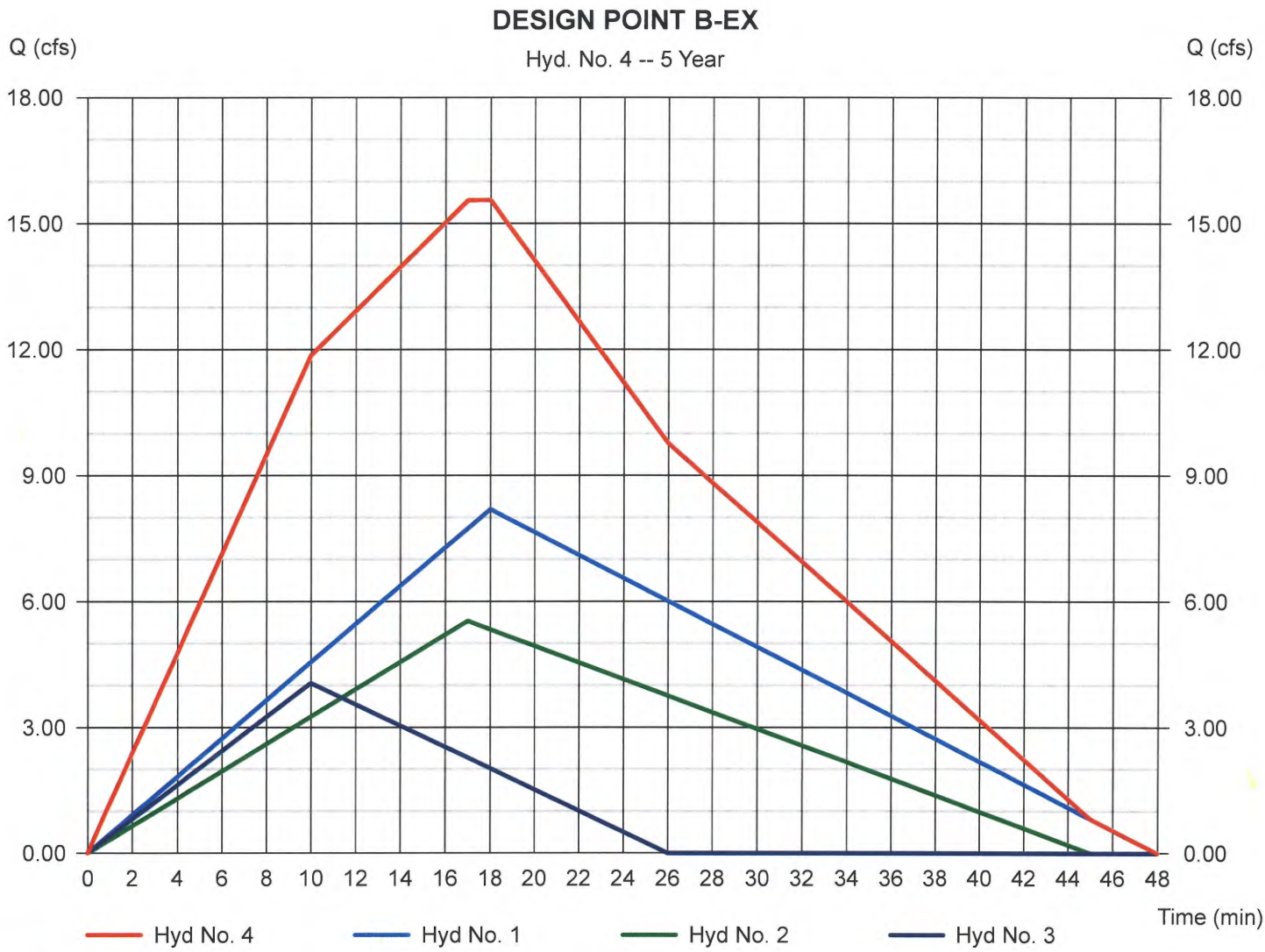


Hydrograph Report

Hyd. No. 4

DESIGN POINT B-EX

Hydrograph type	= Combine	Peak discharge	= 15.56 cfs
Storm frequency	= 5 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 22,433 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 20.000 ac



Hydrograph Report

Hyd. No. 5

WS-EAST-PR

Hydrograph type	= Rational	Peak discharge	= 8.015 cfs
Storm frequency	= 5 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 12,825 cuft
Drainage area	= 9.920 ac	Runoff coeff.	= 0.26*
Intensity	= 3.107 in/hr	Tc by TR55	= 20.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.810 x 0.20) + (6.840 x 0.15) + (1.270 x 0.90)] / 9.920

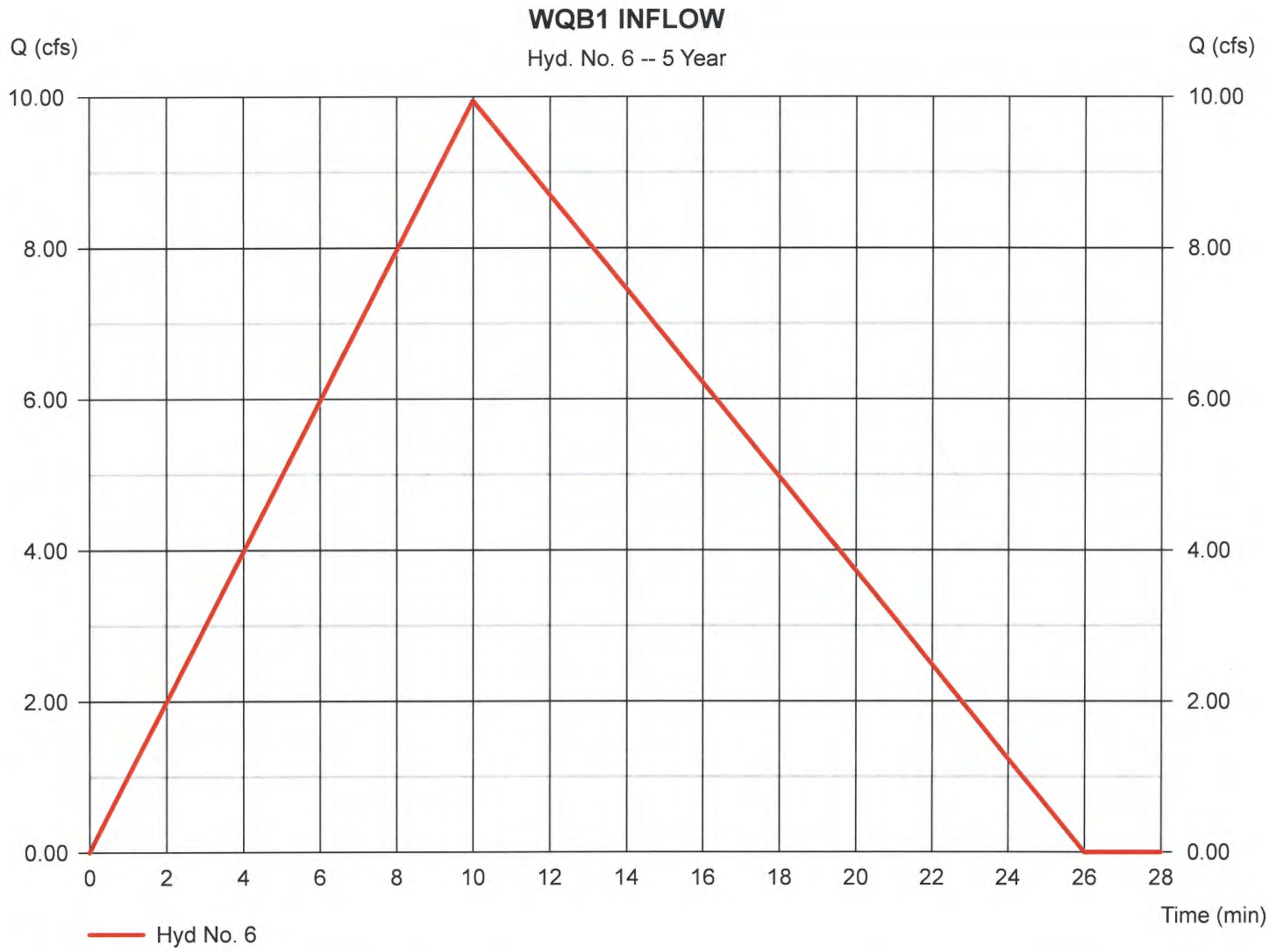
Hydrograph Report

Hyd. No. 6

WQB1 INFLOW

Hydrograph type	= Rational	Peak discharge	= 9.945 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 7,956 cuft
Drainage area	= 4.150 ac	Runoff coeff.	= 0.52*
Intensity	= 4.608 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(2.250 x 0.20) + (1.900 x 0.90)] / 4.150



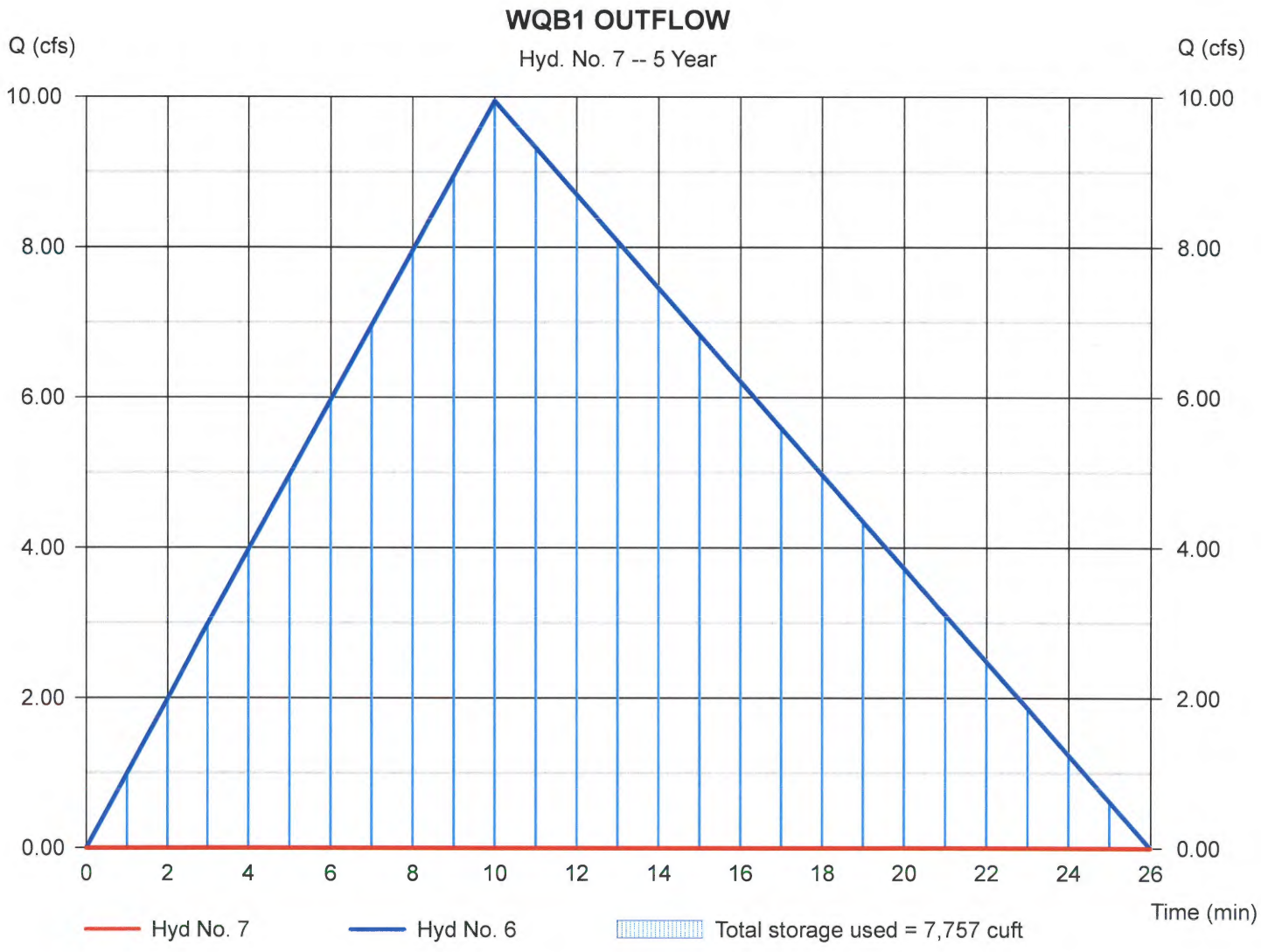
Hydrograph Report

Hyd. No. 7

WQB1 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 5 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 6 - WQB1 INFLOW	Max. Elevation	= 171.47 ft
Reservoir name	= WQB1	Max. Storage	= 7,757 cuft

Storage Indication method used.



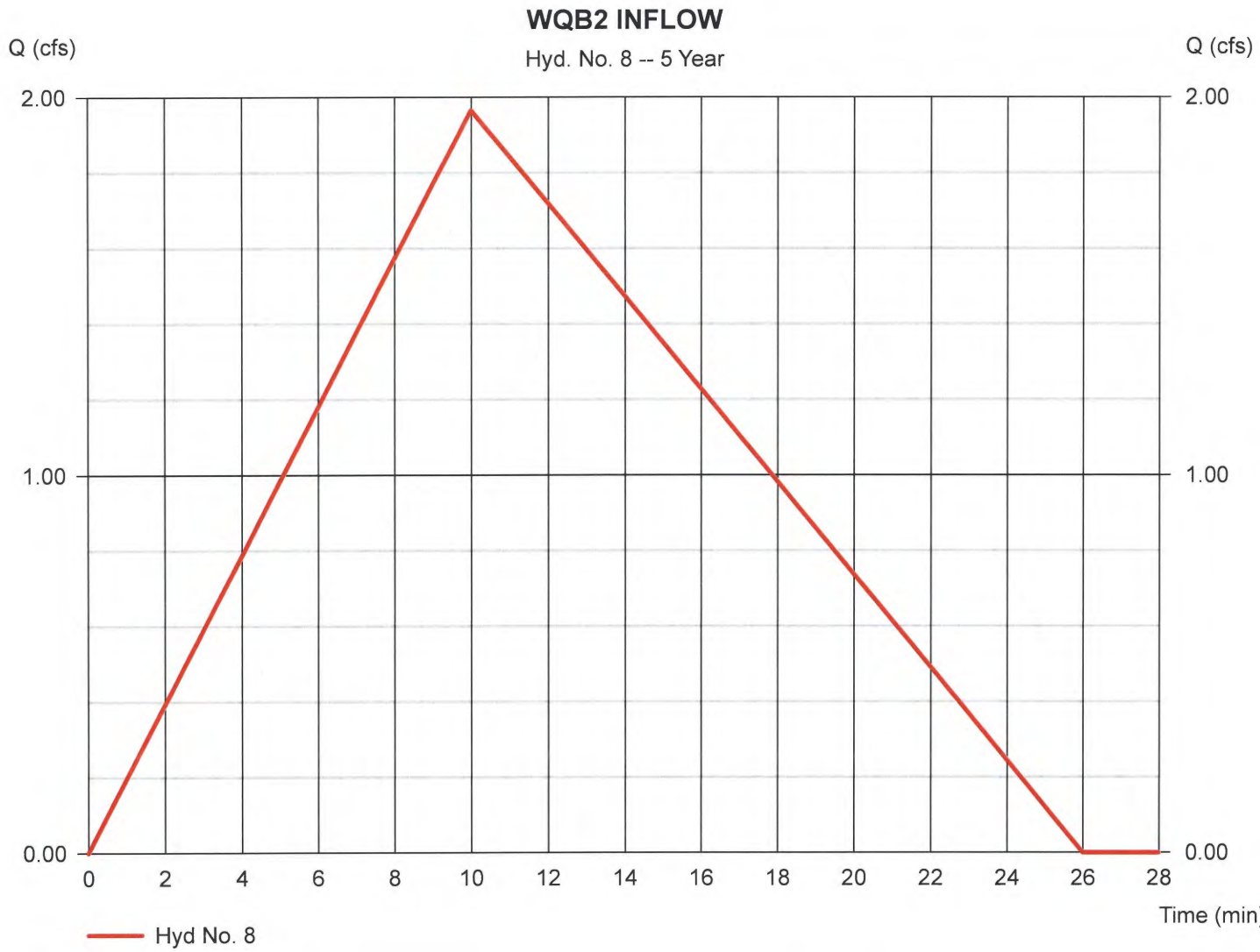
Hydrograph Report

Hyd. No. 8

WQB2 INFLOW

Hydrograph type	= Rational	Peak discharge	= 1.965 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 1,572 cuft
Drainage area	= 1.040 ac	Runoff coeff.	= 0.41*
Intensity	= 4.608 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(0.730 x 0.20) + (0.310 x 0.90)] / 1.040



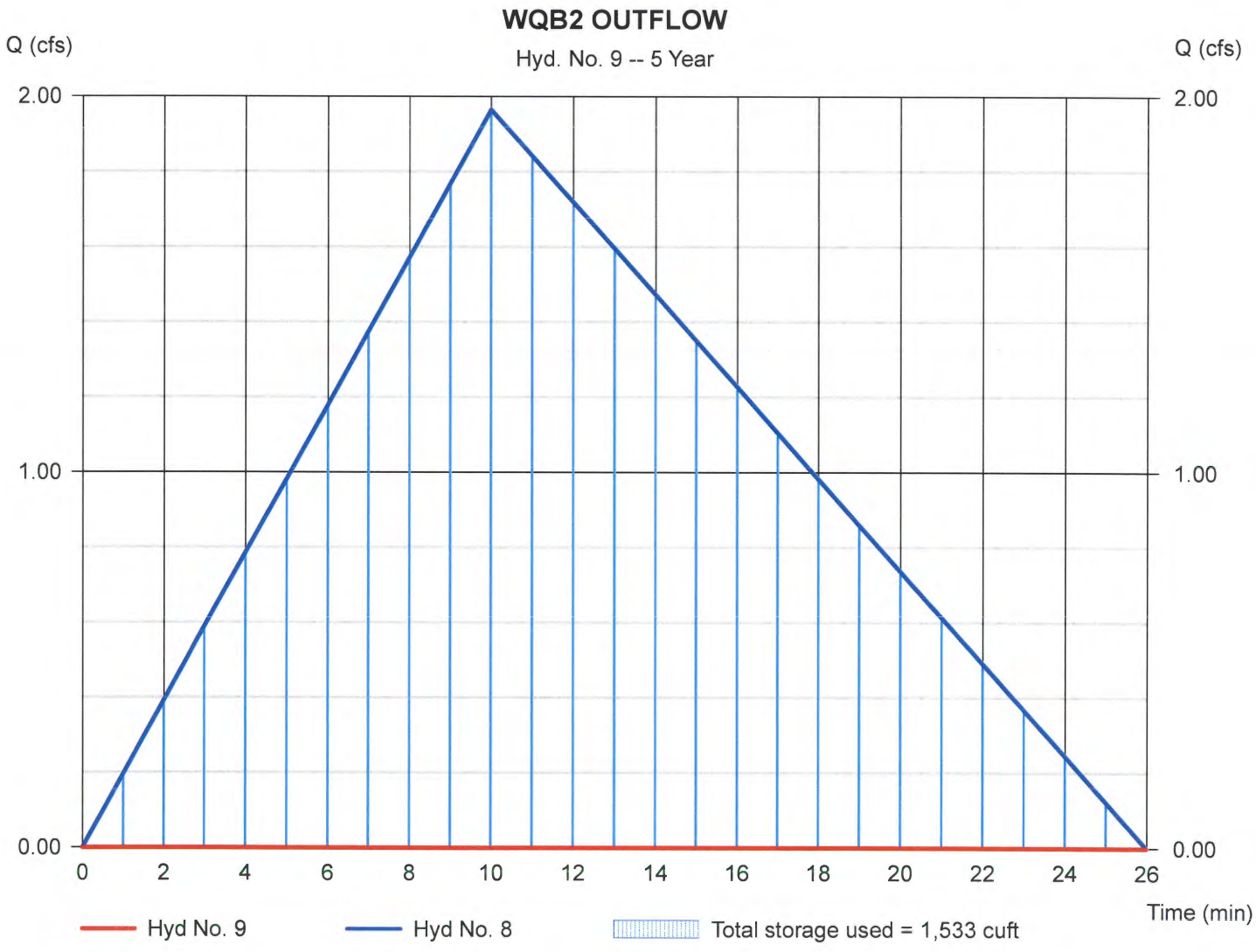
Hydrograph Report

Hyd. No. 9

WQB2 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 5 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - WQB2 INFLOW	Max. Elevation	= 175.95 ft
Reservoir name	= WQB2	Max. Storage	= 1,533 cuft

Storage Indication method used.



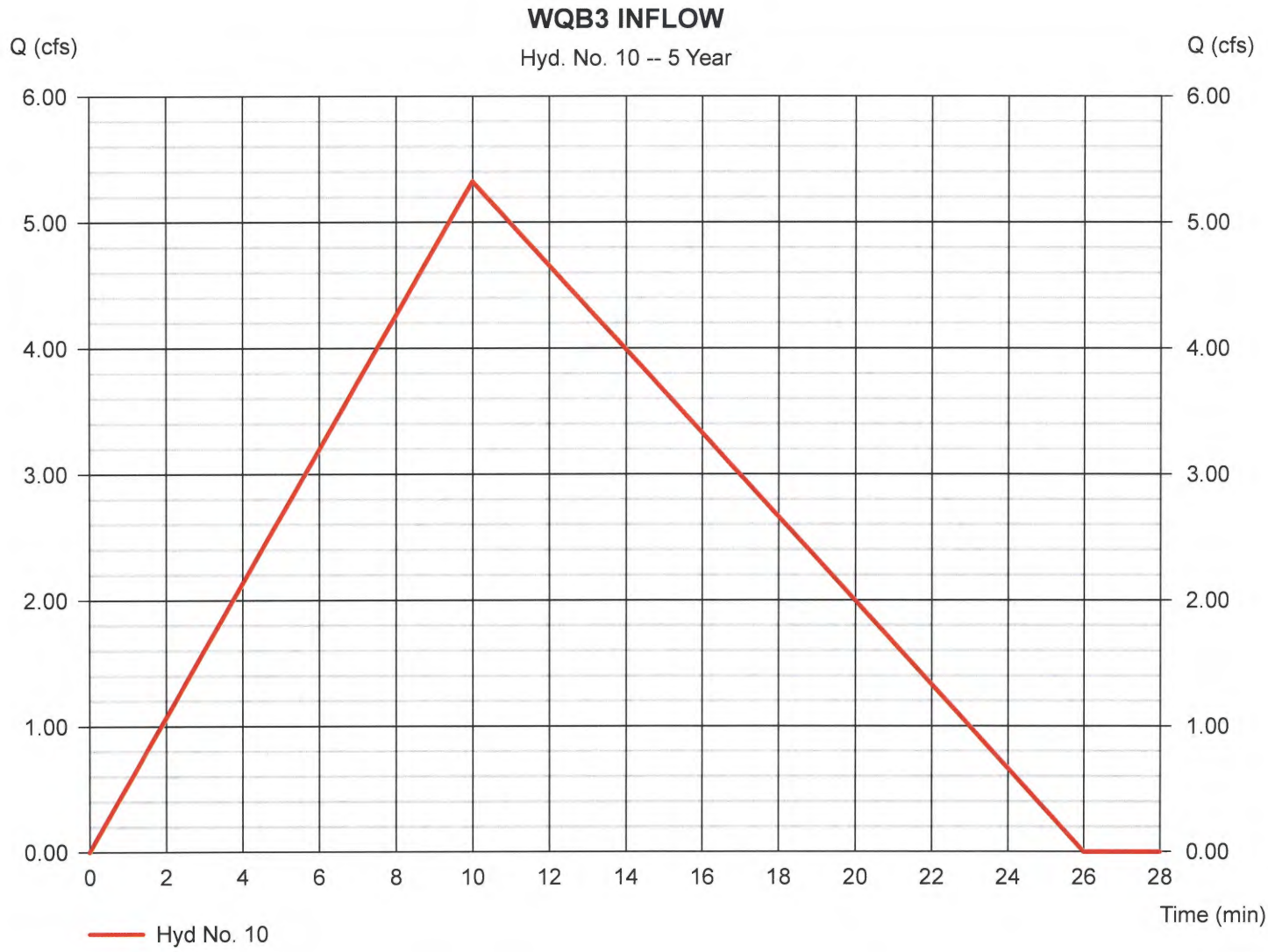
Hydrograph Report

Hyd. No. 10

WQB3 INFLOW

Hydrograph type	= Rational	Peak discharge	= 5.324 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 4,259 cuft
Drainage area	= 3.040 ac	Runoff coeff.	= 0.38*
Intensity	= 4.608 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(2.260 x 0.20) + (0.780 x 0.90)] / 3.040



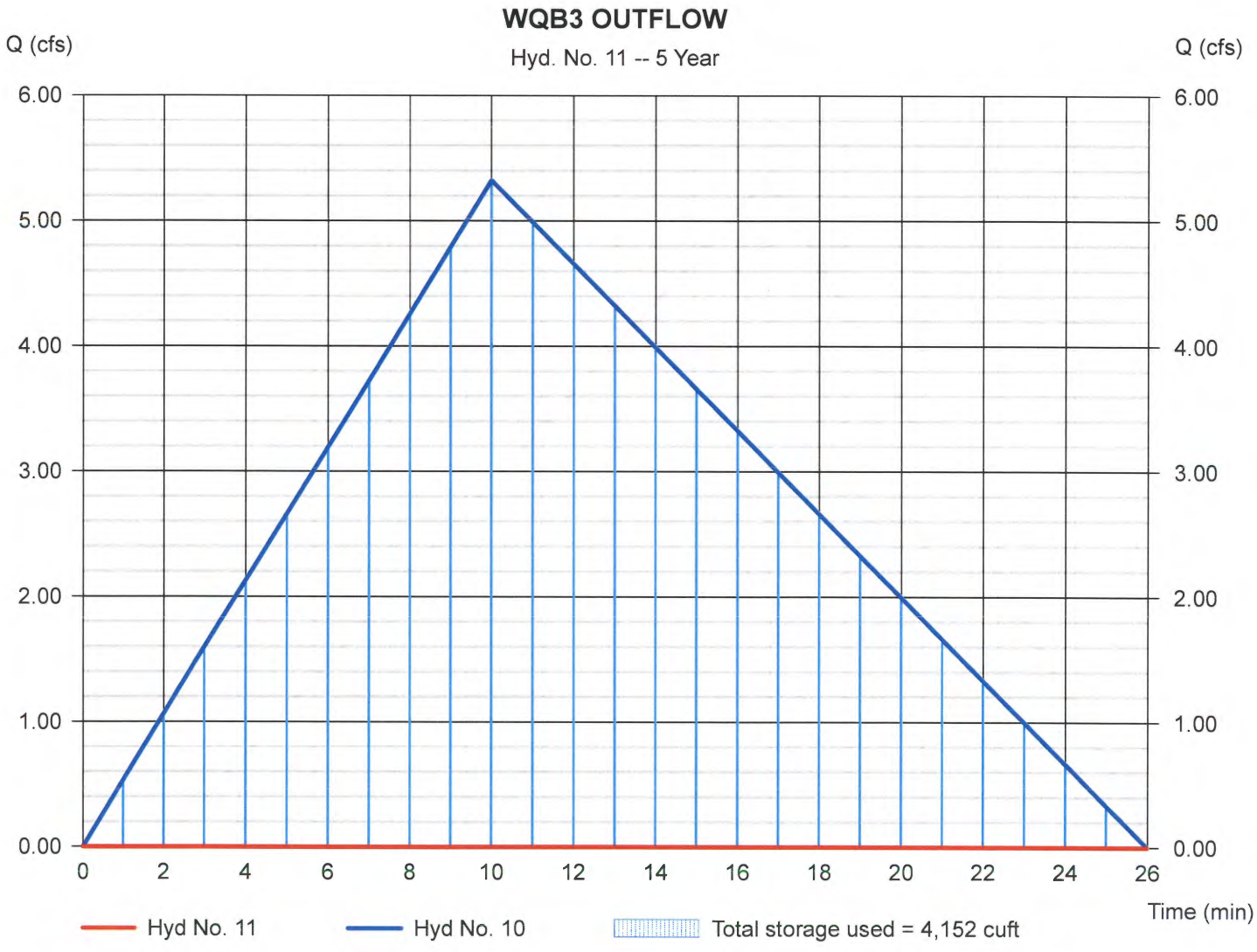
Hydrograph Report

Hyd. No. 11

WQB3 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 5 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - WQB3 INFLOW	Max. Elevation	= 177.26 ft
Reservoir name	= WQB3	Max. Storage	= 4,152 cuft

Storage Indication method used.



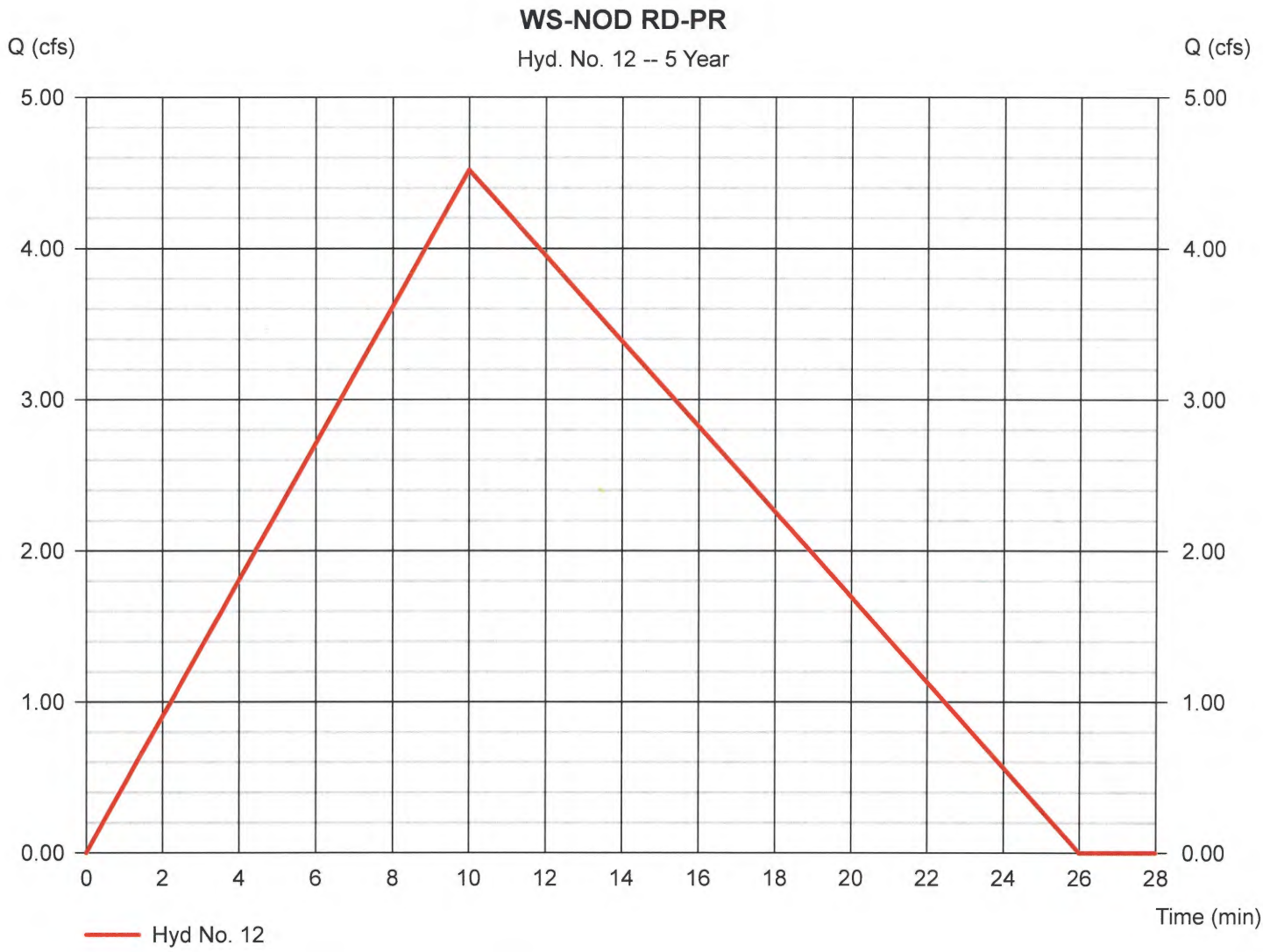
Hydrograph Report

Hyd. No. 12

WS-NOD RD-PR

Hydrograph type	= Rational	Peak discharge	= 4.518 cfs
Storm frequency	= 5 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 3,615 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.53*
Intensity	= 4.608 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.570 x 0.20) + (0.370 x 0.15) + (0.910 x 0.90)] / 1.850

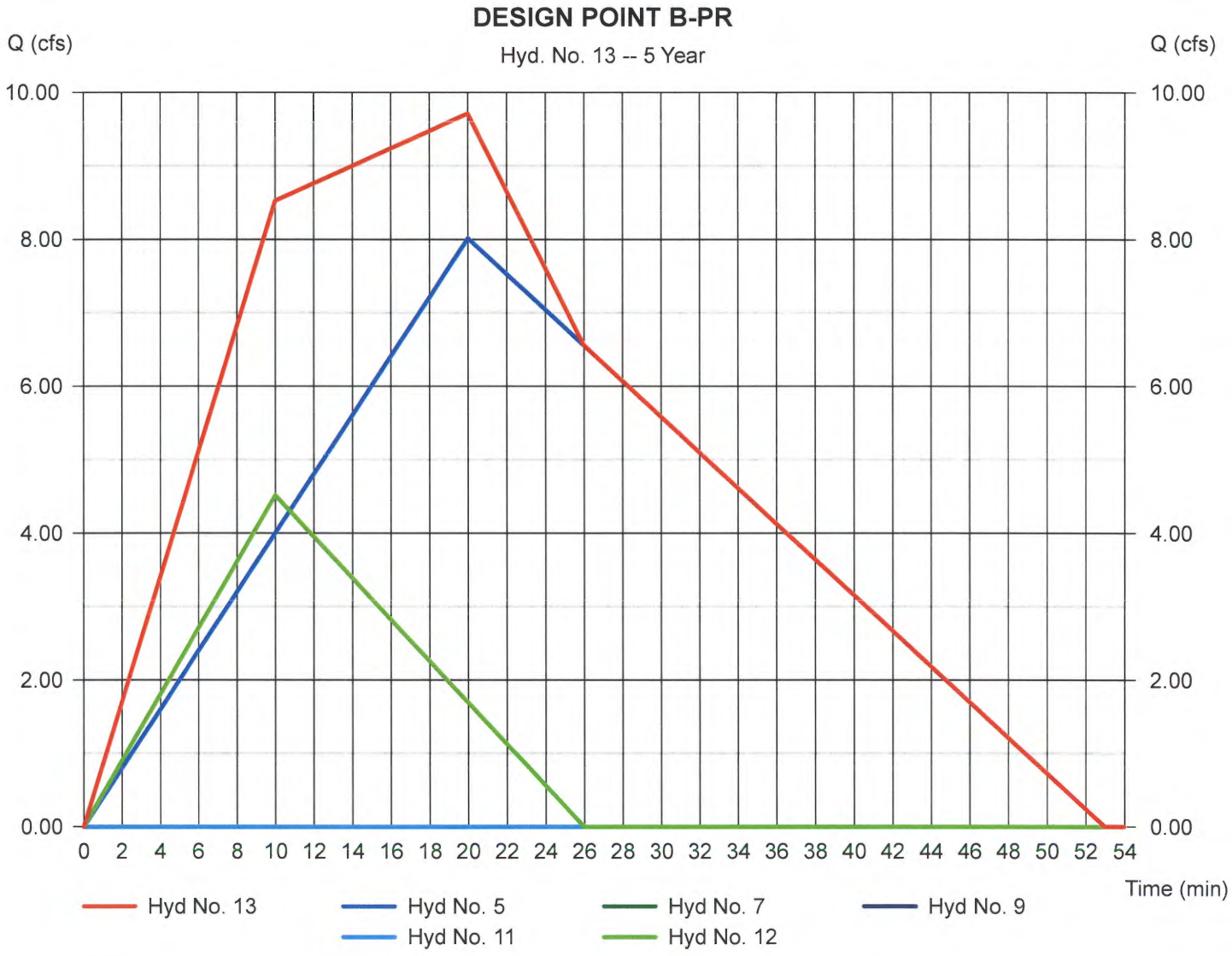


Hydrograph Report

Hyd. No. 13

DESIGN POINT B-PR

Hydrograph type	= Combine	Peak discharge	= 9.709 cfs
Storm frequency	= 5 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 16,268 cuft
Inflow hyds.	= 5, 7, 9, 11, 12	Contrib. drain. area	= 11.770 ac



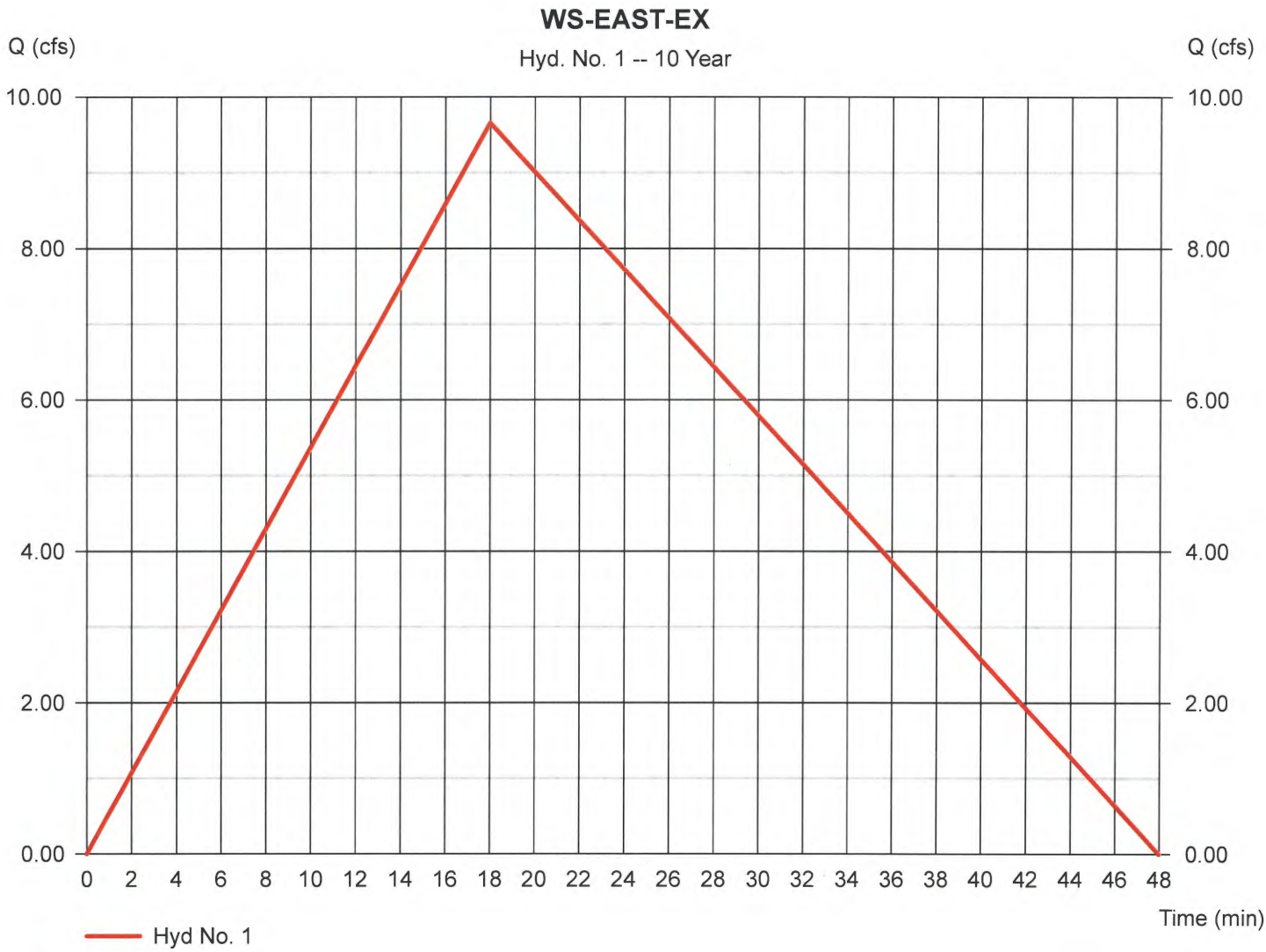
Hydrograph Report

Hyd. No. 1

WS-EAST-EX

Hydrograph type	= Rational	Peak discharge	= 9.657 cfs
Storm frequency	= 10 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 13,908 cuft
Drainage area	= 9.900 ac	Runoff coeff.	= 0.25*
Intensity	= 3.902 in/hr	Tc by TR55	= 18.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.820 x 0.20) + (6.840 x 0.15) + (1.240 x 0.90)] / 9.900



Hydrograph Report

Hyd. No. 2

WS-SITE-EX

Hydrograph type	= Rational	Peak discharge	= 6.519 cfs
Storm frequency	= 10 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 8,867 cuft
Drainage area	= 8.500 ac	Runoff coeff.	= 0.19*
Intensity	= 4.037 in/hr	Tc by TR55	= 17.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(7.510 x 0.20) + (0.990 x 0.15)] / 8.500

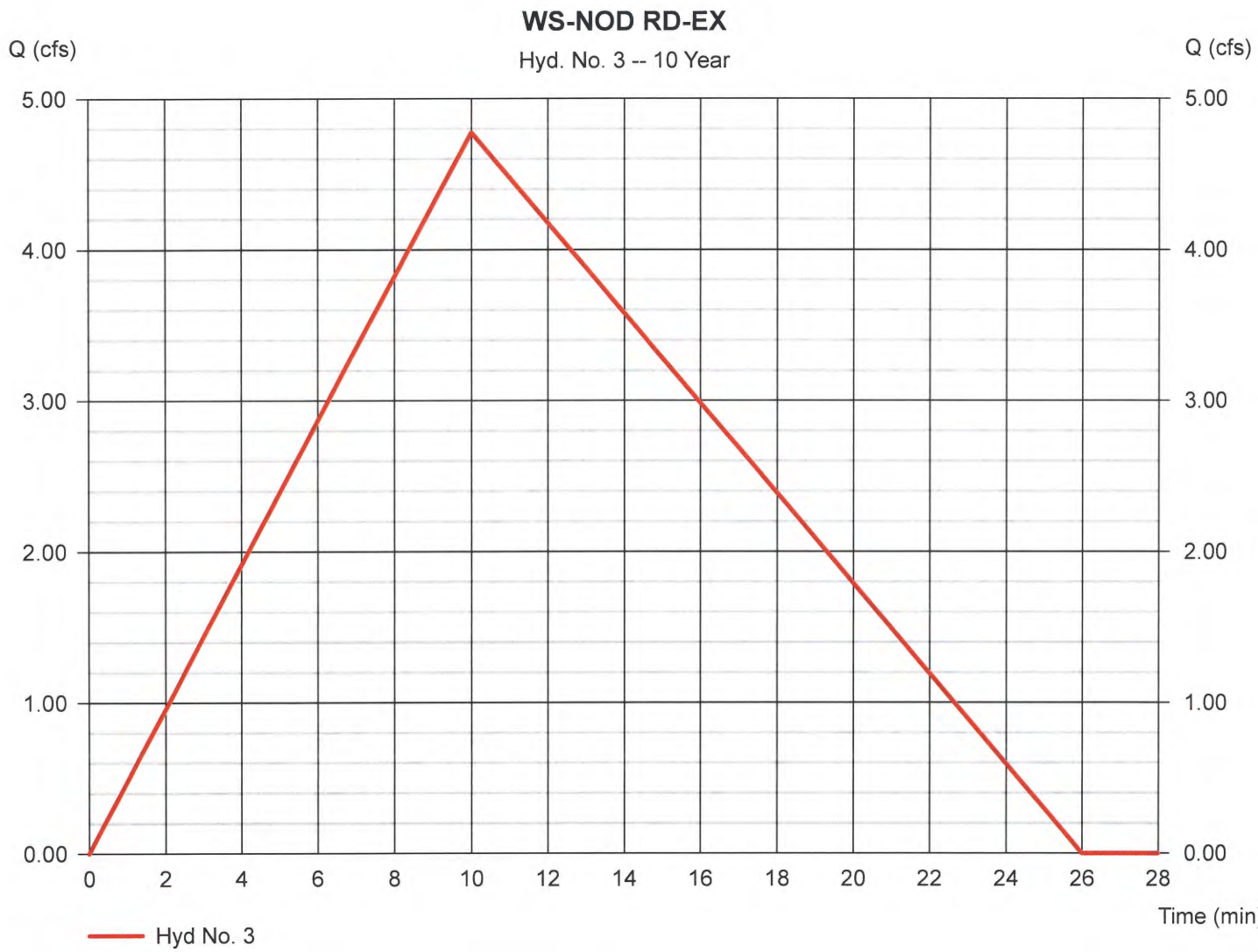
Hydrograph Report

Hyd. No. 3

WS-NOD RD-EX

Hydrograph type	= Rational	Peak discharge	= 4.775 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 3,821 cuft
Drainage area	= 1.600 ac	Runoff coeff.	= 0.55*
Intensity	= 5.427 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.400 x 0.20) + (0.370 x 0.15) + (0.830 x 0.90)] / 1.600

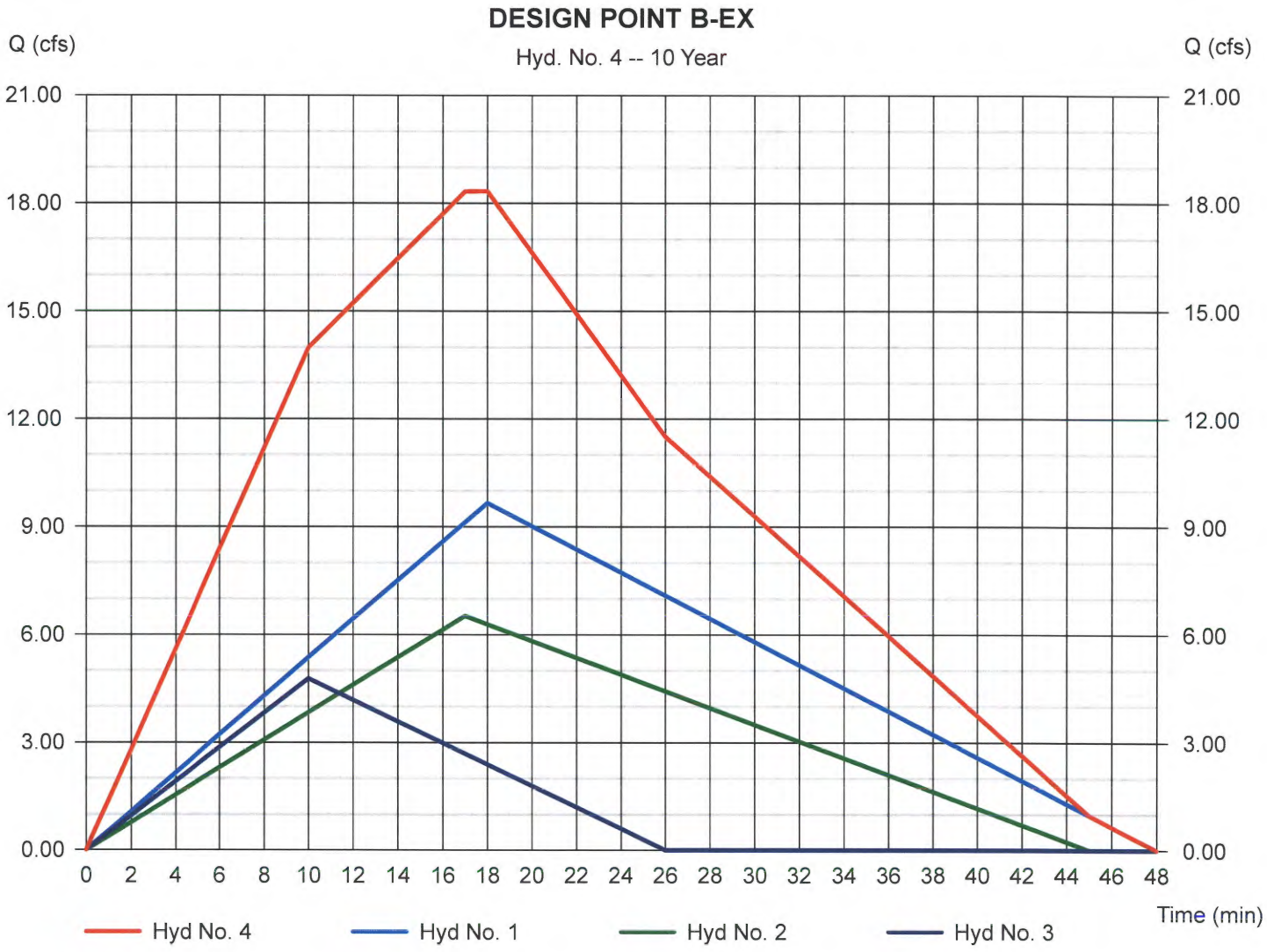


Hydrograph Report

Hyd. No. 4

DESIGN POINT B-EX

Hydrograph type	= Combine	Peak discharge	= 18.33 cfs
Storm frequency	= 10 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 26,432 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 20.000 ac



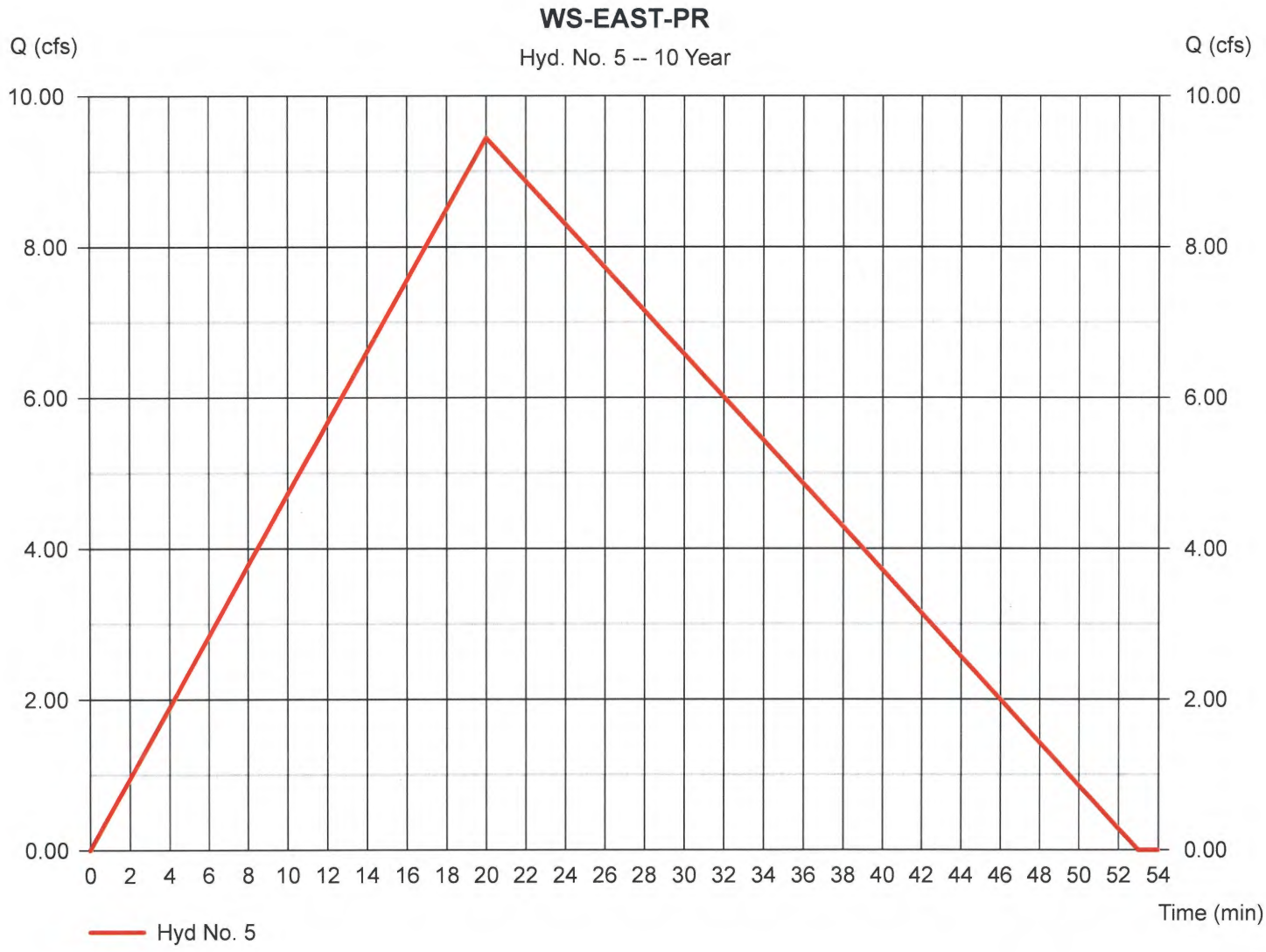
Hydrograph Report

Hyd. No. 5

WS-EAST-PR

Hydrograph type	= Rational	Peak discharge	= 9.445 cfs
Storm frequency	= 10 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 15,114 cuft
Drainage area	= 9.920 ac	Runoff coeff.	= 0.26*
Intensity	= 3.662 in/hr	Tc by TR55	= 20.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.810 x 0.20) + (6.840 x 0.15) + (1.270 x 0.90)] / 9.920



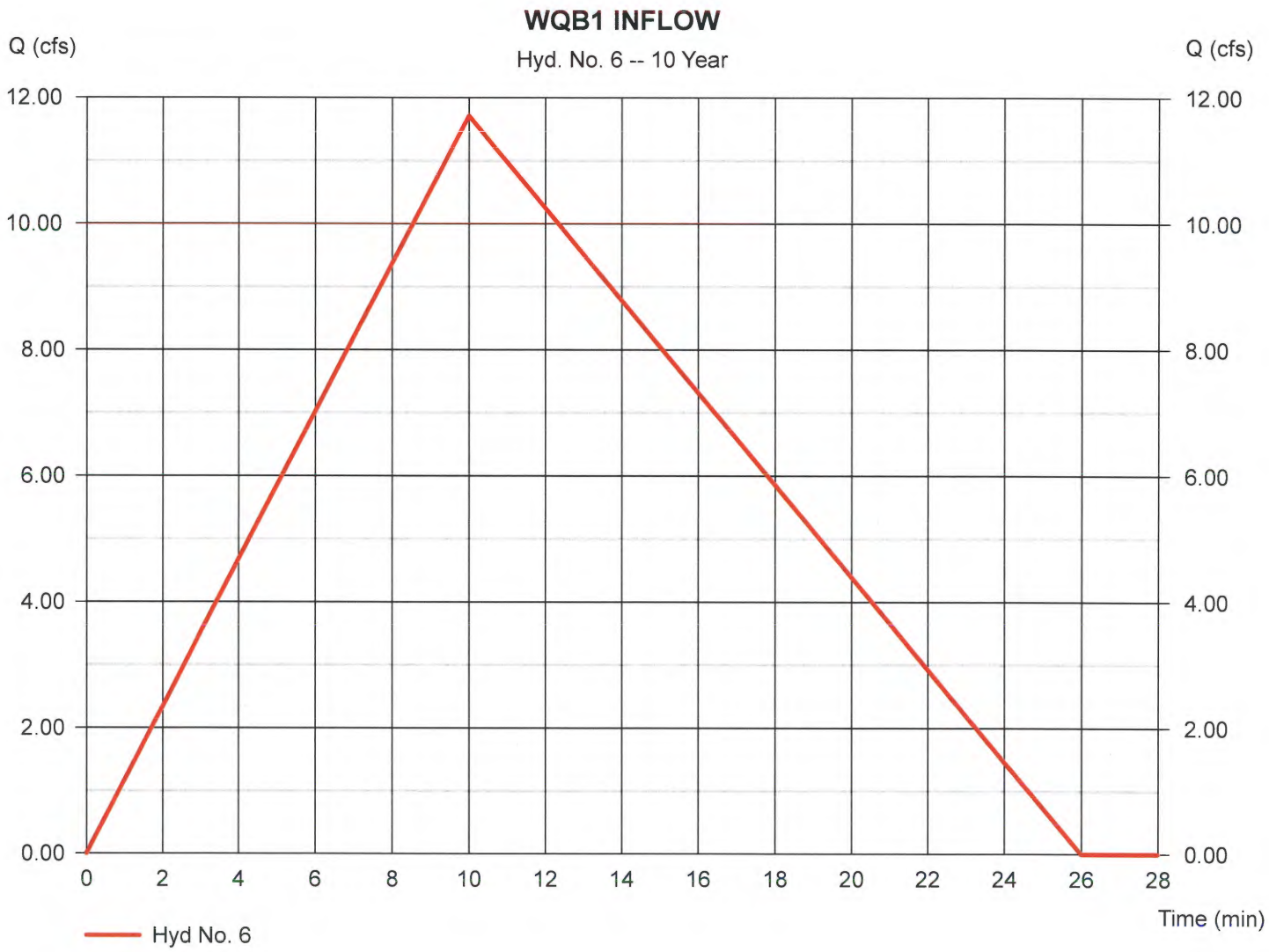
Hydrograph Report

Hyd. No. 6

WQB1 INFLOW

Hydrograph type	= Rational	Peak discharge	= 11.71 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 9,369 cuft
Drainage area	= 4.150 ac	Runoff coeff.	= 0.52*
Intensity	= 5.427 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(2.250 x 0.20) + (1.900 x 0.90)] / 4.150



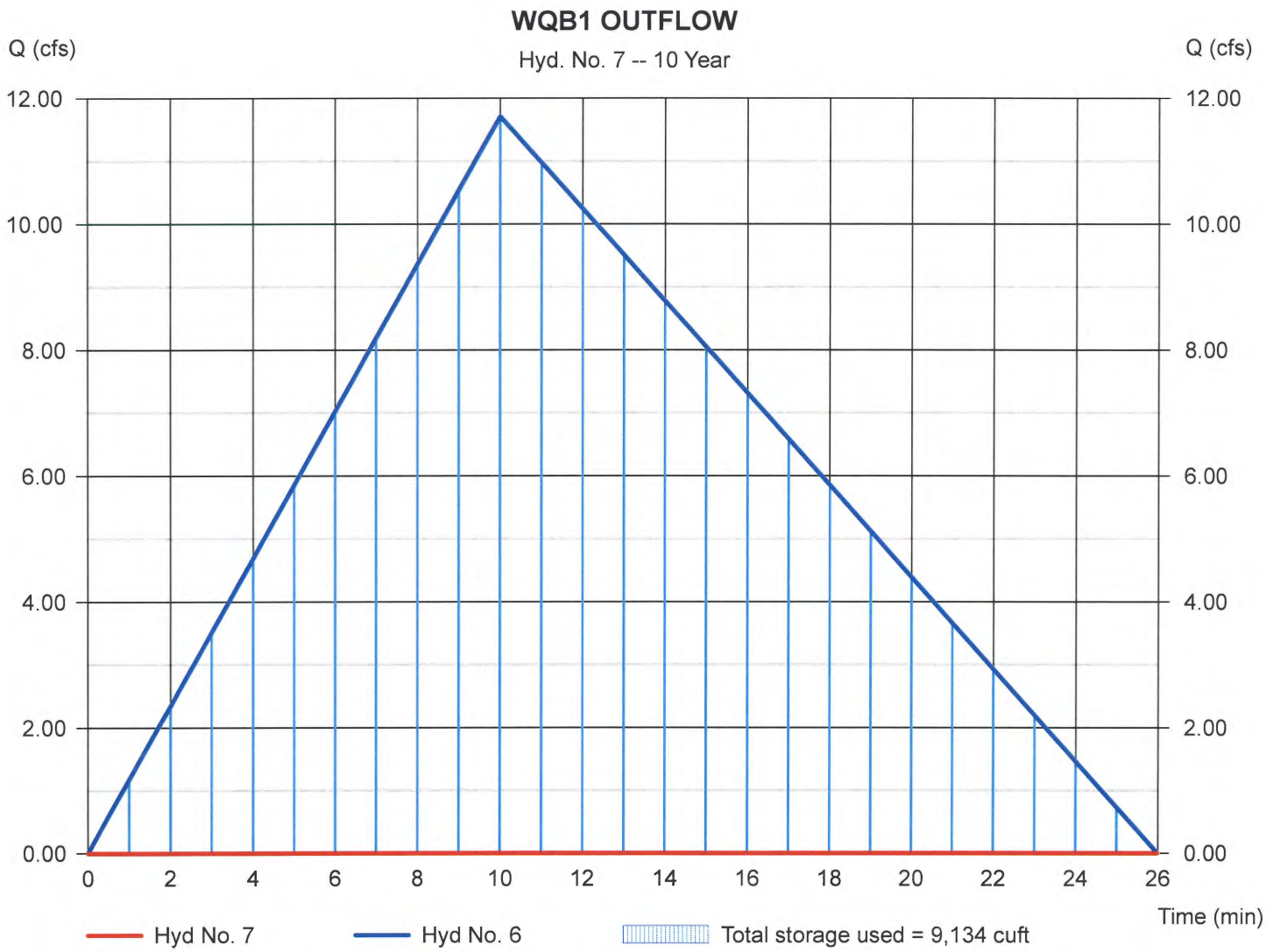
Hydrograph Report

Hyd. No. 7

WQB1 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 6 - WQB1 INFLOW	Max. Elevation	= 171.66 ft
Reservoir name	= WQB1	Max. Storage	= 9,134 cuft

Storage Indication method used.



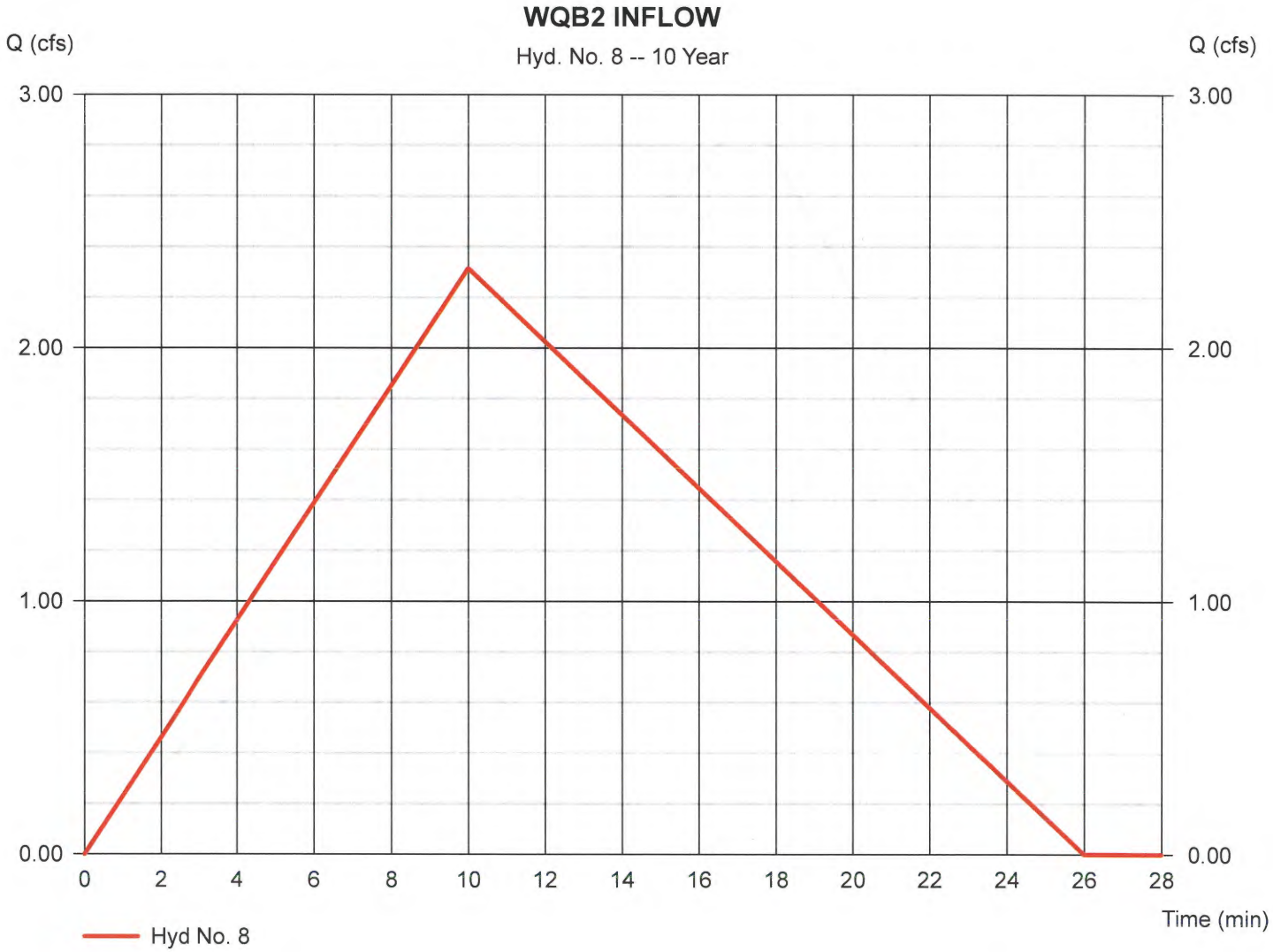
Hydrograph Report

Hyd. No. 8

WQB2 INFLOW

Hydrograph type	= Rational	Peak discharge	= 2.314 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 1,851 cuft
Drainage area	= 1.040 ac	Runoff coeff.	= 0.41*
Intensity	= 5.427 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(0.730 x 0.20) + (0.310 x 0.90)] / 1.040



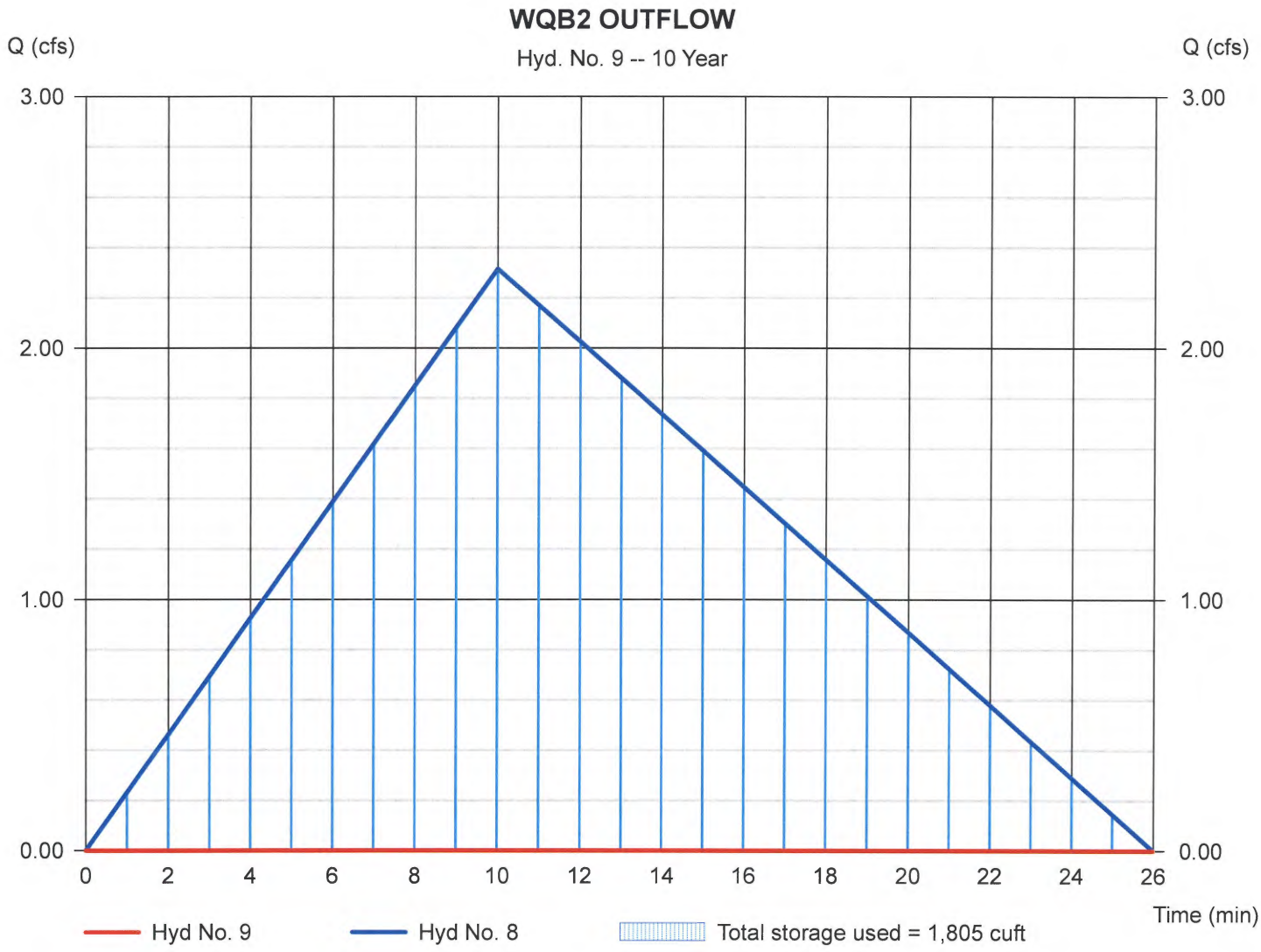
Hydrograph Report

Hyd. No. 9

WQB2 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - WQB2 INFLOW	Max. Elevation	= 176.07 ft
Reservoir name	= WQB2	Max. Storage	= 1,805 cuft

Storage Indication method used.



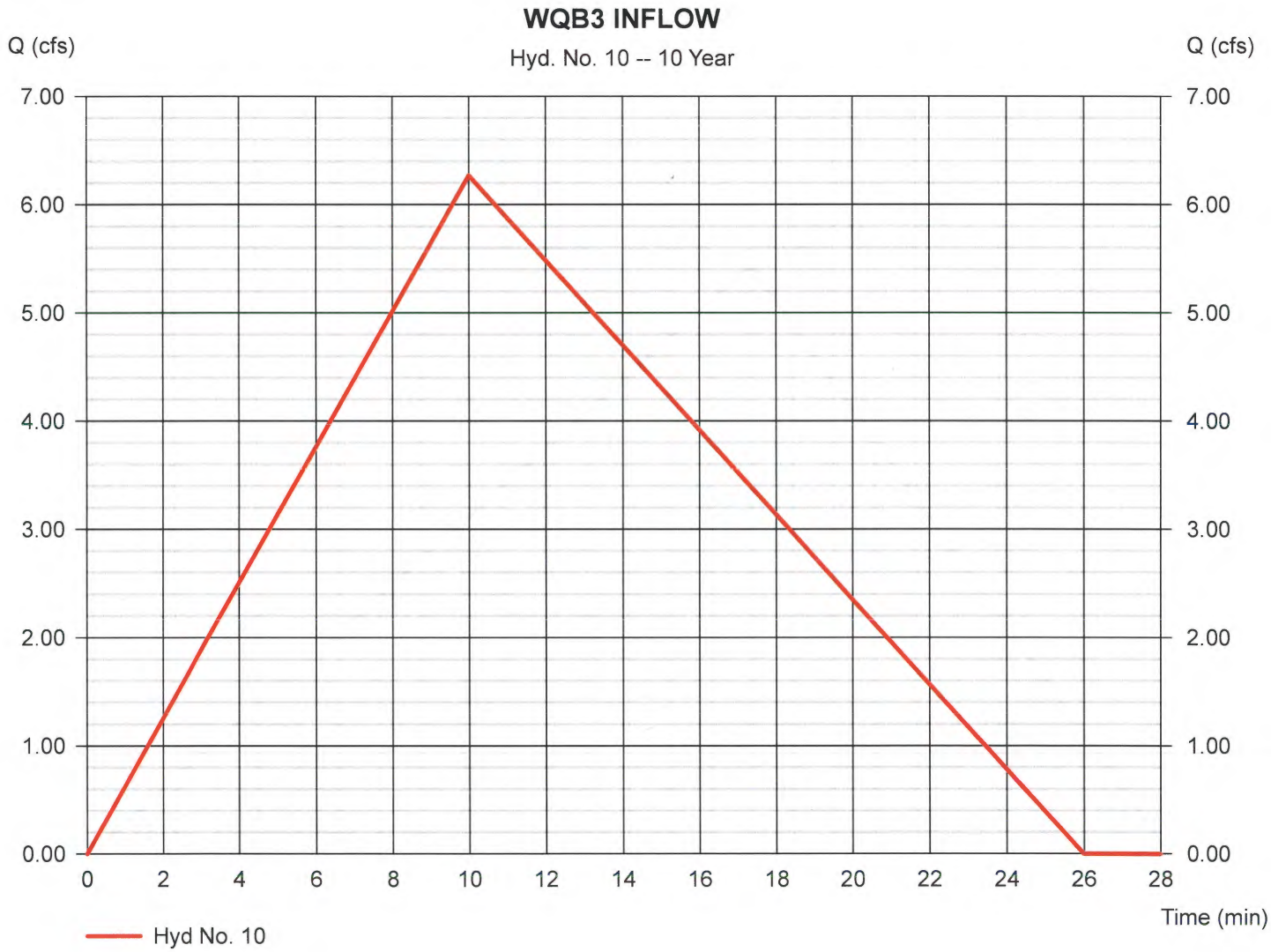
Hydrograph Report

Hyd. No. 10

WQB3 INFLOW

Hydrograph type	= Rational	Peak discharge	= 6.269 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,016 cuft
Drainage area	= 3.040 ac	Runoff coeff.	= 0.38*
Intensity	= 5.427 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(2.260 x 0.20) + (0.780 x 0.90)] / 3.040



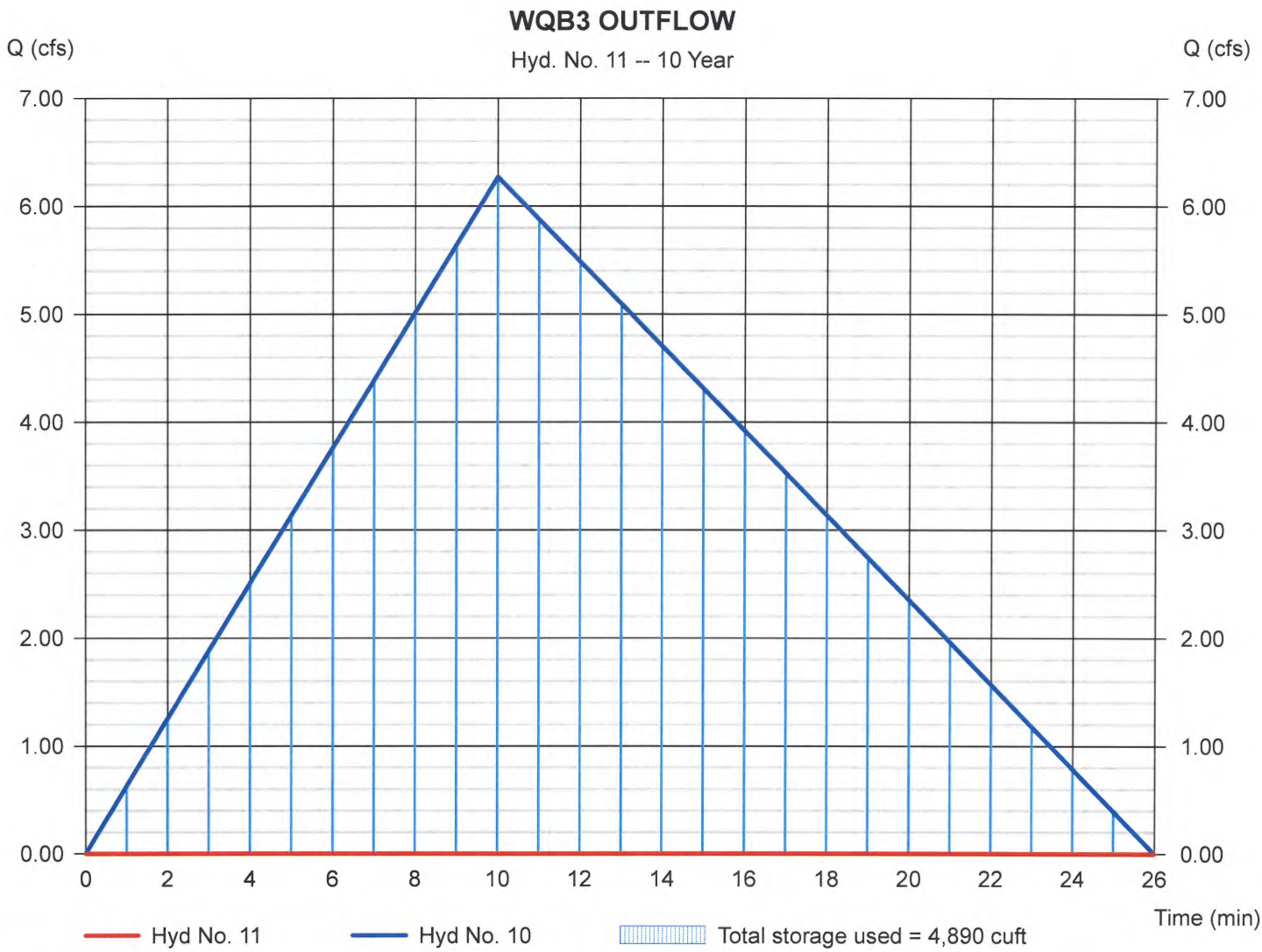
Hydrograph Report

Hyd. No. 11

WQB3 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - WQB3 INFLOW	Max. Elevation	= 177.37 ft
Reservoir name	= WQB3	Max. Storage	= 4,890 cuft

Storage Indication method used.



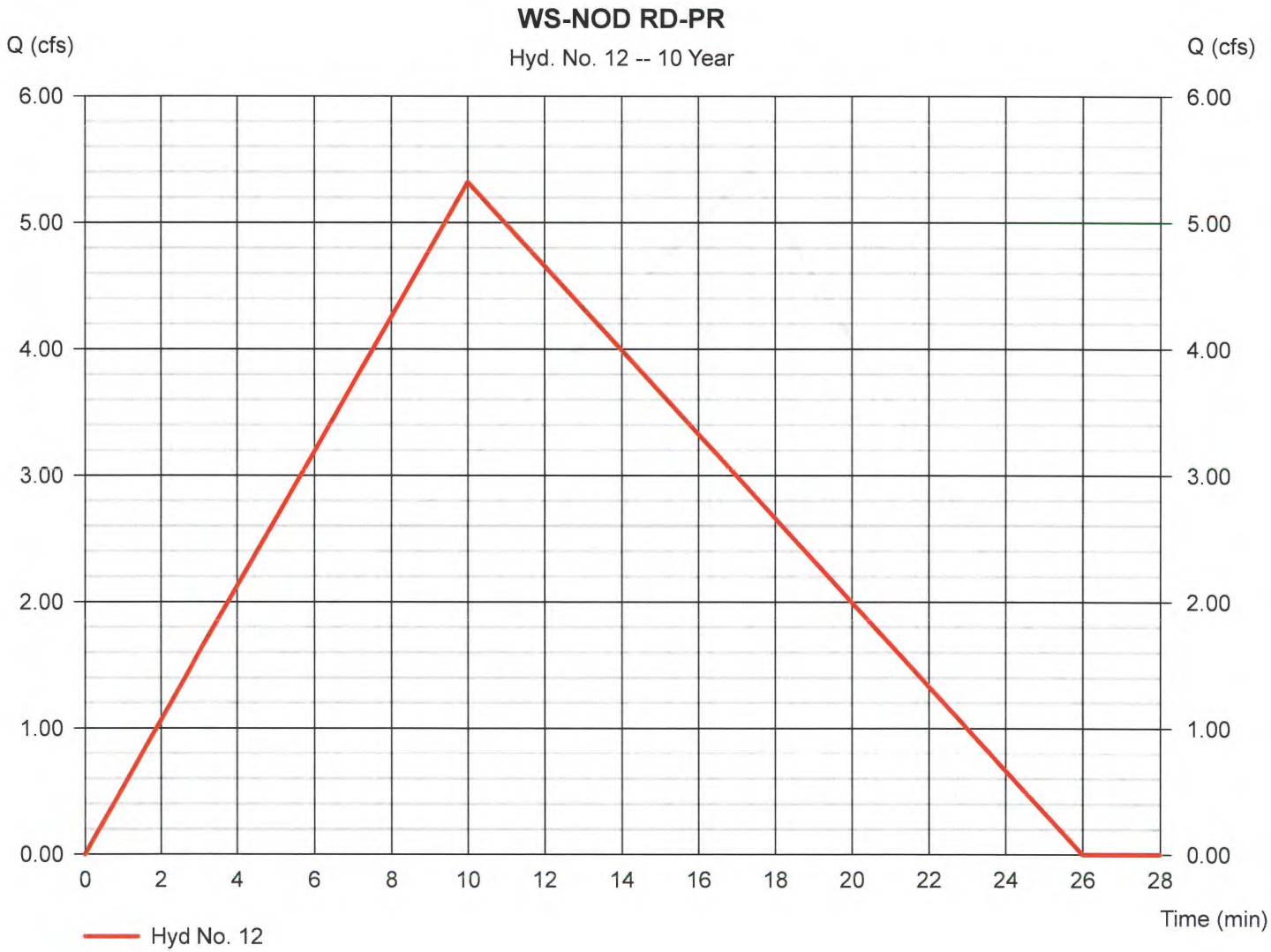
Hydrograph Report

Hyd. No. 12

WS-NOD RD-PR

Hydrograph type	= Rational	Peak discharge	= 5.321 cfs
Storm frequency	= 10 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 4,257 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.53*
Intensity	= 5.427 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.570 x 0.20) + (0.370 x 0.15) + (0.910 x 0.90)] / 1.850

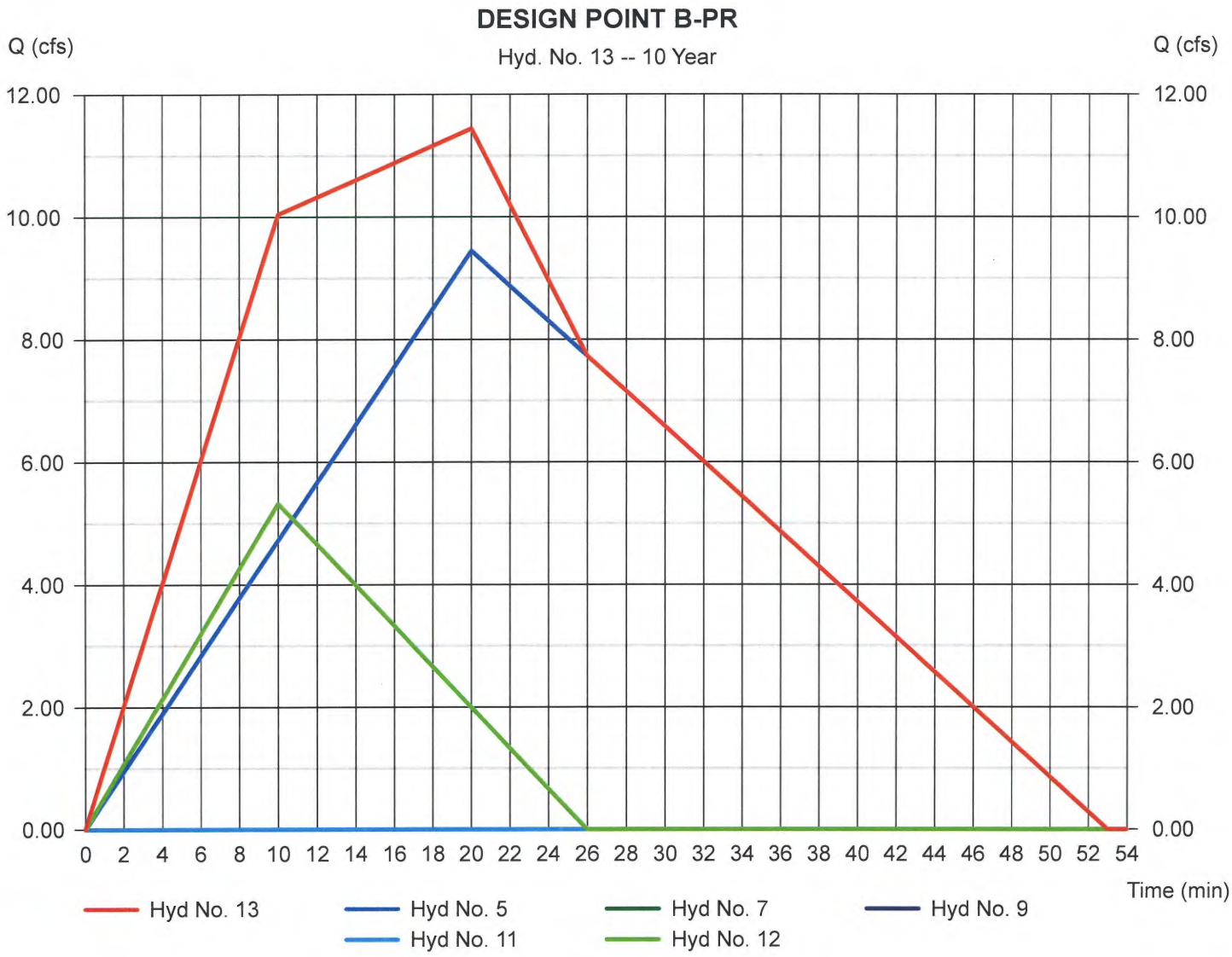


Hydrograph Report

Hyd. No. 13

DESIGN POINT B-PR

Hydrograph type	= Combine	Peak discharge	= 11.44 cfs
Storm frequency	= 10 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 19,167 cuft
Inflow hyds.	= 5, 7, 9, 11, 12	Contrib. drain. area	= 11.770 ac



Hydrograph Report

Hyd. No. 1

WS-EAST-EX

Hydrograph type	= Rational	Peak discharge	= 11.64 cfs
Storm frequency	= 25 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 16,770 cuft
Drainage area	= 9.900 ac	Runoff coeff.	= 0.25*
Intensity	= 4.705 in/hr	Tc by TR55	= 18.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.820 x 0.20) + (6.840 x 0.15) + (1.240 x 0.90)] / 9.900

Hydrograph Report

Hyd. No. 2

WS-SITE-EX

Hydrograph type	= Rational	Peak discharge	= 7.860 cfs
Storm frequency	= 25 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 10,691 cuft
Drainage area	= 8.500 ac	Runoff coeff.	= 0.19*
Intensity	= 4.867 in/hr	Tc by TR55	= 17.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(7.510 x 0.20) + (0.990 x 0.15)] / 8.500

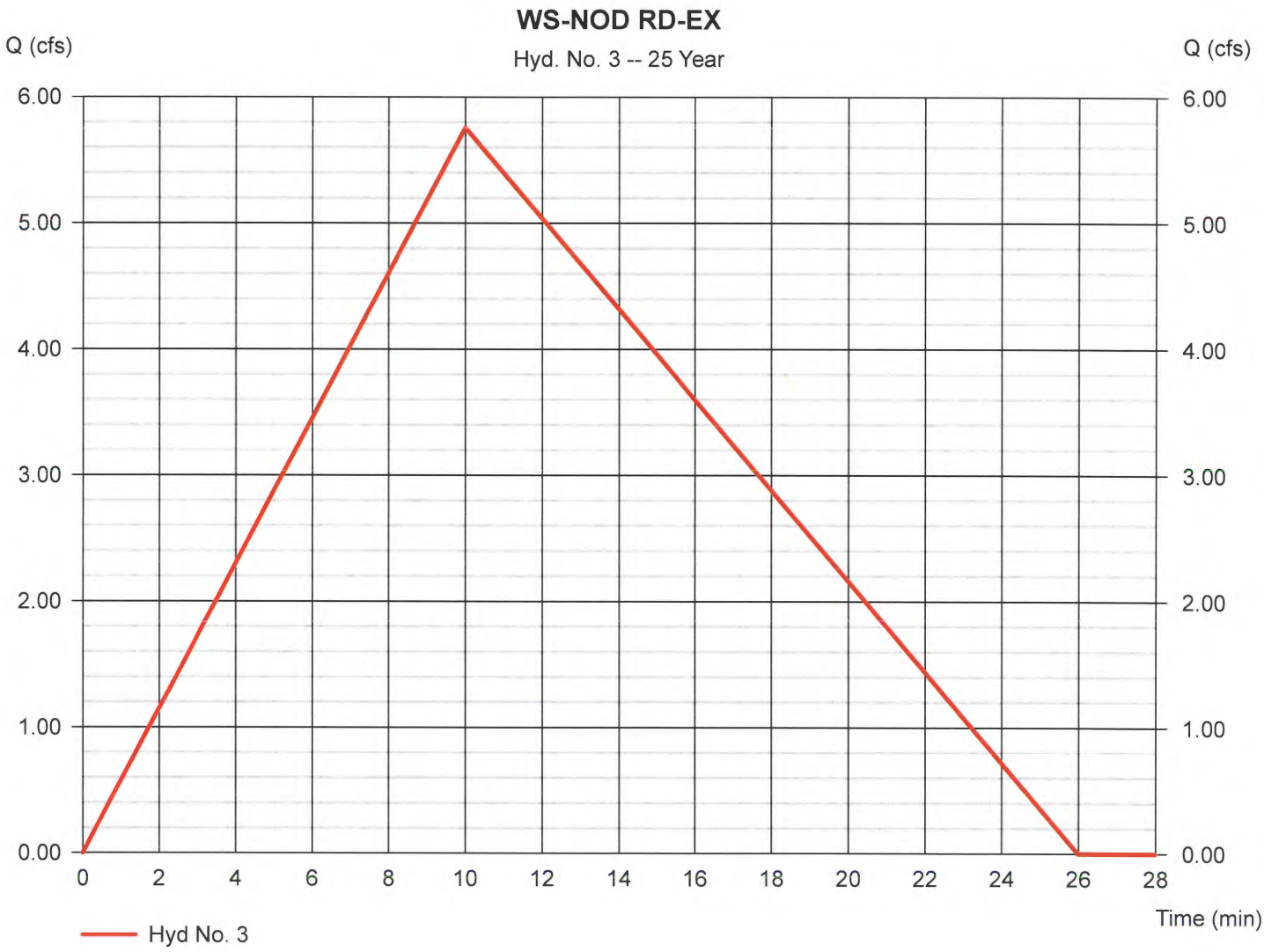
Hydrograph Report

Hyd. No. 3

WS-NOD RD-EX

Hydrograph type	= Rational	Peak discharge	= 5.756 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 4,606 cuft
Drainage area	= 1.600 ac	Runoff coeff.	= 0.55*
Intensity	= 6.541 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.400 x 0.20) + (0.370 x 0.15) + (0.830 x 0.90)] / 1.600

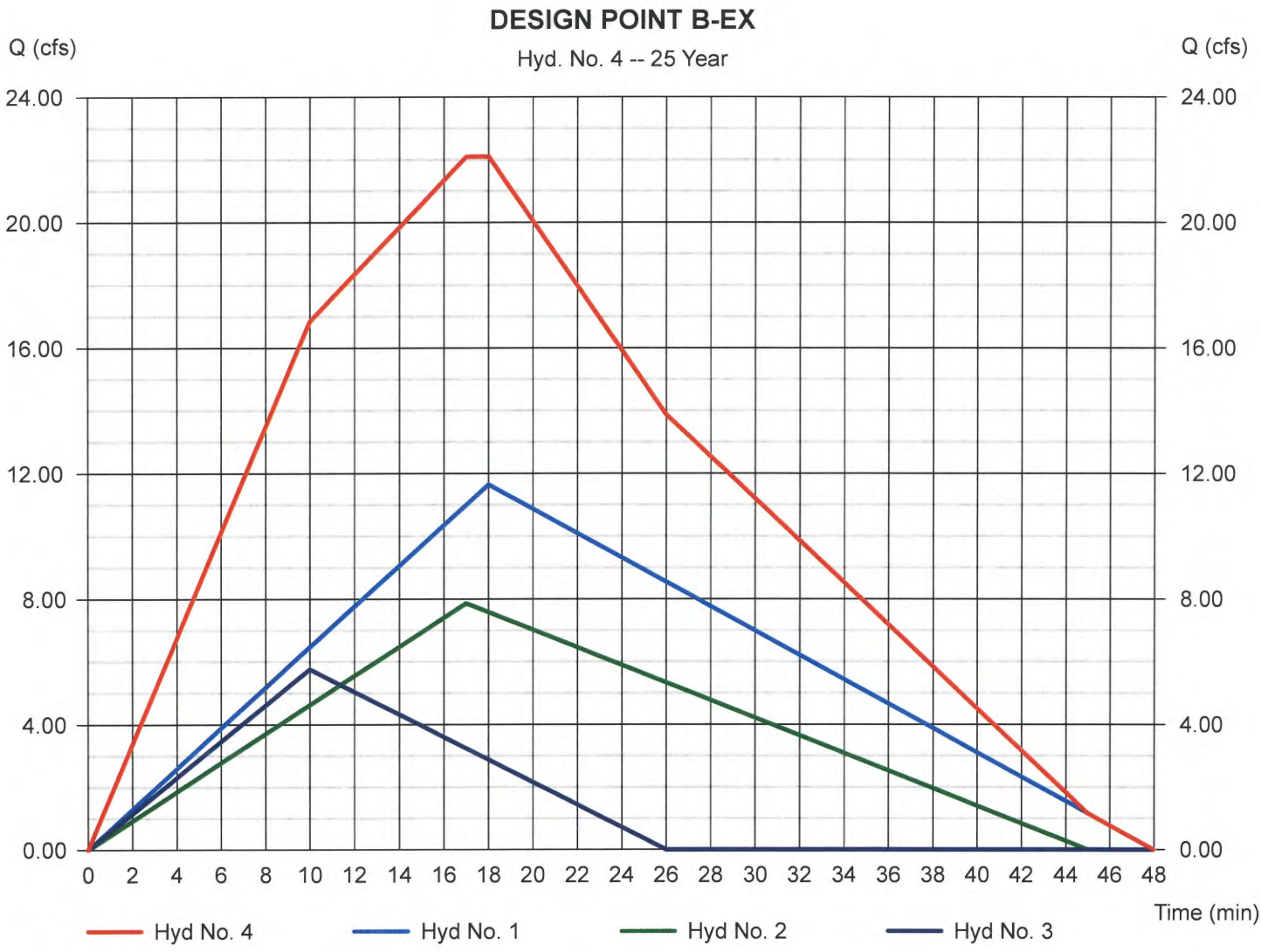


Hydrograph Report

Hyd. No. 4

DESIGN POINT B-EX

Hydrograph type	= Combine	Peak discharge	= 22.10 cfs
Storm frequency	= 25 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 31,869 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 20.000 ac



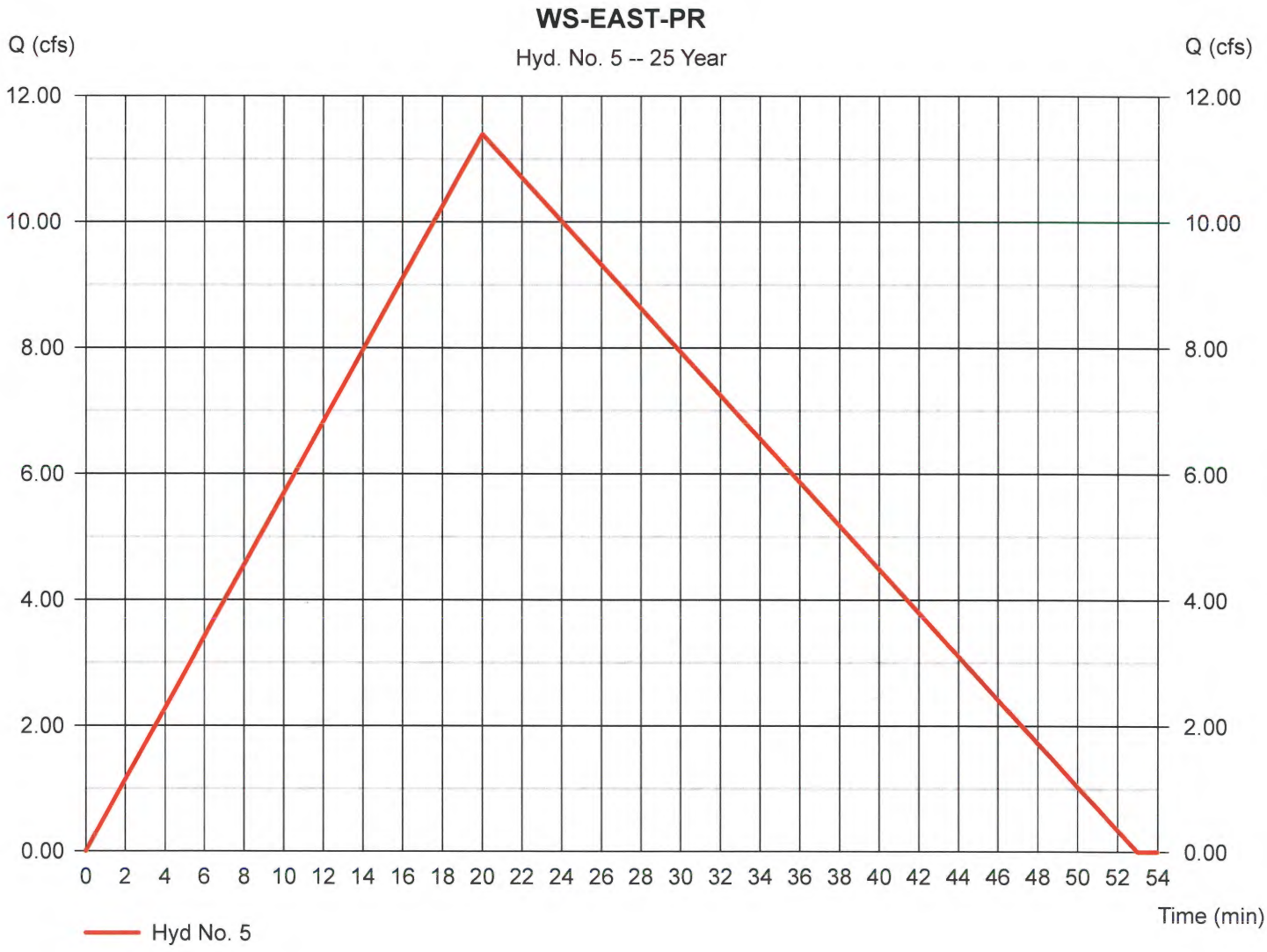
Hydrograph Report

Hyd. No. 5

WS-EAST-PR

Hydrograph type	= Rational	Peak discharge	= 11.39 cfs
Storm frequency	= 25 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 18,228 cuft
Drainage area	= 9.920 ac	Runoff coeff.	= 0.26*
Intensity	= 4.417 in/hr	Tc by TR55	= 20.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.810 x 0.20) + (6.840 x 0.15) + (1.270 x 0.90)] / 9.920



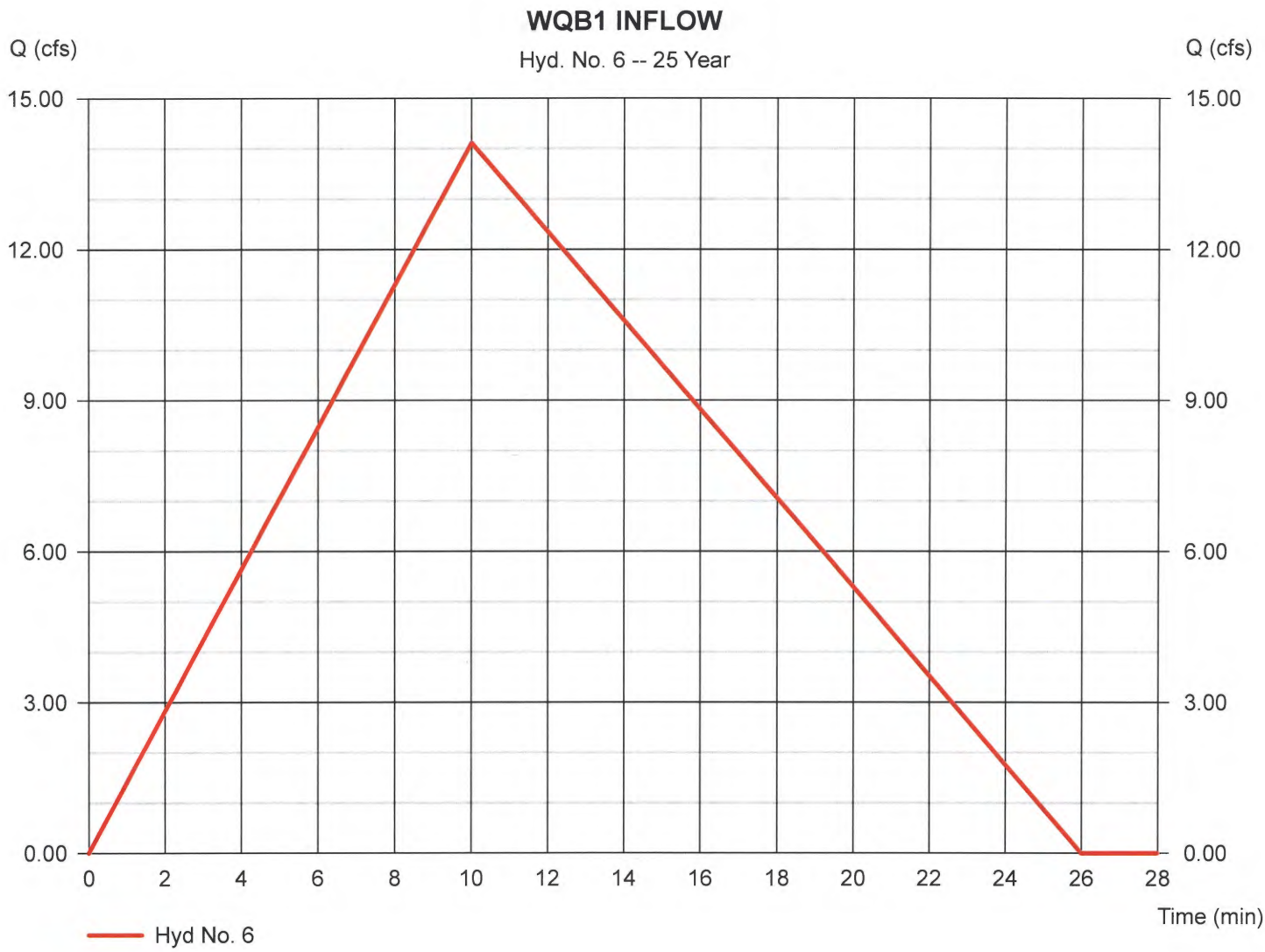
Hydrograph Report

Hyd. No. 6

WQB1 INFLOW

Hydrograph type	= Rational	Peak discharge	= 14.12 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 11,293 cuft
Drainage area	= 4.150 ac	Runoff coeff.	= 0.52*
Intensity	= 6.541 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(2.250 x 0.20) + (1.900 x 0.90)] / 4.150



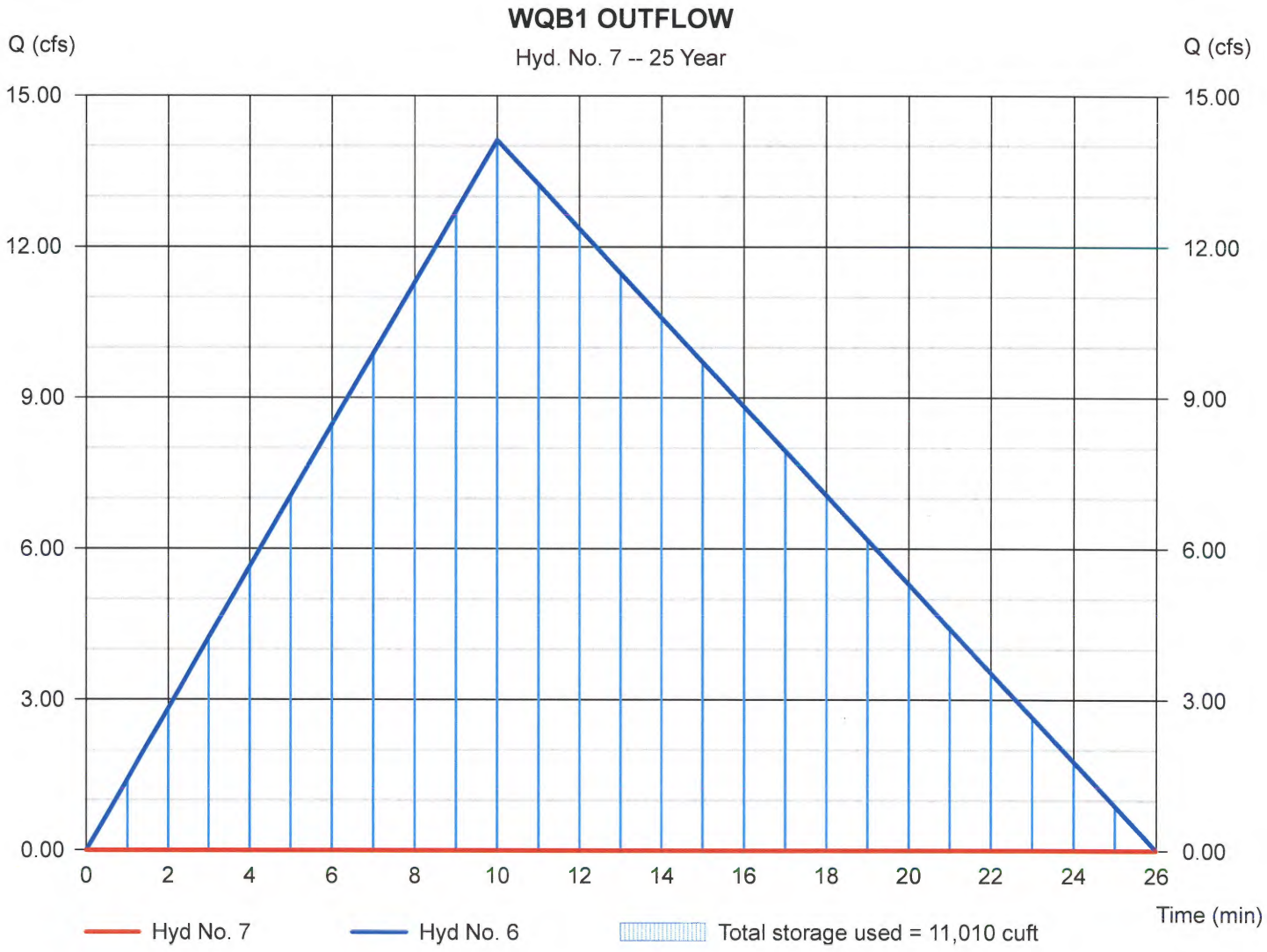
Hydrograph Report

Hyd. No. 7

WQB1 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 6 - WQB1 INFLOW	Max. Elevation	= 171.93 ft
Reservoir name	= WQB1	Max. Storage	= 11,010 cuft

Storage Indication method used.



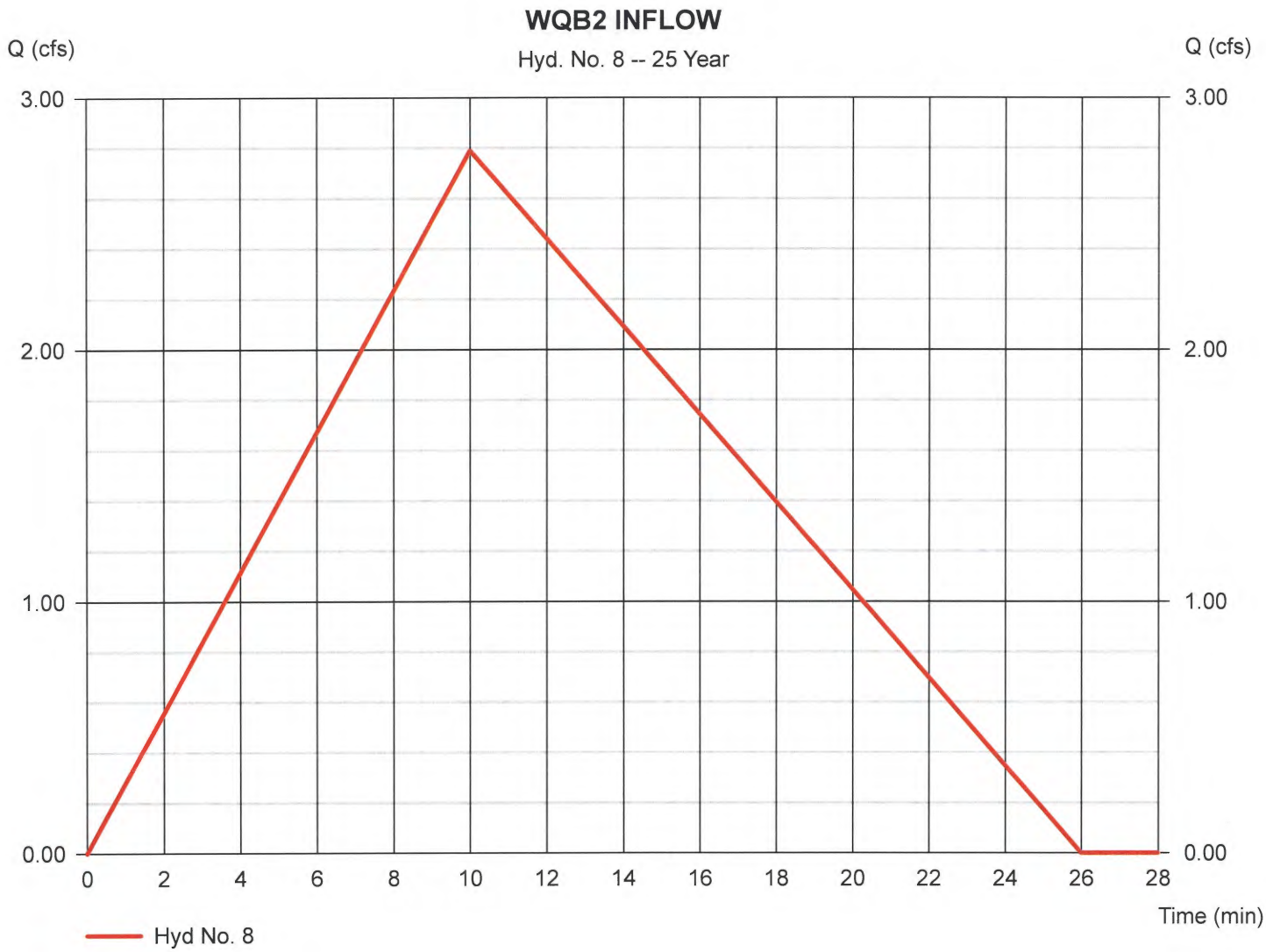
Hydrograph Report

Hyd. No. 8

WQB2 INFLOW

Hydrograph type	= Rational	Peak discharge	= 2.789 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 2,231 cuft
Drainage area	= 1.040 ac	Runoff coeff.	= 0.41*
Intensity	= 6.541 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(0.730 x 0.20) + (0.310 x 0.90)] / 1.040



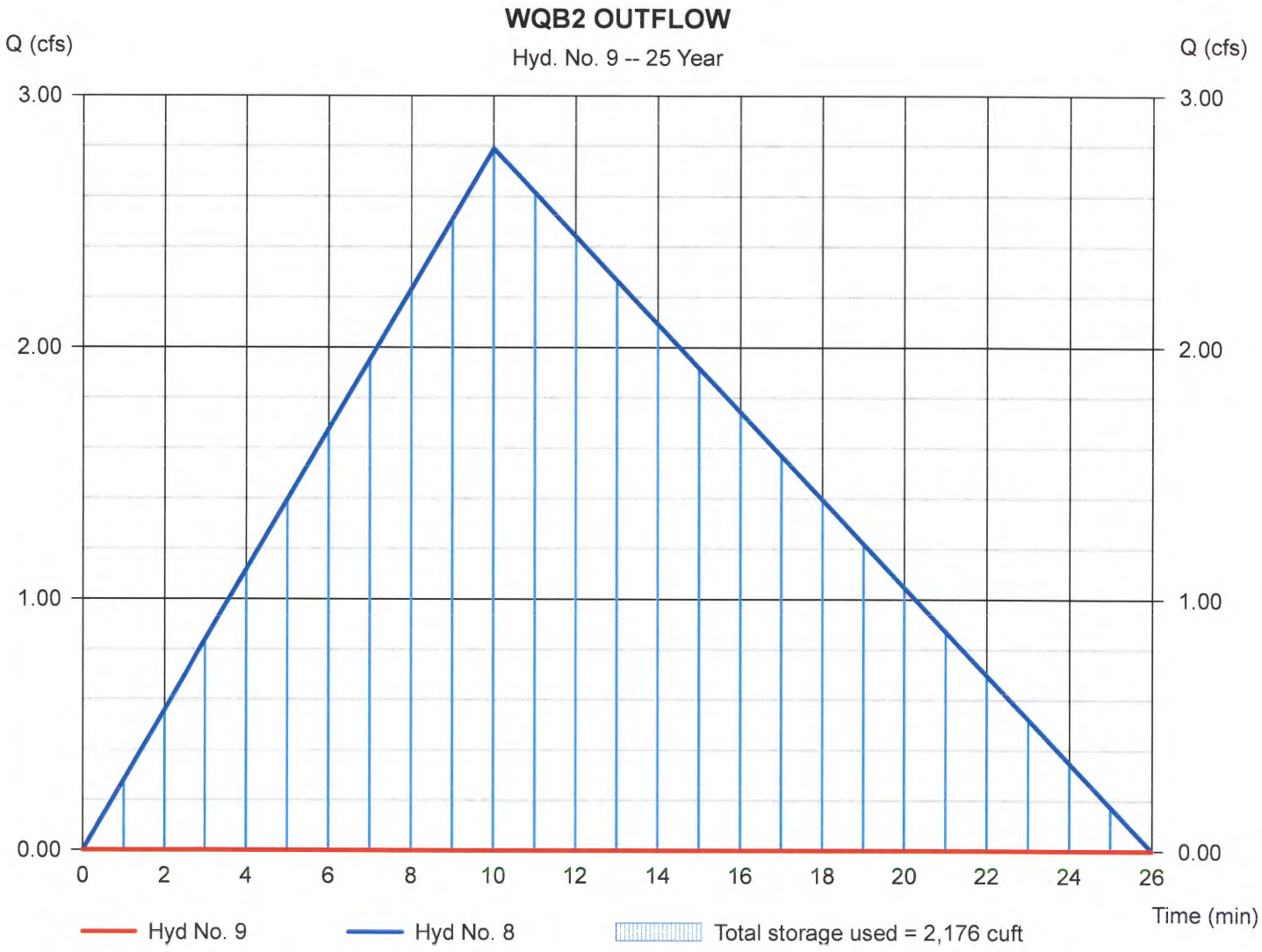
Hydrograph Report

Hyd. No. 9

WQB2 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - WQB2 INFLOW	Max. Elevation	= 176.21 ft
Reservoir name	= WQB2	Max. Storage	= 2,176 cuft

Storage Indication method used.



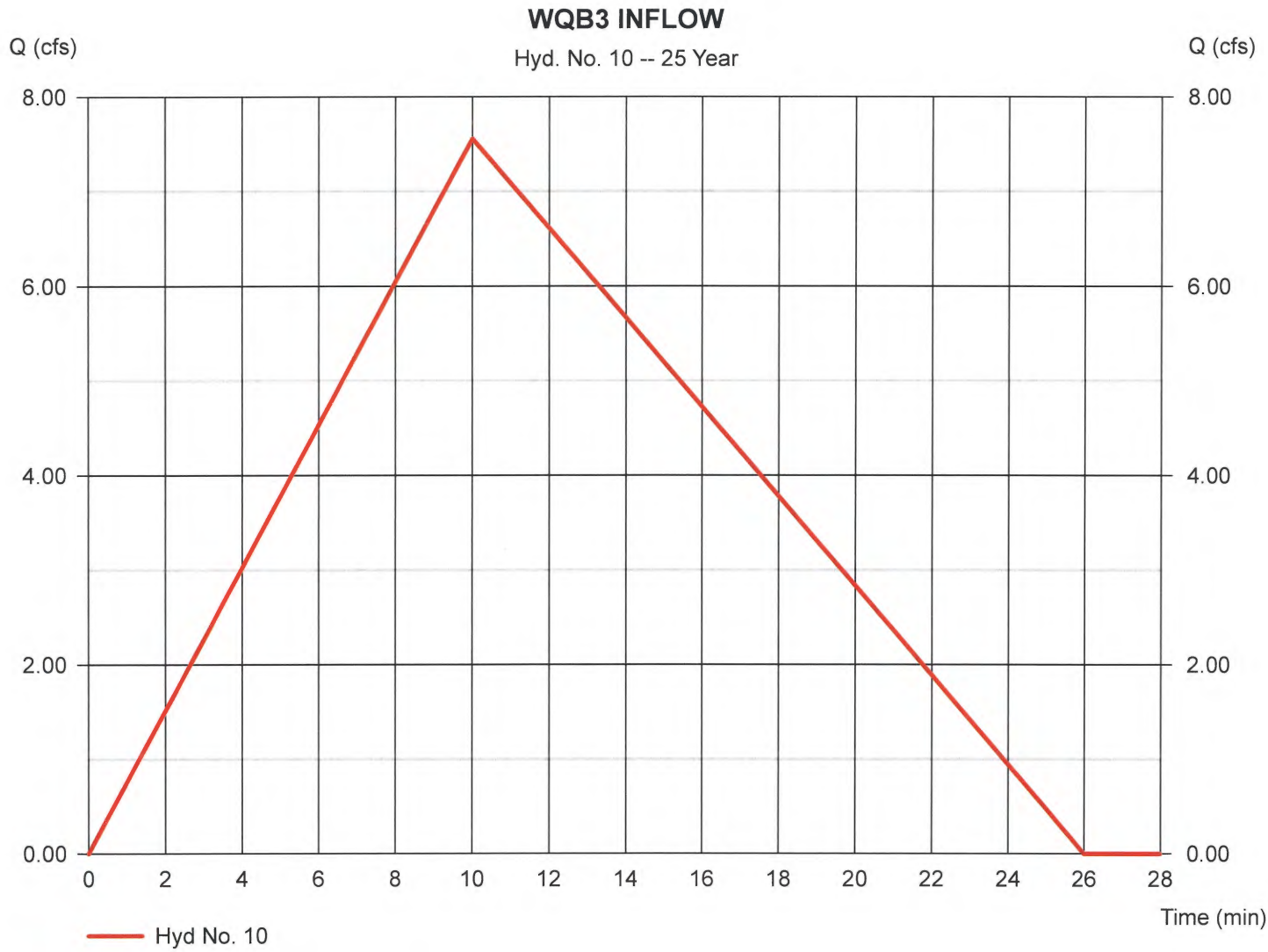
Hydrograph Report

Hyd. No. 10

WQB3 INFLOW

Hydrograph type	= Rational	Peak discharge	= 7.556 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 6,046 cuft
Drainage area	= 3.040 ac	Runoff coeff.	= 0.38*
Intensity	= 6.541 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(2.260 x 0.20) + (0.780 x 0.90)] / 3.040



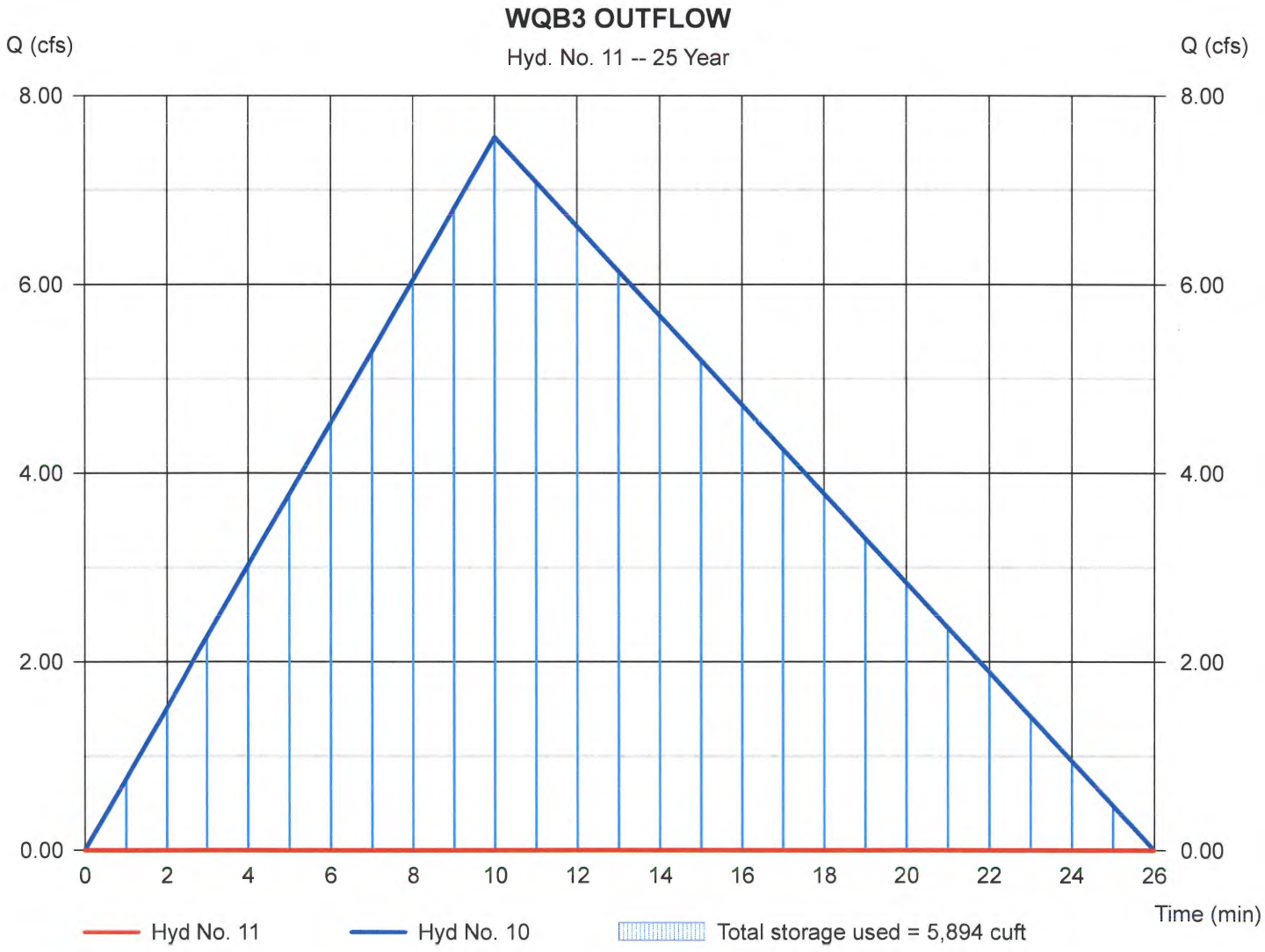
Hydrograph Report

Hyd. No. 11

WQB3 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 25 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - WQB3 INFLOW	Max. Elevation	= 177.53 ft
Reservoir name	= WQB3	Max. Storage	= 5,894 cuft

Storage Indication method used.



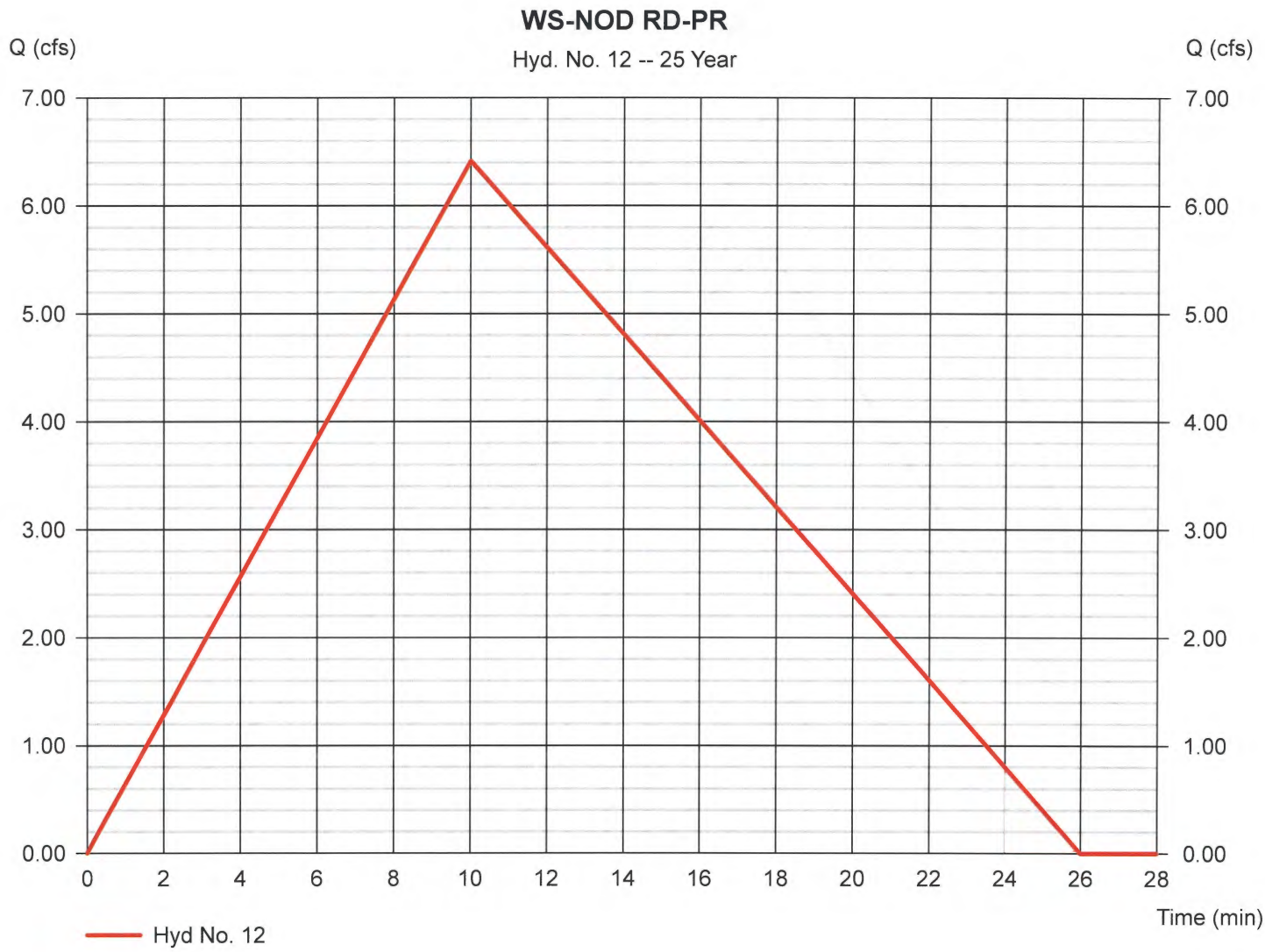
Hydrograph Report

Hyd. No. 12

WS-NOD RD-PR

Hydrograph type	= Rational	Peak discharge	= 6.414 cfs
Storm frequency	= 25 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,132 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.53*
Intensity	= 6.541 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.570 x 0.20) + (0.370 x 0.15) + (0.910 x 0.90)] / 1.850

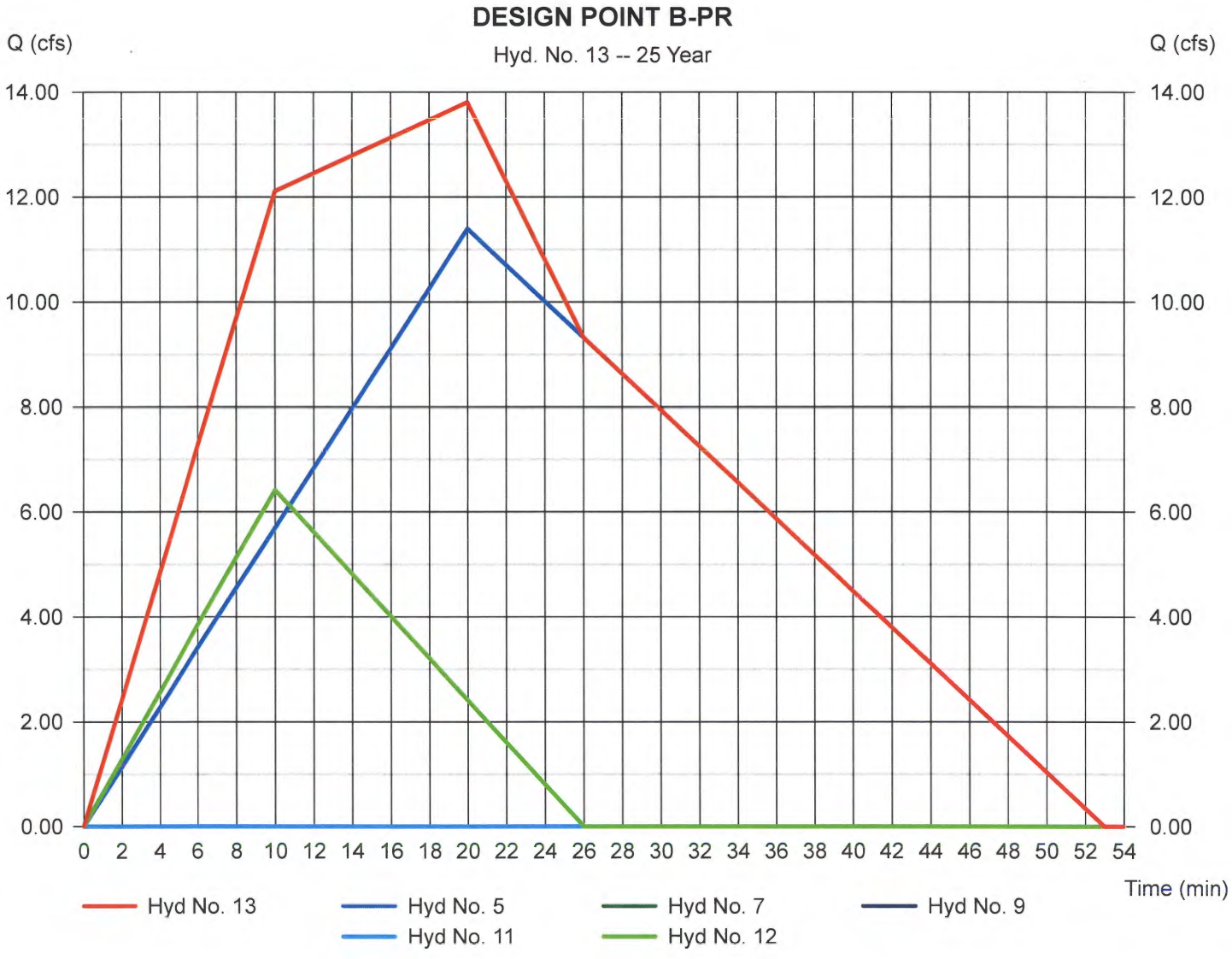


Hydrograph Report

Hyd. No. 13

DESIGN POINT B-PR

Hydrograph type	= Combine	Peak discharge	= 13.80 cfs
Storm frequency	= 25 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 23,115 cuft
Inflow hyds.	= 5, 7, 9, 11, 12	Contrib. drain. area	= 11.770 ac



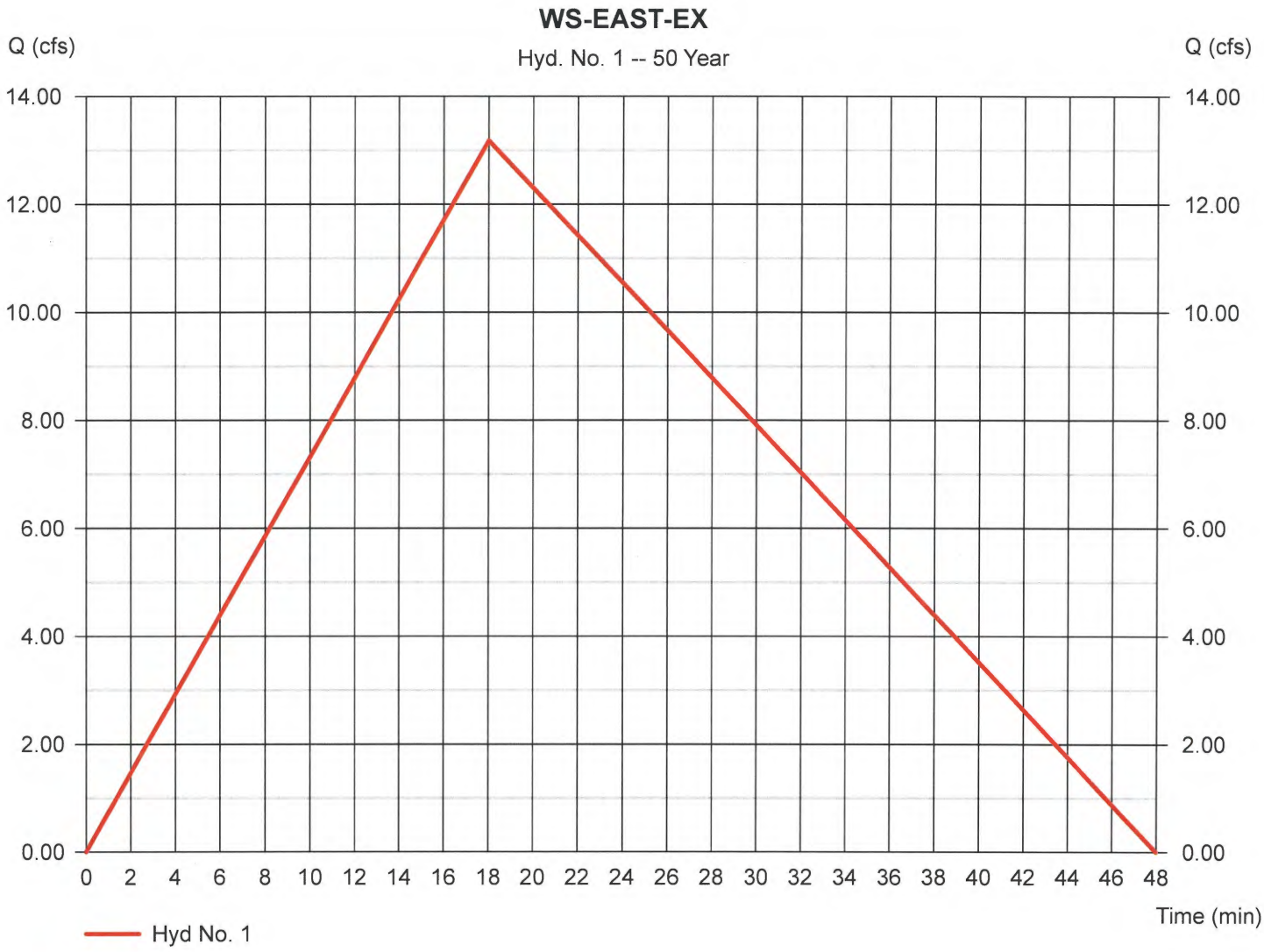
Hydrograph Report

Hyd. No. 1

WS-EAST-EX

Hydrograph type	= Rational	Peak discharge	= 13.18 cfs
Storm frequency	= 50 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 18,977 cuft
Drainage area	= 9.900 ac	Runoff coeff.	= 0.25*
Intensity	= 5.324 in/hr	Tc by TR55	= 18.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.820 x 0.20) + (6.840 x 0.15) + (1.240 x 0.90)] / 9.900



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 — Wednesday, May 11, 2022

Hyd. No. 2

WS-SITE-EX

Hydrograph type	= Rational	Peak discharge	= 8.894 cfs
Storm frequency	= 50 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 12,098 cuft
Drainage area	= 8.500 ac	Runoff coeff.	= 0.19*
Intensity	= 5.507 in/hr	Tc by TR55	= 17.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(7.510 x 0.20) + (0.990 x 0.15)] / 8.500

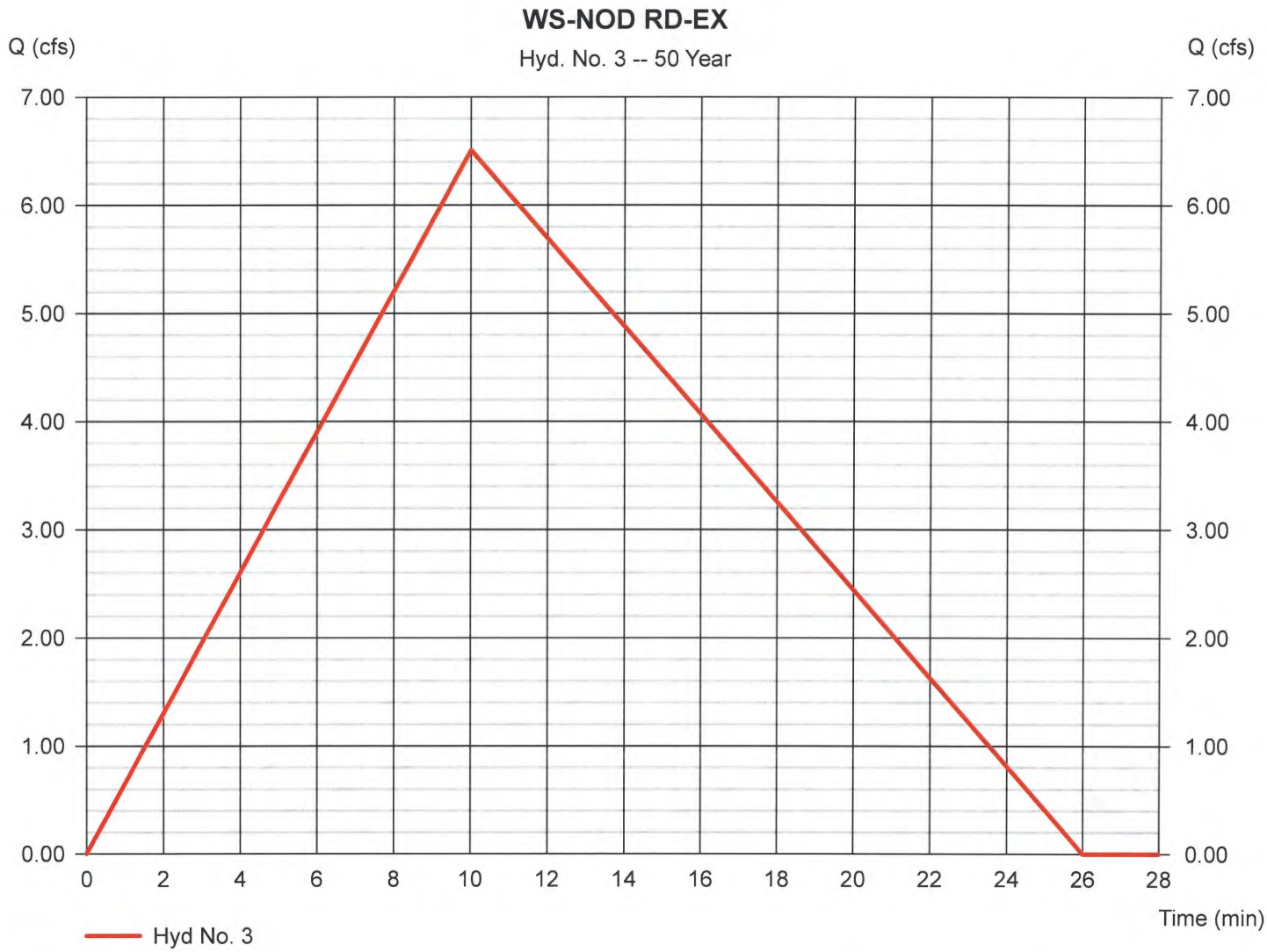
Hydrograph Report

Hyd. No. 3

WS-NOD RD-EX

Hydrograph type	= Rational	Peak discharge	= 6.507 cfs
Storm frequency	= 50 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,207 cuft
Drainage area	= 1.600 ac	Runoff coeff.	= 0.55*
Intensity	= 7.395 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.400 x 0.20) + (0.370 x 0.15) + (0.830 x 0.90)] / 1.600



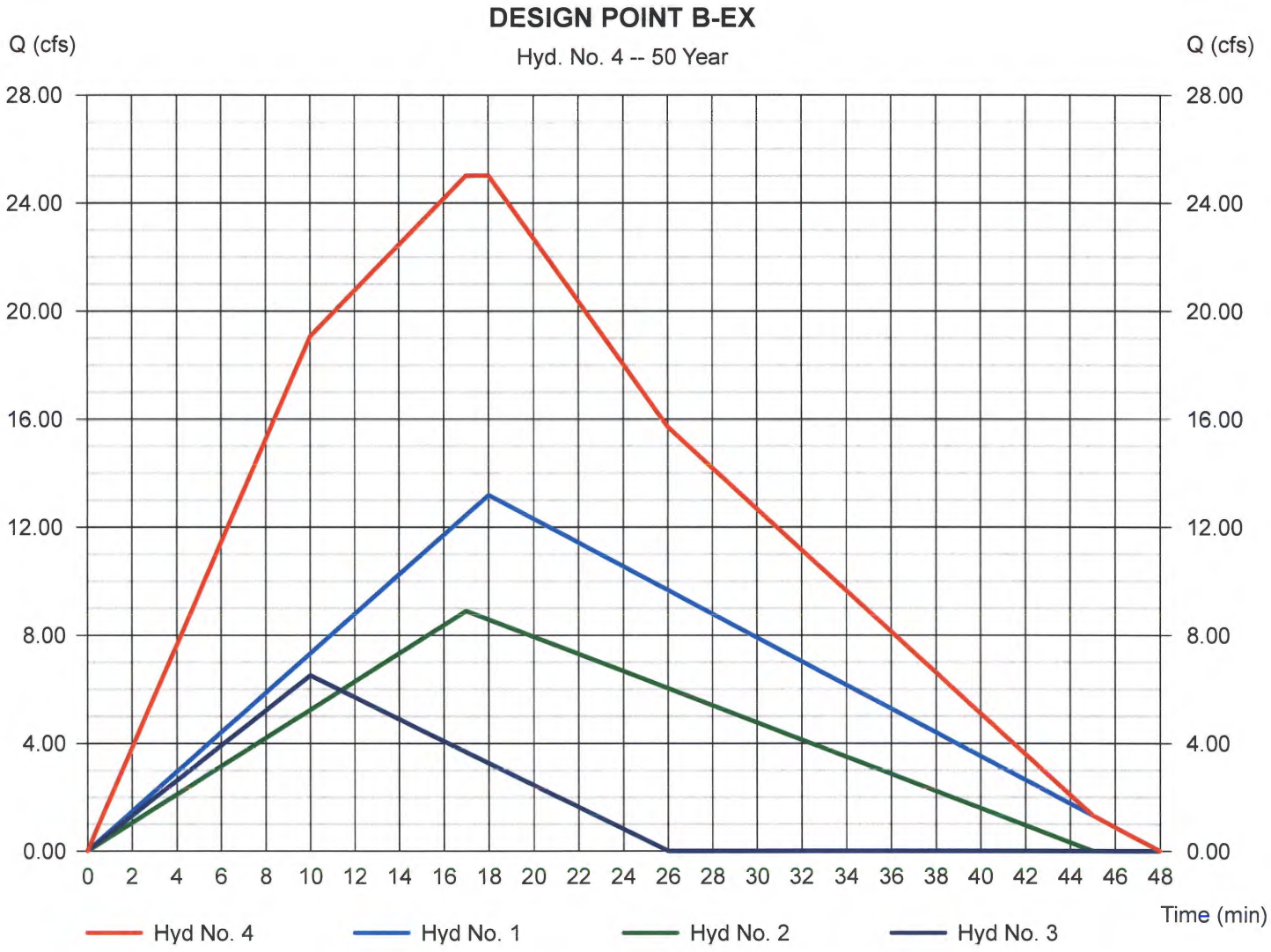
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 Wednesday, May 11, 2022

Hyd. No. 4

DESIGN POINT B-EX

Hydrograph type	= Combine	Peak discharge	= 25.01 cfs
Storm frequency	= 50 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 36,058 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 20.000 ac



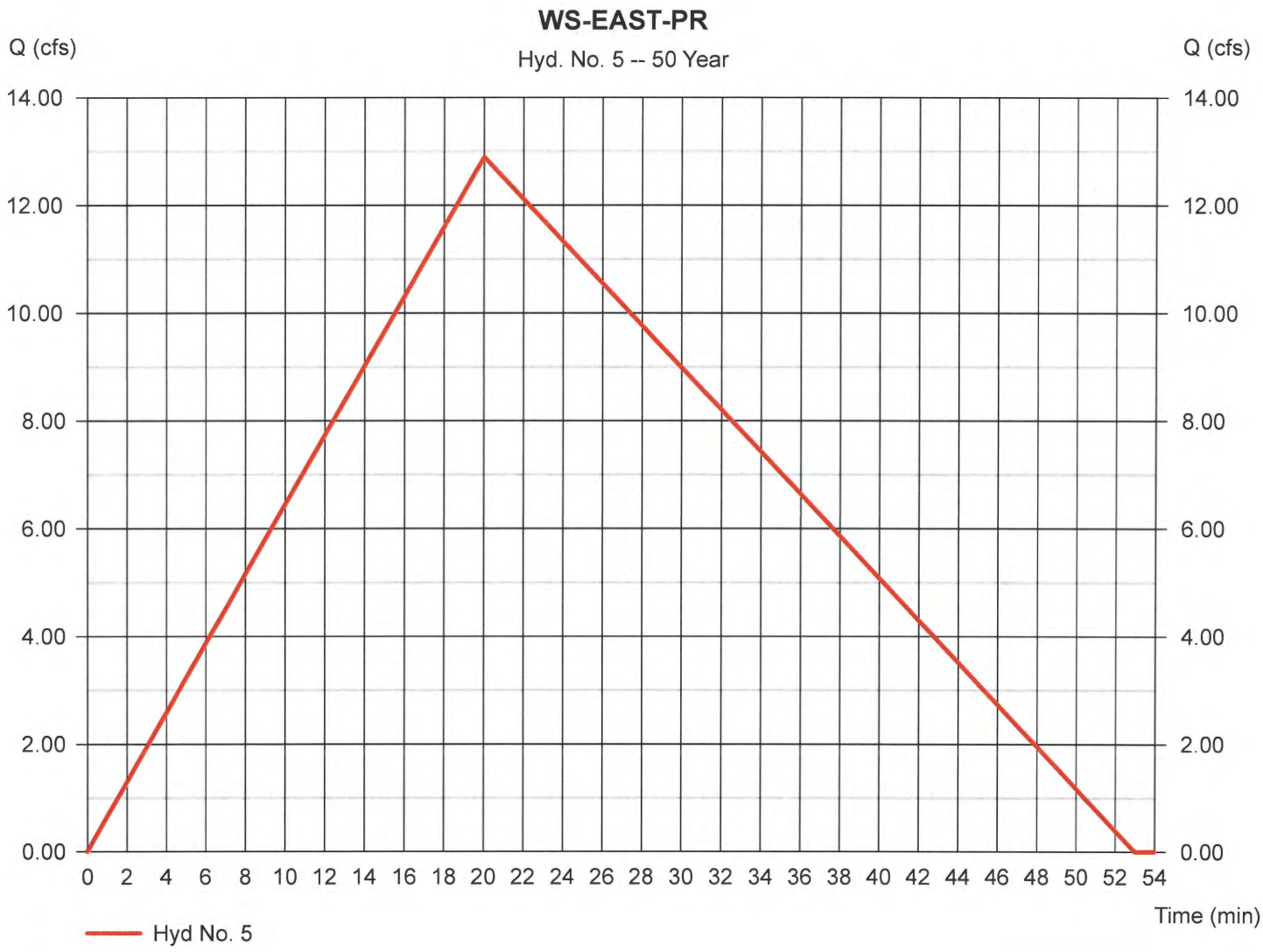
Hydrograph Report

Hyd. No. 5

WS-EAST-PR

Hydrograph type	= Rational	Peak discharge	= 12.89 cfs
Storm frequency	= 50 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 20,627 cuft
Drainage area	= 9.920 ac	Runoff coeff.	= 0.26*
Intensity	= 4.998 in/hr	Tc by TR55	= 20.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.810 x 0.20) + (6.840 x 0.15) + (1.270 x 0.90)] / 9.920



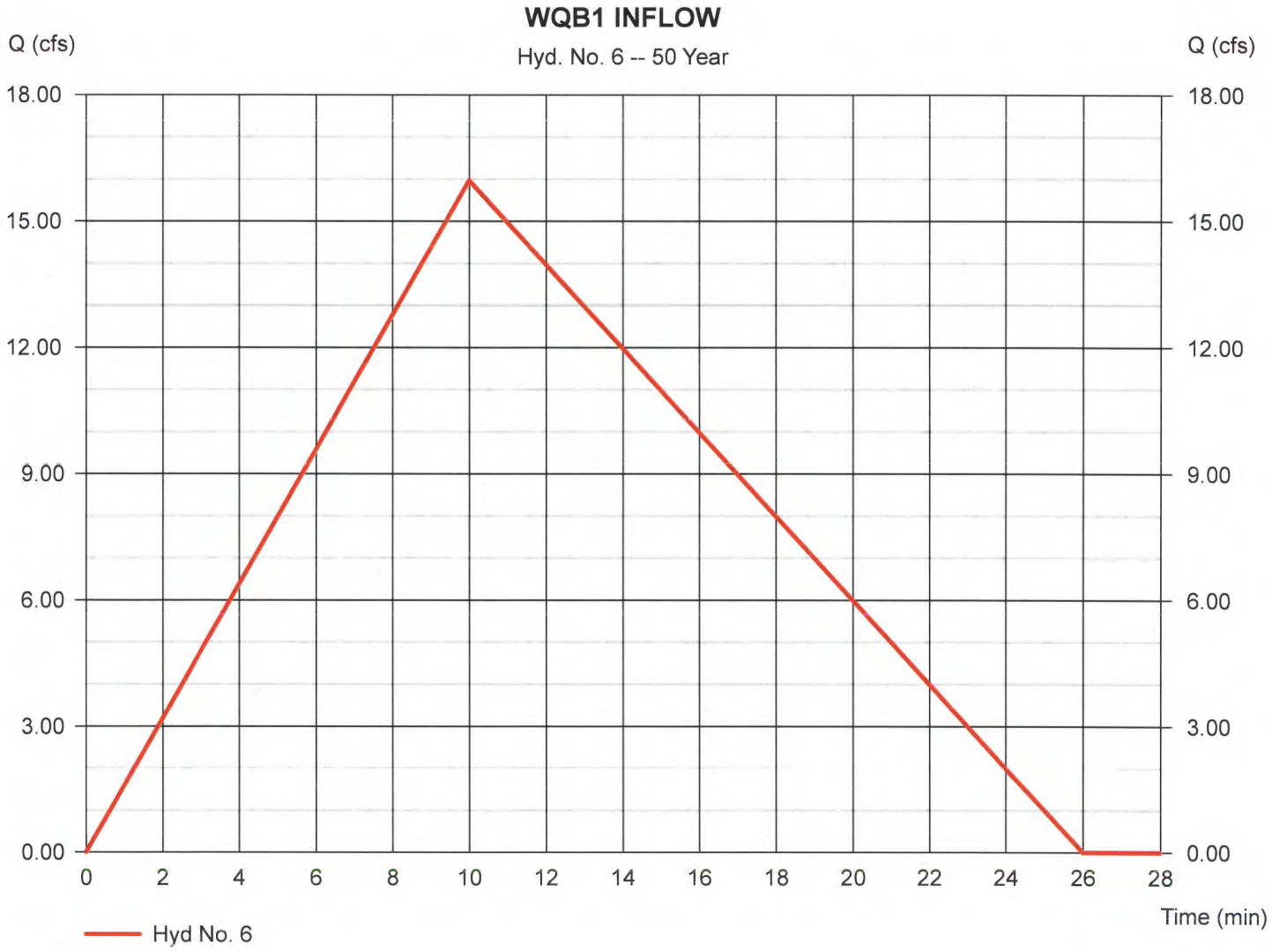
Hydrograph Report

Hyd. No. 6

WQB1 INFLOW

Hydrograph type	= Rational	Peak discharge	= 15.96 cfs
Storm frequency	= 50 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 12,766 cuft
Drainage area	= 4.150 ac	Runoff coeff.	= 0.52*
Intensity	= 7.395 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(2.250 x 0.20) + (1.900 x 0.90)] / 4.150



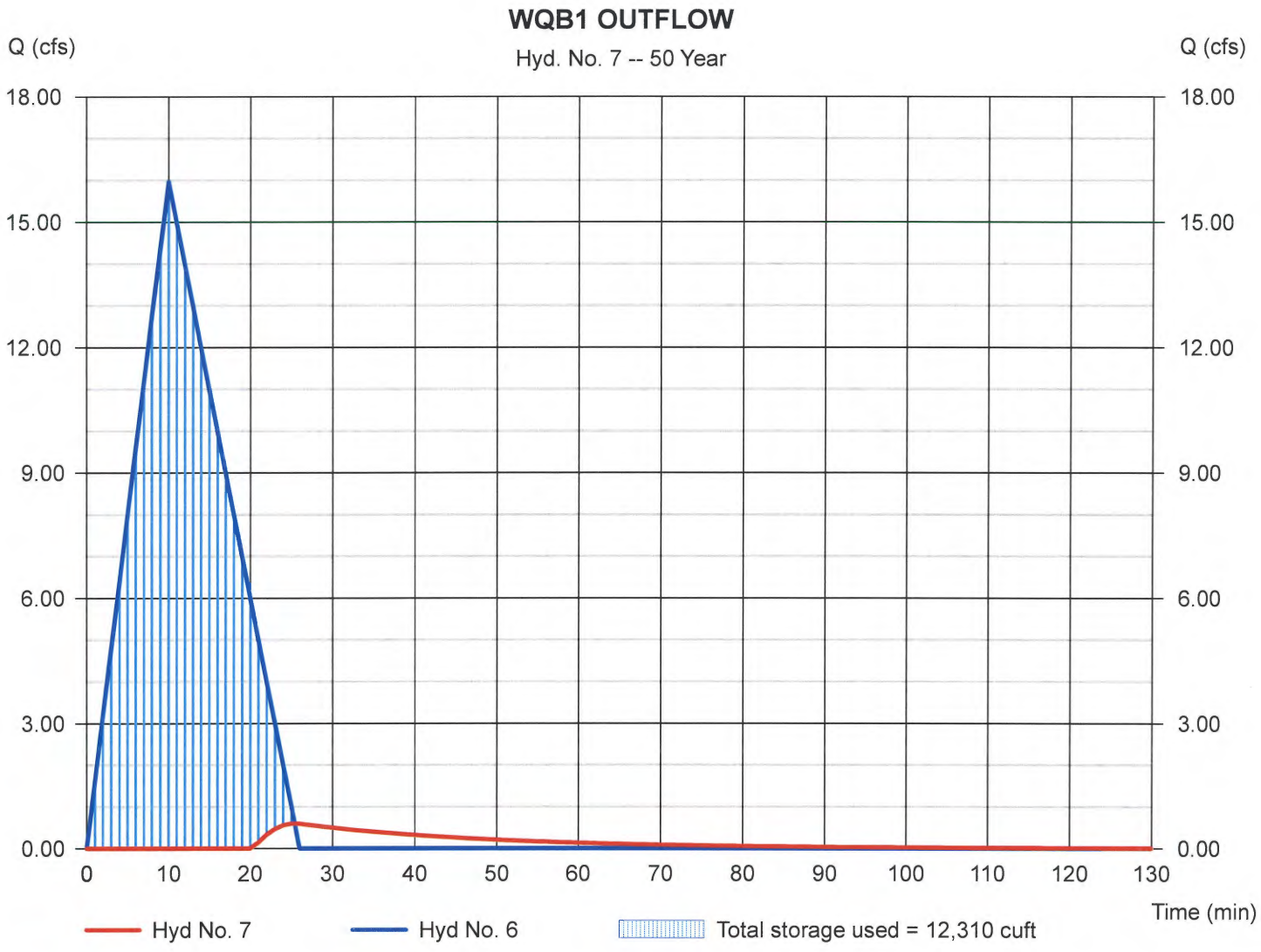
Hydrograph Report

Hyd. No. 7

WQB1 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.596 cfs
Storm frequency	= 50 yrs	Time to peak	= 25 min
Time interval	= 1 min	Hyd. volume	= 944 cuft
Inflow hyd. No.	= 6 - WQB1 INFLOW	Max. Elevation	= 172.08 ft
Reservoir name	= WQB1	Max. Storage	= 12,310 cuft

Storage Indication method used.



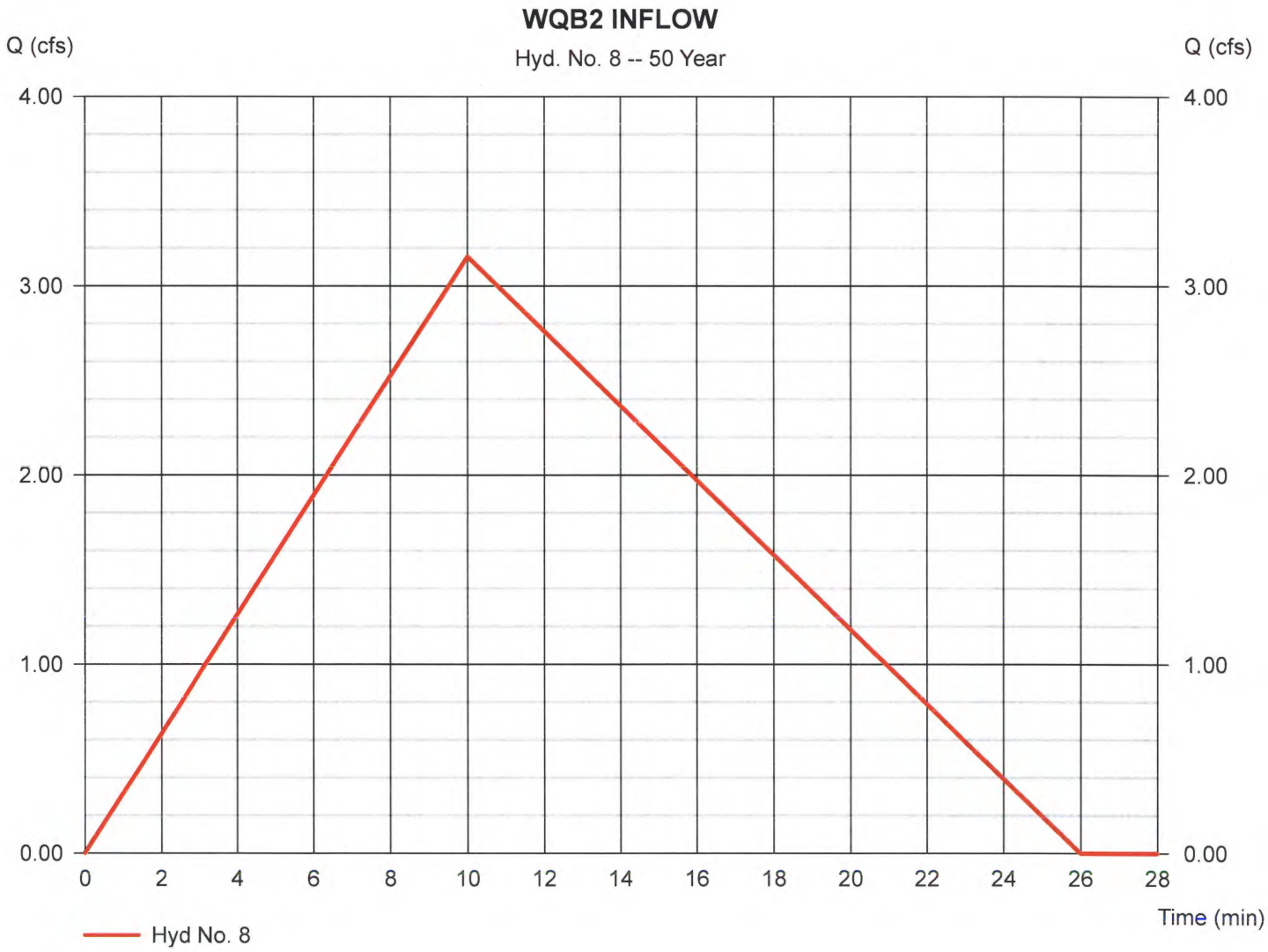
Hydrograph Report

Hyd. No. 8

WQB2 INFLOW

Hydrograph type	= Rational	Peak discharge	= 3.153 cfs
Storm frequency	= 50 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 2,523 cuft
Drainage area	= 1.040 ac	Runoff coeff.	= 0.41*
Intensity	= 7.395 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(0.730 x 0.20) + (0.310 x 0.90)] / 1.040



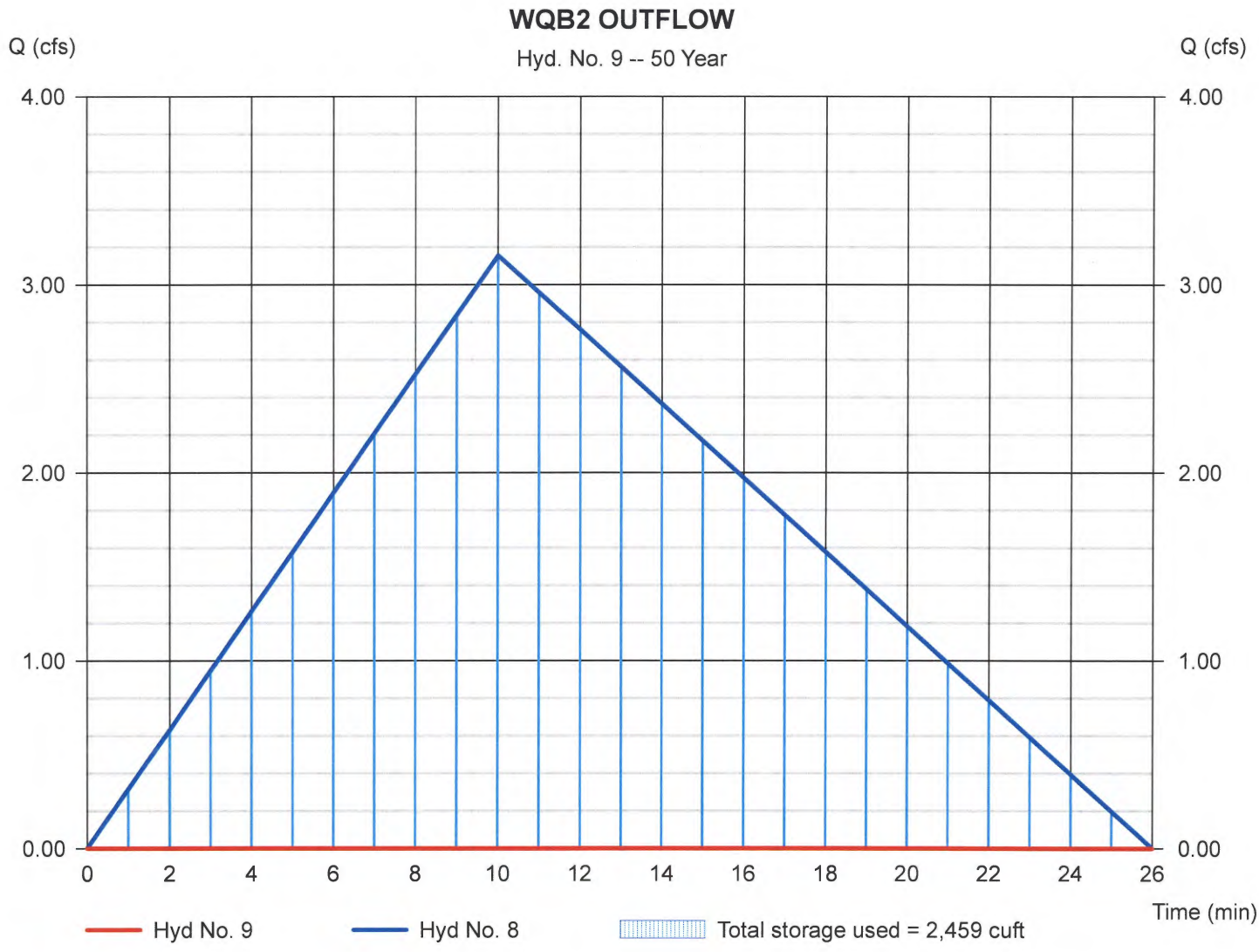
Hydrograph Report

Hyd. No. 9

WQB2 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 50 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - WQB2 INFLOW	Max. Elevation	= 176.31 ft
Reservoir name	= WQB2	Max. Storage	= 2,459 cuft

Storage Indication method used.



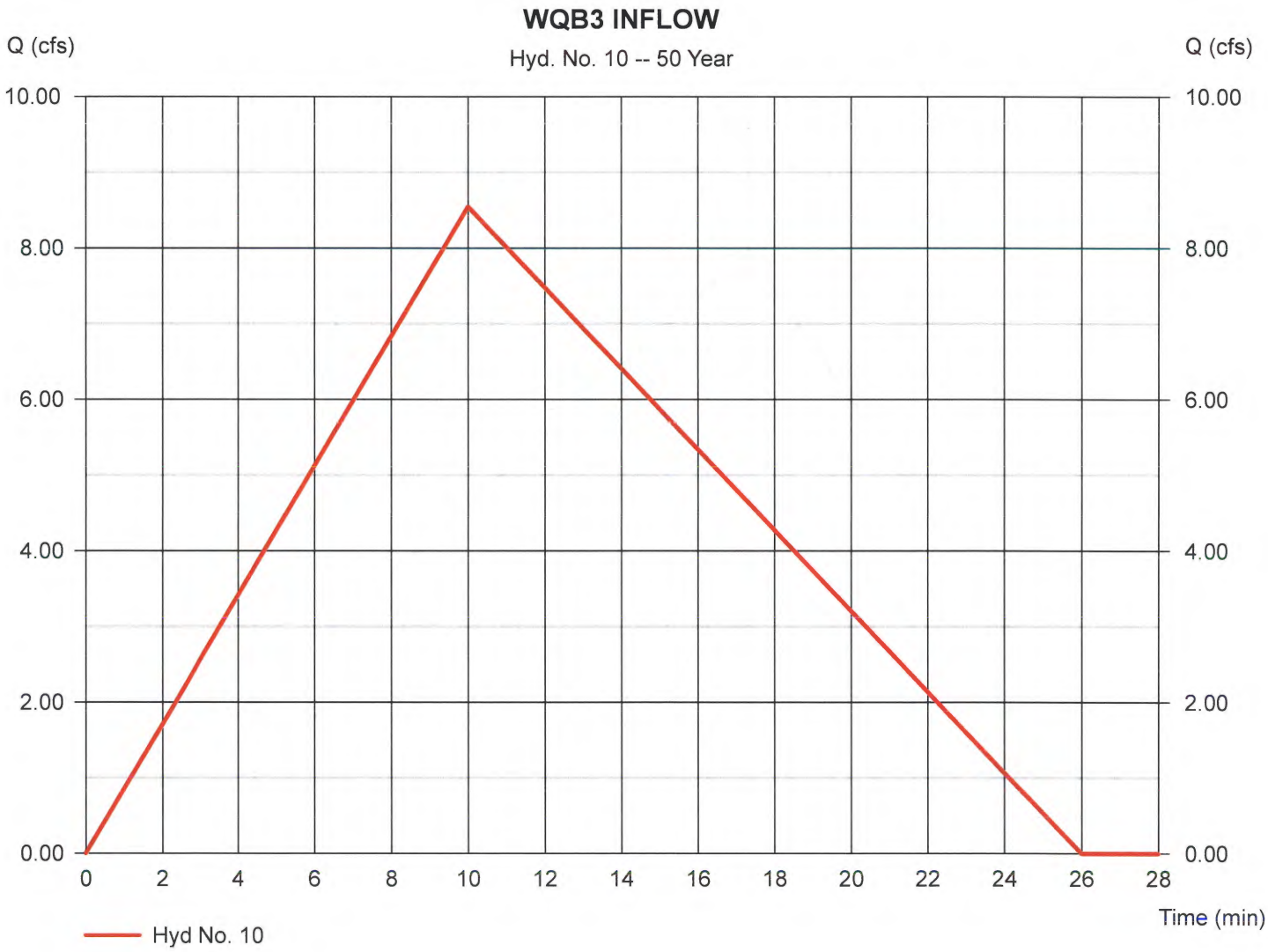
Hydrograph Report

Hyd. No. 10

WQB3 INFLOW

Hydrograph type	= Rational	Peak discharge	= 8.542 cfs
Storm frequency	= 50 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 6,835 cuft
Drainage area	= 3.040 ac	Runoff coeff.	= 0.38*
Intensity	= 7.395 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(2.260 x 0.20) + (0.780 x 0.90)] / 3.040



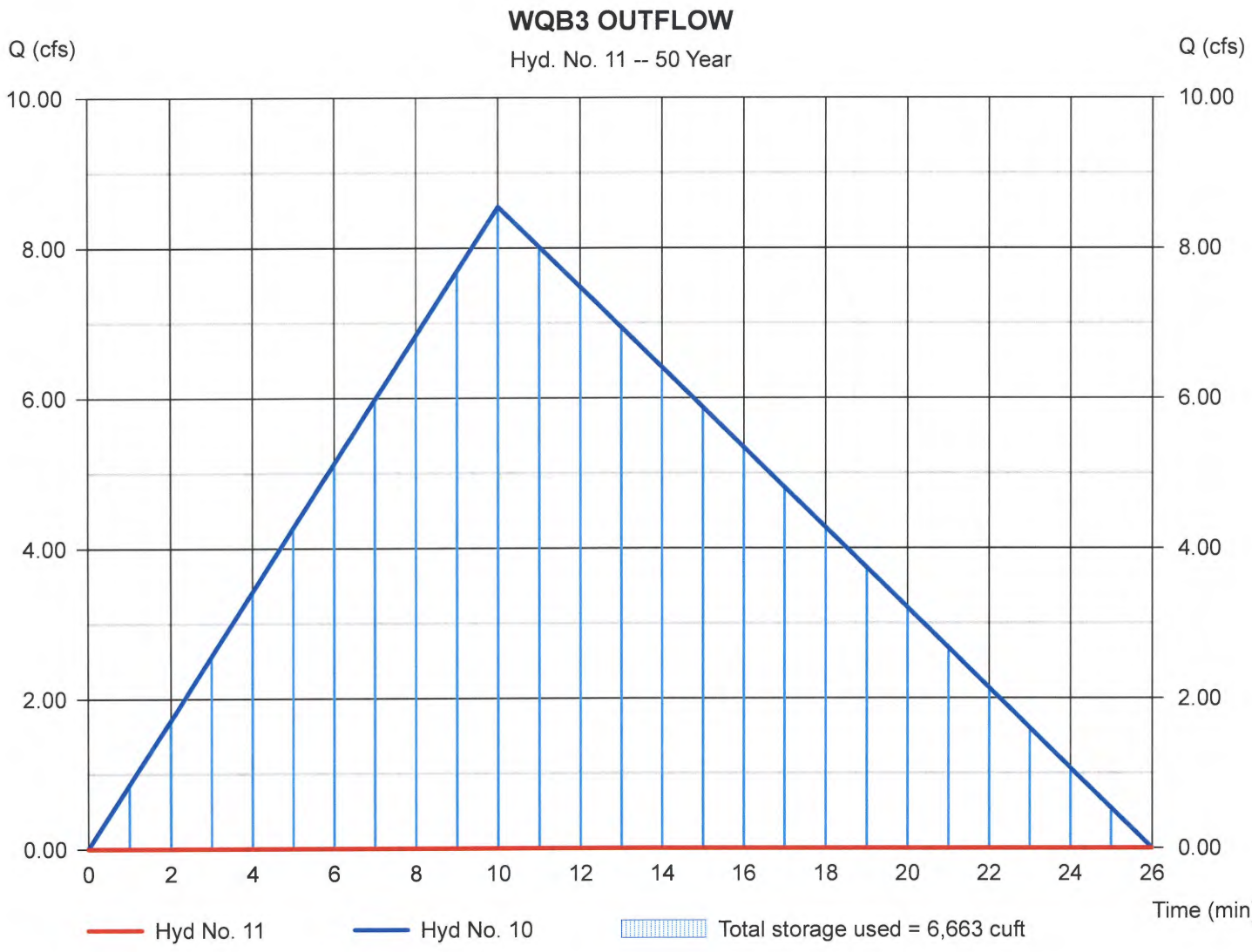
Hydrograph Report

Hyd. No. 11

WQB3 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 50 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - WQB3 INFLOW	Max. Elevation	= 177.64 ft
Reservoir name	= WQB3	Max. Storage	= 6,663 cuft

Storage Indication method used.



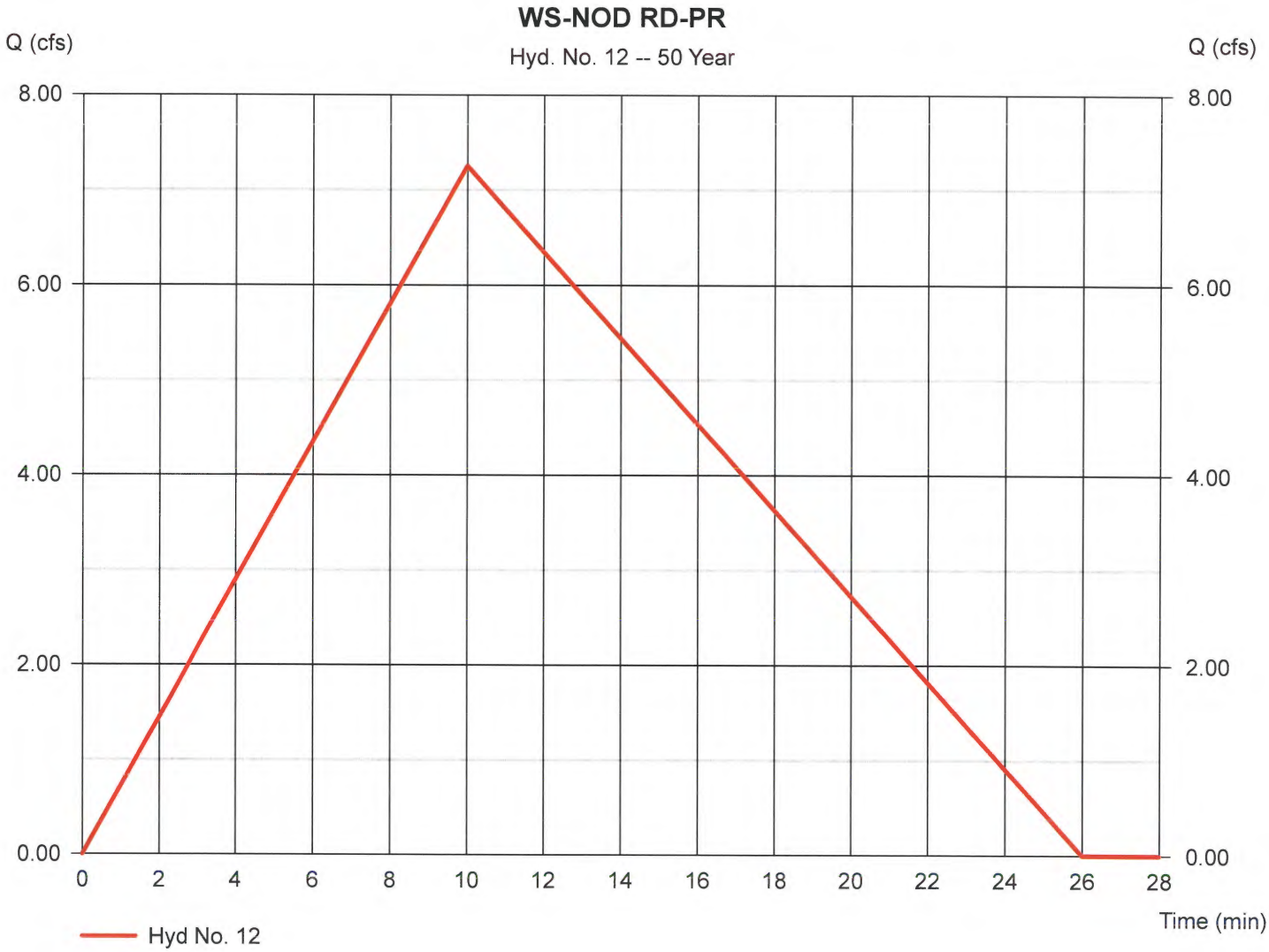
Hydrograph Report

Hyd. No. 12

WS-NOD RD-PR

Hydrograph type	= Rational	Peak discharge	= 7.251 cfs
Storm frequency	= 50 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,801 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.53*
Intensity	= 7.395 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.570 x 0.20) + (0.370 x 0.15) + (0.910 x 0.90)] / 1.850

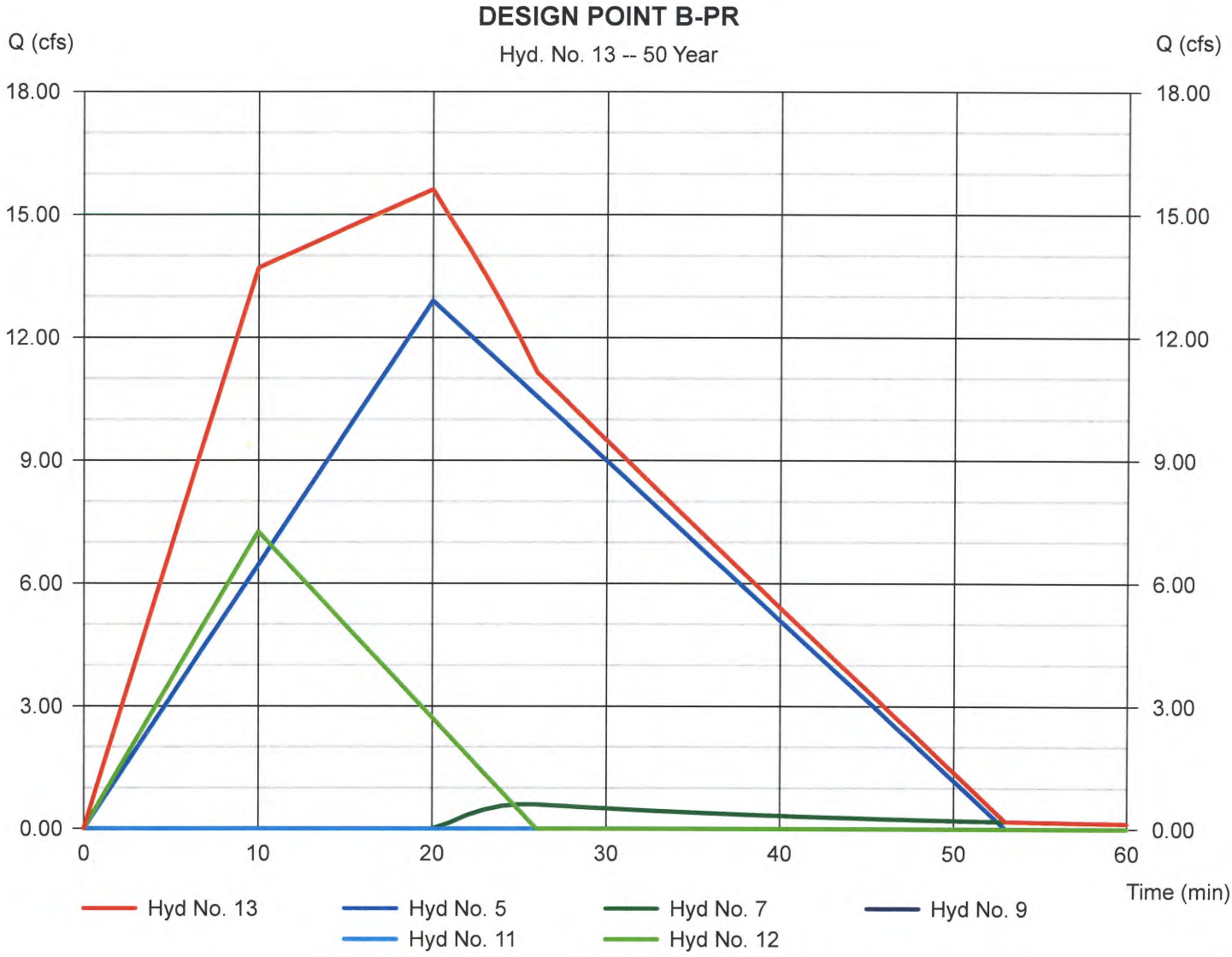


Hydrograph Report

Hyd. No. 13

DESIGN POINT B-PR

Hydrograph type	= Combine	Peak discharge	= 15.61 cfs
Storm frequency	= 50 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 27,095 cuft
Inflow hyds.	= 5, 7, 9, 11, 12	Contrib. drain. area	= 11.770 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1 — Wednesday, May 11, 2022

Hyd. No. 1

WS-EAST-EX

Hydrograph type	= Rational	Peak discharge	= 14.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 21,217 cuft
Drainage area	= 9.900 ac	Runoff coeff.	= 0.25*
Intensity	= 5.953 in/hr	Tc by TR55	= 18.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.820 x 0.20) + (6.840 x 0.15) + (1.240 x 0.90)] / 9.900

Hydrograph Report

Hyd. No. 2

WS-SITE-EX

Hydrograph type	= Rational	Peak discharge	= 9.945 cfs
Storm frequency	= 100 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 13,527 cuft
Drainage area	= 8.500 ac	Runoff coeff.	= 0.19*
Intensity	= 6.158 in/hr	Tc by TR55	= 17.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(7.510 x 0.20) + (0.990 x 0.15)] / 8.500

Hydrograph Report

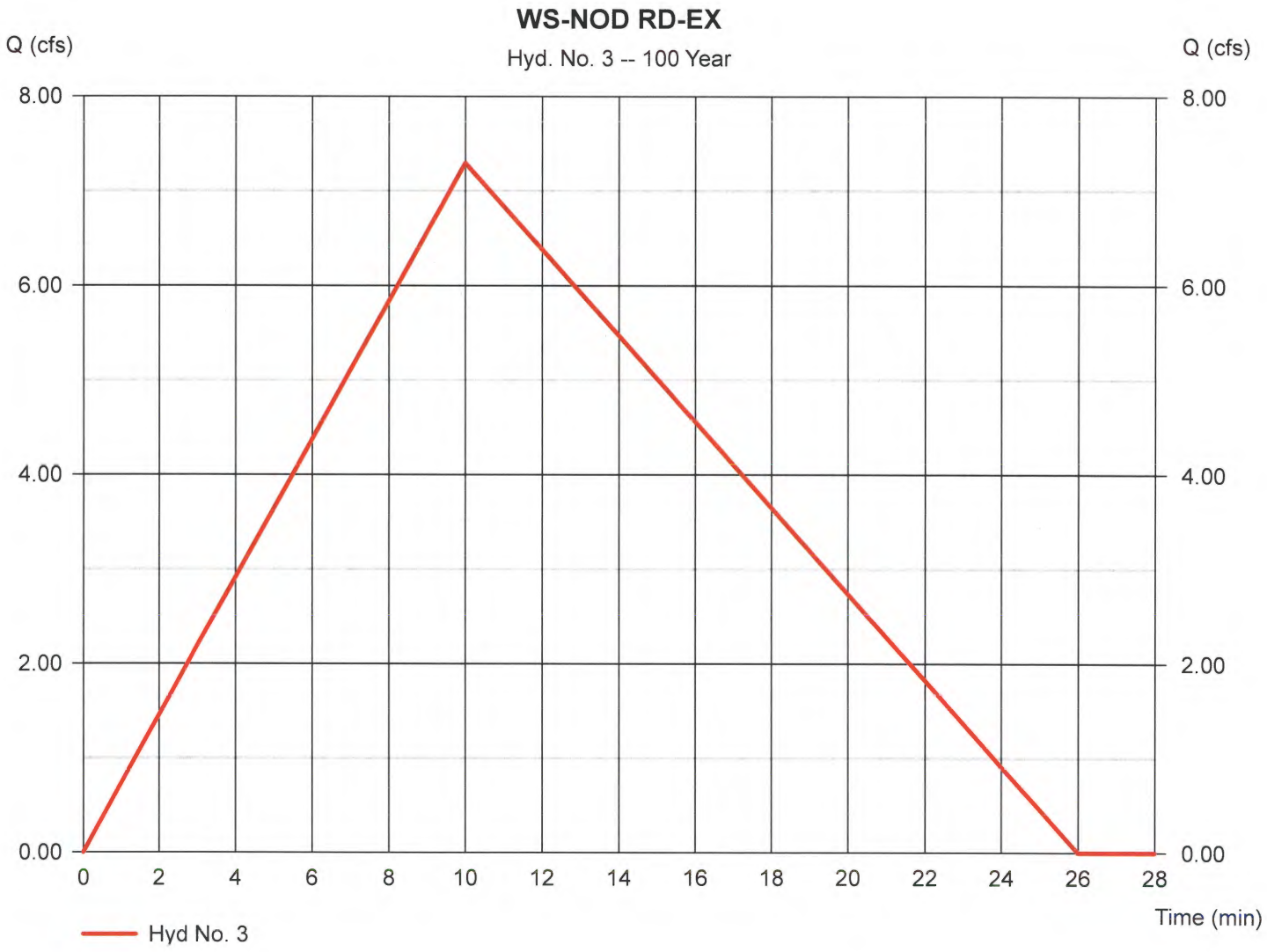
Hydraflow Hydrographs by Intelisolve v9.1 — Wednesday, May 11, 2022

Hyd. No. 3

WS-NOD RD-EX

Hydrograph type	= Rational	Peak discharge	= 7.292 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,834 cuft
Drainage area	= 1.600 ac	Runoff coeff.	= 0.55*
Intensity	= 8.286 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.400 x 0.20) + (0.370 x 0.15) + (0.830 x 0.90)] / 1.600

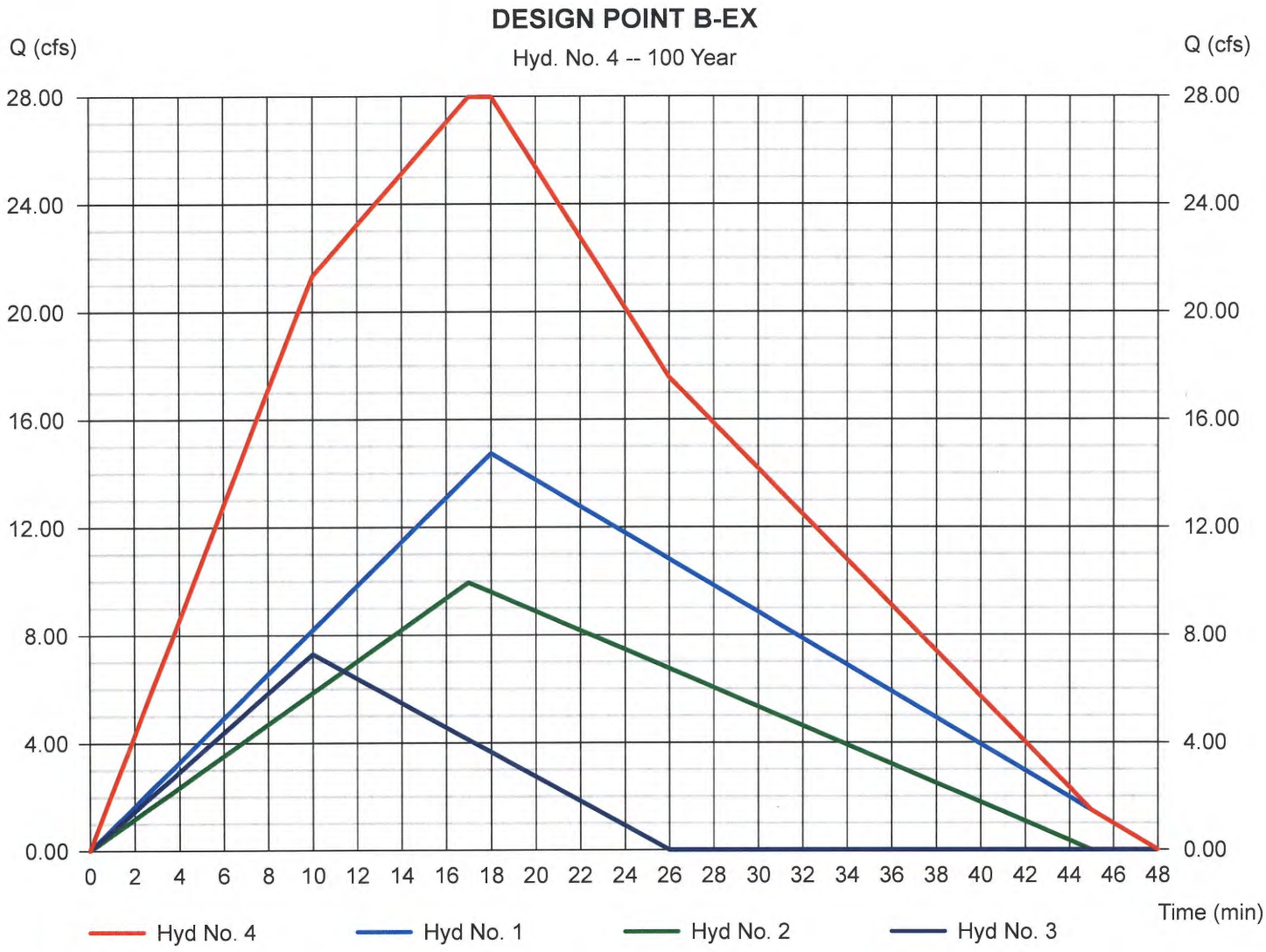


Hydrograph Report

Hyd. No. 4

DESIGN POINT B-EX

Hydrograph type	= Combine	Peak discharge	= 27.97 cfs
Storm frequency	= 100 yrs	Time to peak	= 18 min
Time interval	= 1 min	Hyd. volume	= 40,328 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 20.000 ac



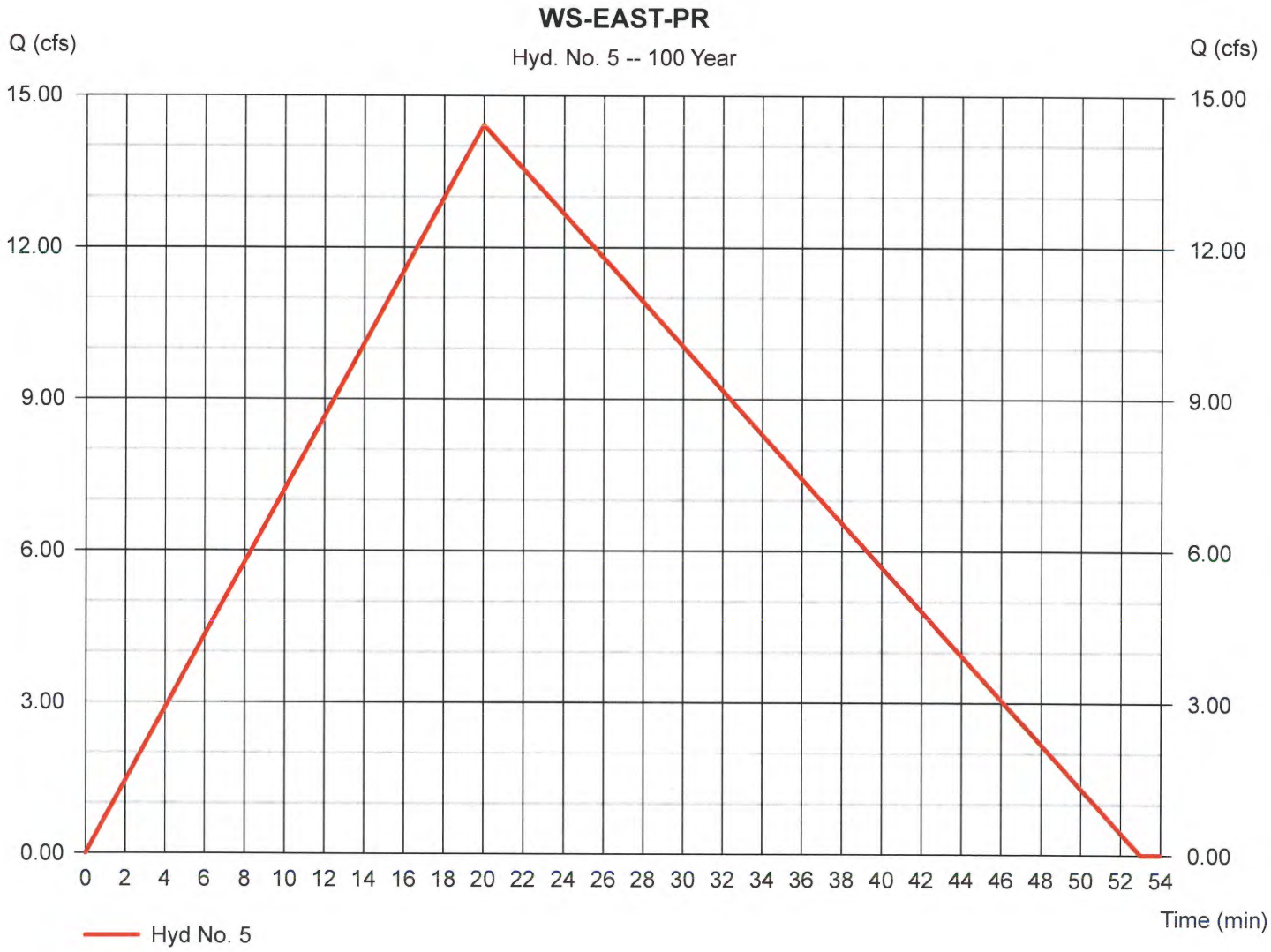
Hydrograph Report

Hyd. No. 5

WS-EAST-PR

Hydrograph type	= Rational	Peak discharge	= 14.41 cfs
Storm frequency	= 100 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 23,060 cuft
Drainage area	= 9.920 ac	Runoff coeff.	= 0.26*
Intensity	= 5.587 in/hr	Tc by TR55	= 20.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(1.810 x 0.20) + (6.840 x 0.15) + (1.270 x 0.90)] / 9.920



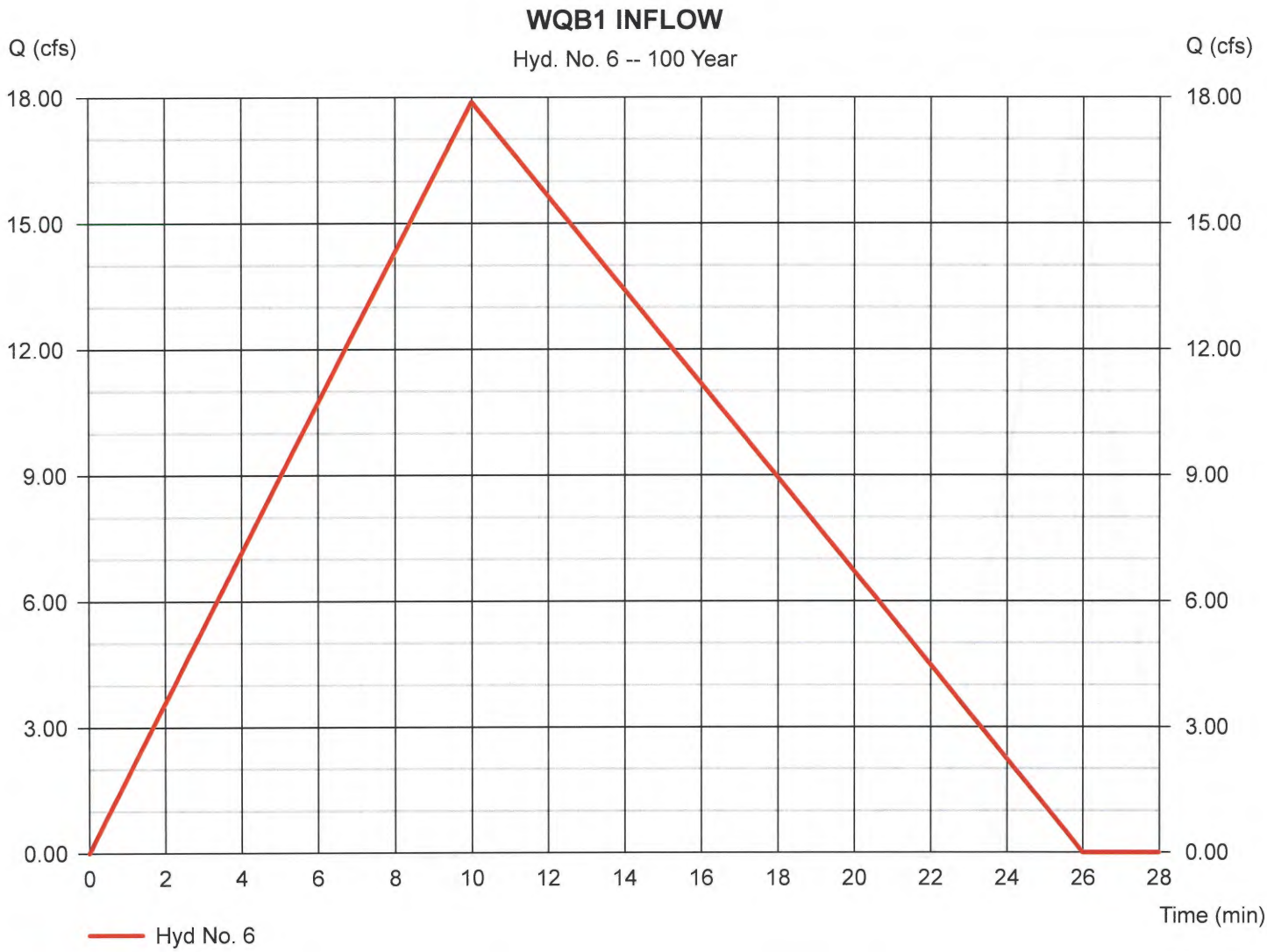
Hydrograph Report

Hyd. No. 6

WQB1 INFLOW

Hydrograph type	= Rational	Peak discharge	= 17.88 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 14,306 cuft
Drainage area	= 4.150 ac	Runoff coeff.	= 0.52*
Intensity	= 8.286 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(2.250 x 0.20) + (1.900 x 0.90)] / 4.150



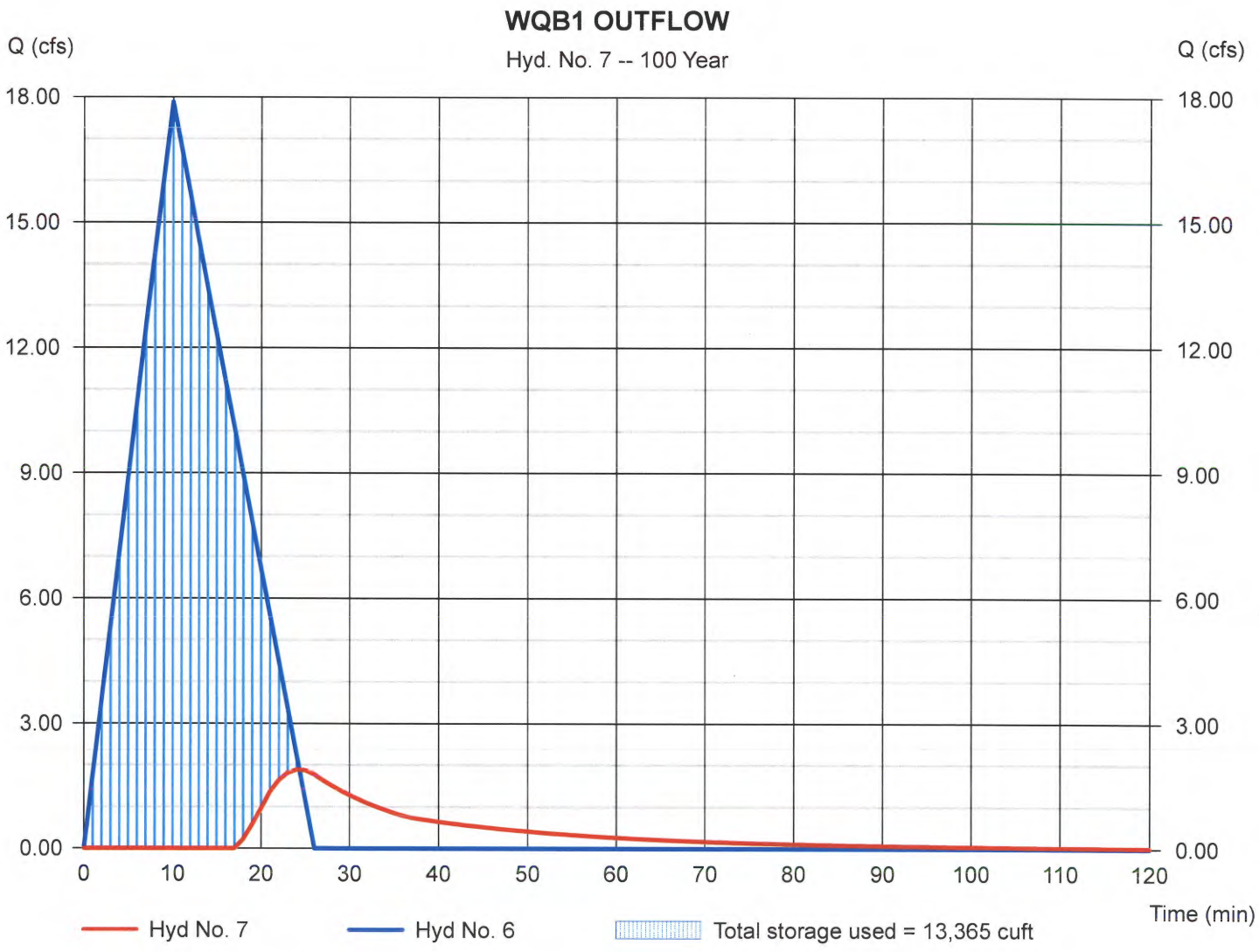
Hydrograph Report

Hyd. No. 7

WQB1 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 1.891 cfs
Storm frequency	= 100 yrs	Time to peak	= 24 min
Time interval	= 1 min	Hyd. volume	= 2,445 cuft
Inflow hyd. No.	= 6 - WQB1 INFLOW	Max. Elevation	= 172.18 ft
Reservoir name	= WQB1	Max. Storage	= 13,365 cuft

Storage Indication method used.



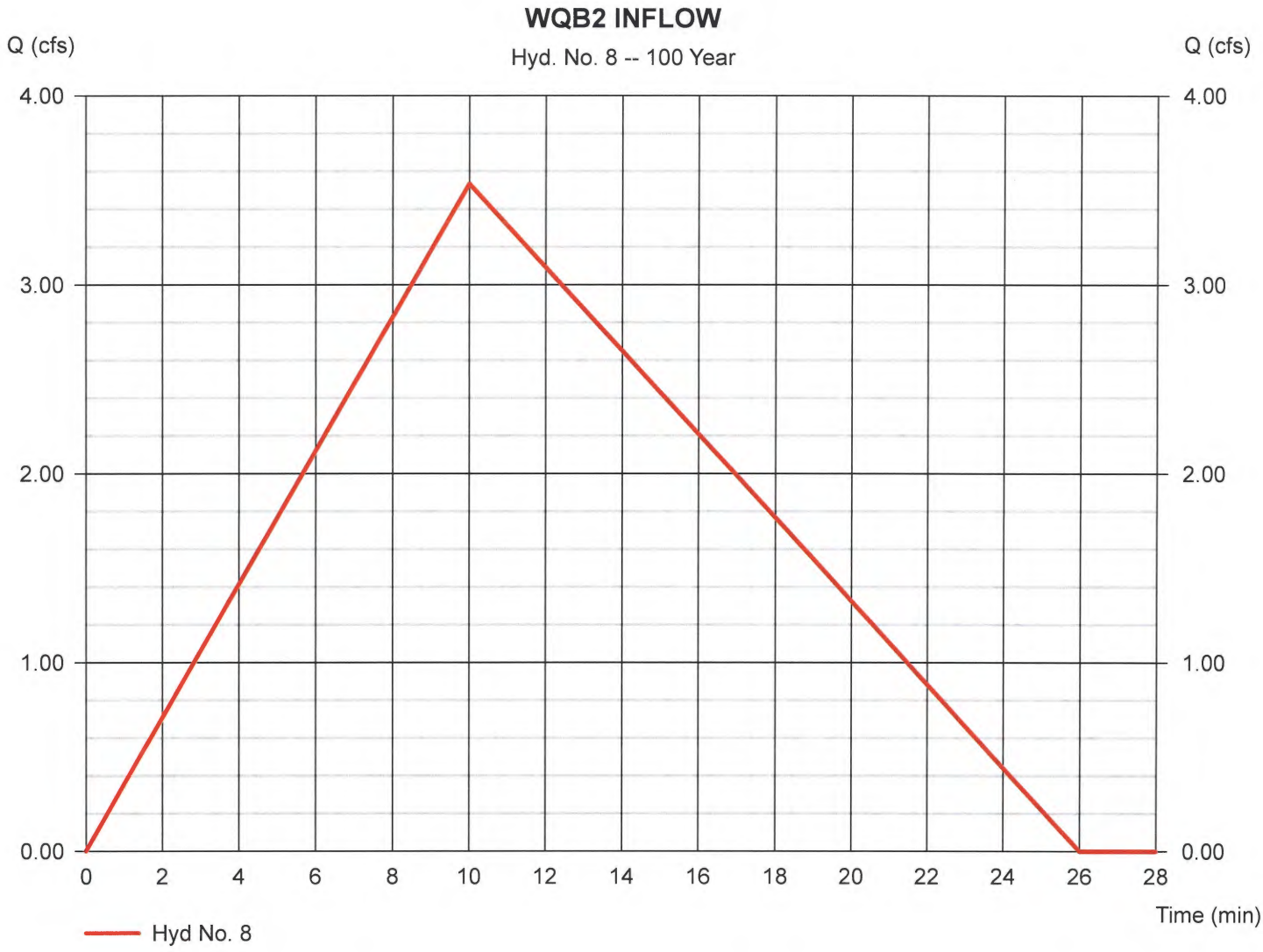
Hydrograph Report

Hyd. No. 8

WQB2 INFLOW

Hydrograph type	=	Rational	Peak discharge	=	3.533 cfs
Storm frequency	=	100 yrs	Time to peak	=	10 min
Time interval	=	1 min	Hyd. volume	=	2,827 cuft
Drainage area	=	1.040 ac	Runoff coeff.	=	0.41*
Intensity	=	8.286 in/hr	Tc by User	=	10.00 min
IDF Curve	=	03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	=	1/1.6667

* Composite (Area/C) = [(0.730 x 0.20) + (0.310 x 0.90)] / 1.040



Hydrograph Report

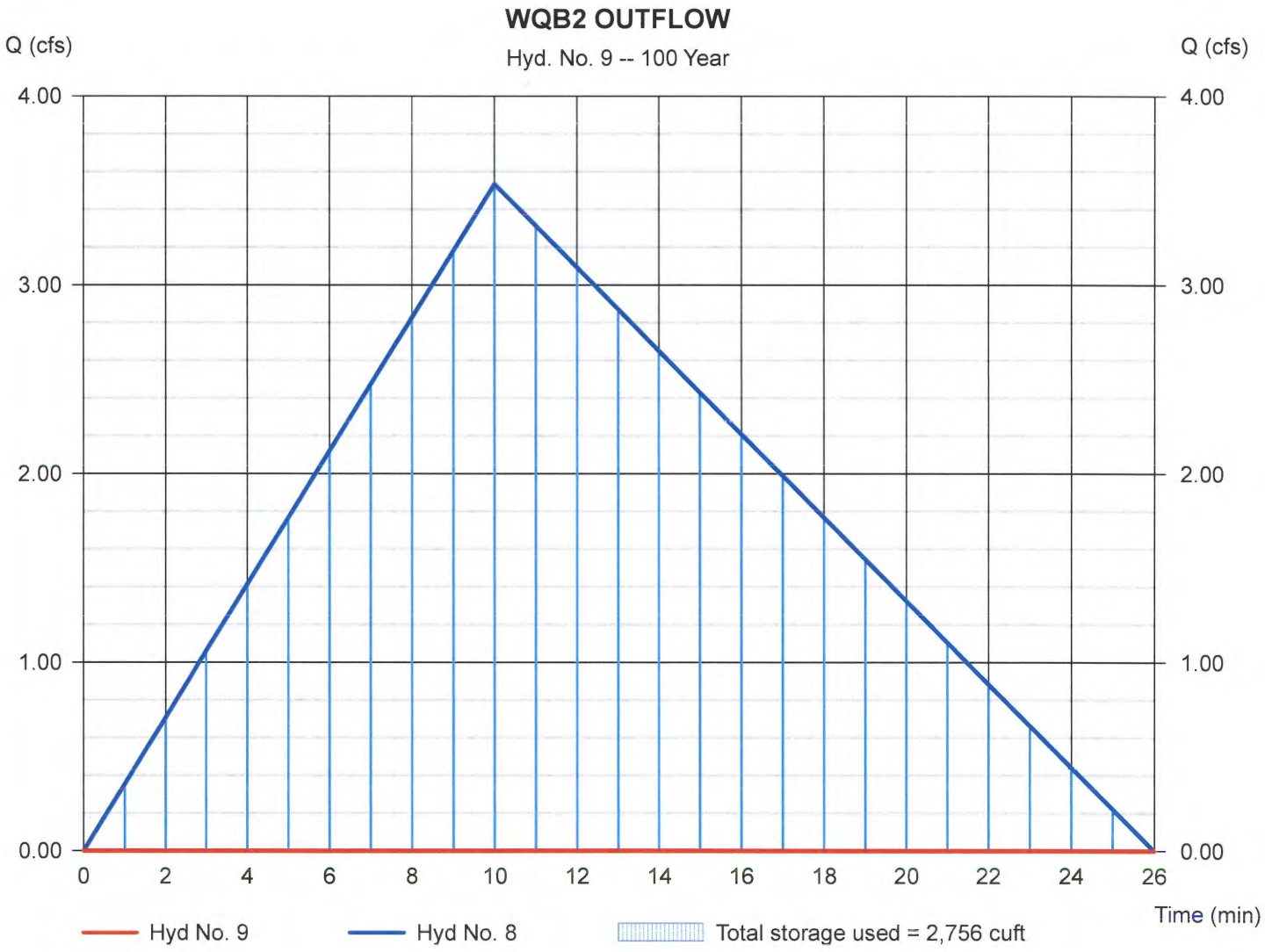
Hydraflow Hydrographs by Intelisolve v9.1 — Wednesday, May 11, 2022

Hyd. No. 9

WQB2 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 8 - WQB2 INFLOW	Max. Elevation	= 176.42 ft
Reservoir name	= WQB2	Max. Storage	= 2,756 cuft

Storage Indication method used.



Hydrograph Report

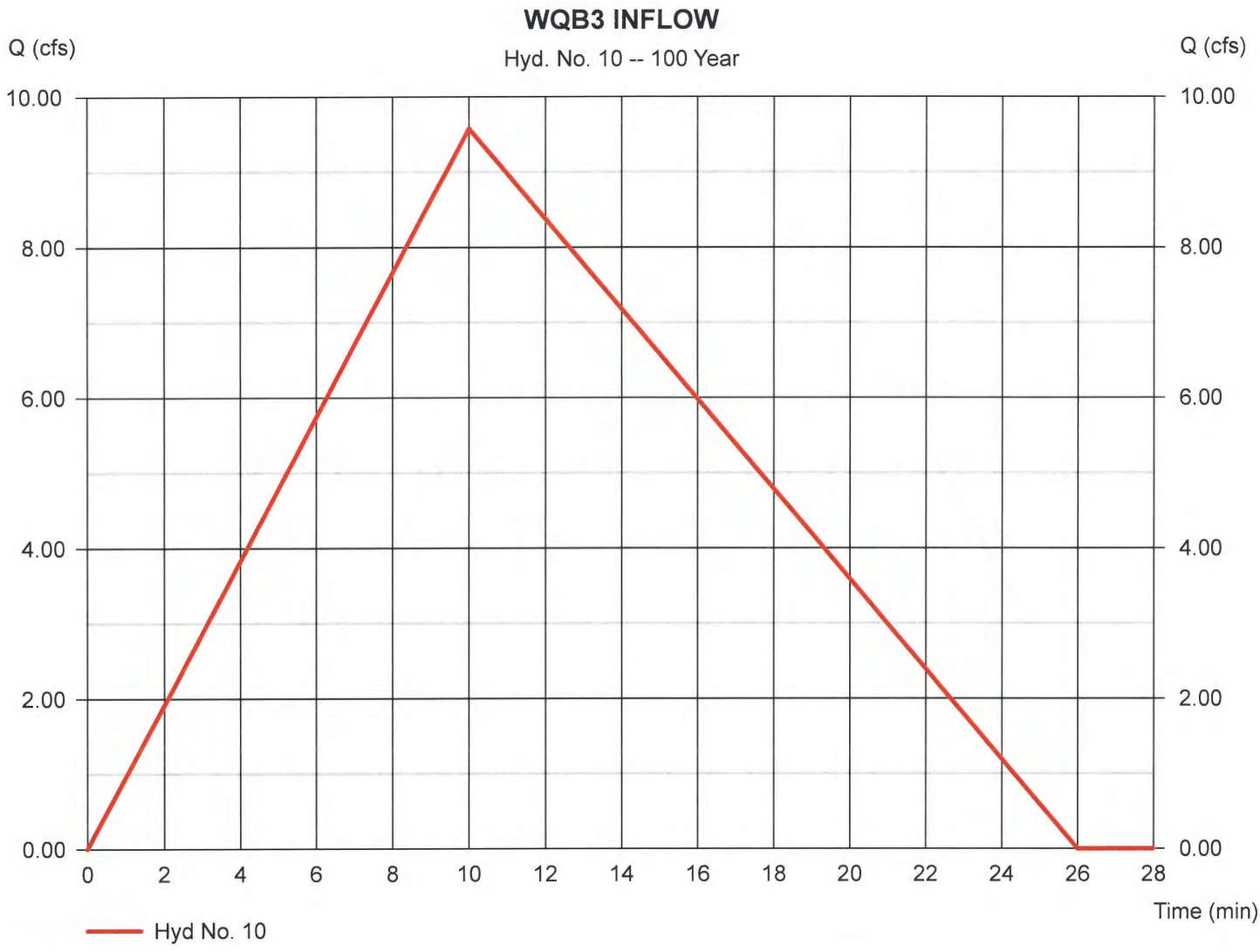
Hydraflow Hydrographs by Intelisolve v9.1 — Wednesday, May 11, 2022

Hyd. No. 10

WQB3 INFLOW

Hydrograph type	= Rational	Peak discharge	= 9.572 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 7,659 cuft
Drainage area	= 3.040 ac	Runoff coeff.	= 0.38*
Intensity	= 8.286 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(2.260 x 0.20) + (0.780 x 0.90)] / 3.040



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

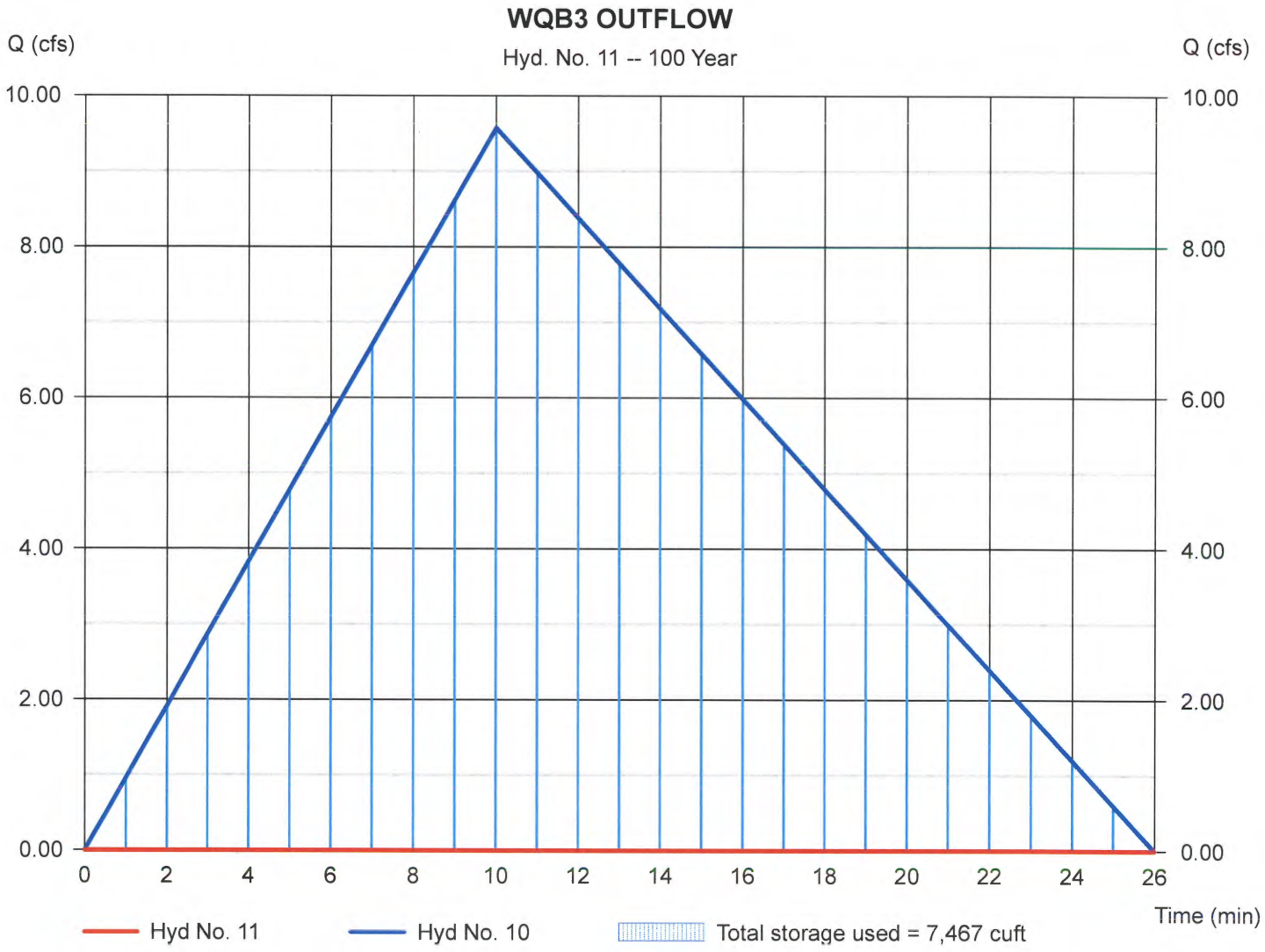
Wednesday, May 11, 2022

Hyd. No. 11

WQB3 OUTFLOW

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= n/a
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 10 - WQB3 INFLOW	Max. Elevation	= 177.76 ft
Reservoir name	= WQB3	Max. Storage	= 7,467 cuft

Storage Indication method used.



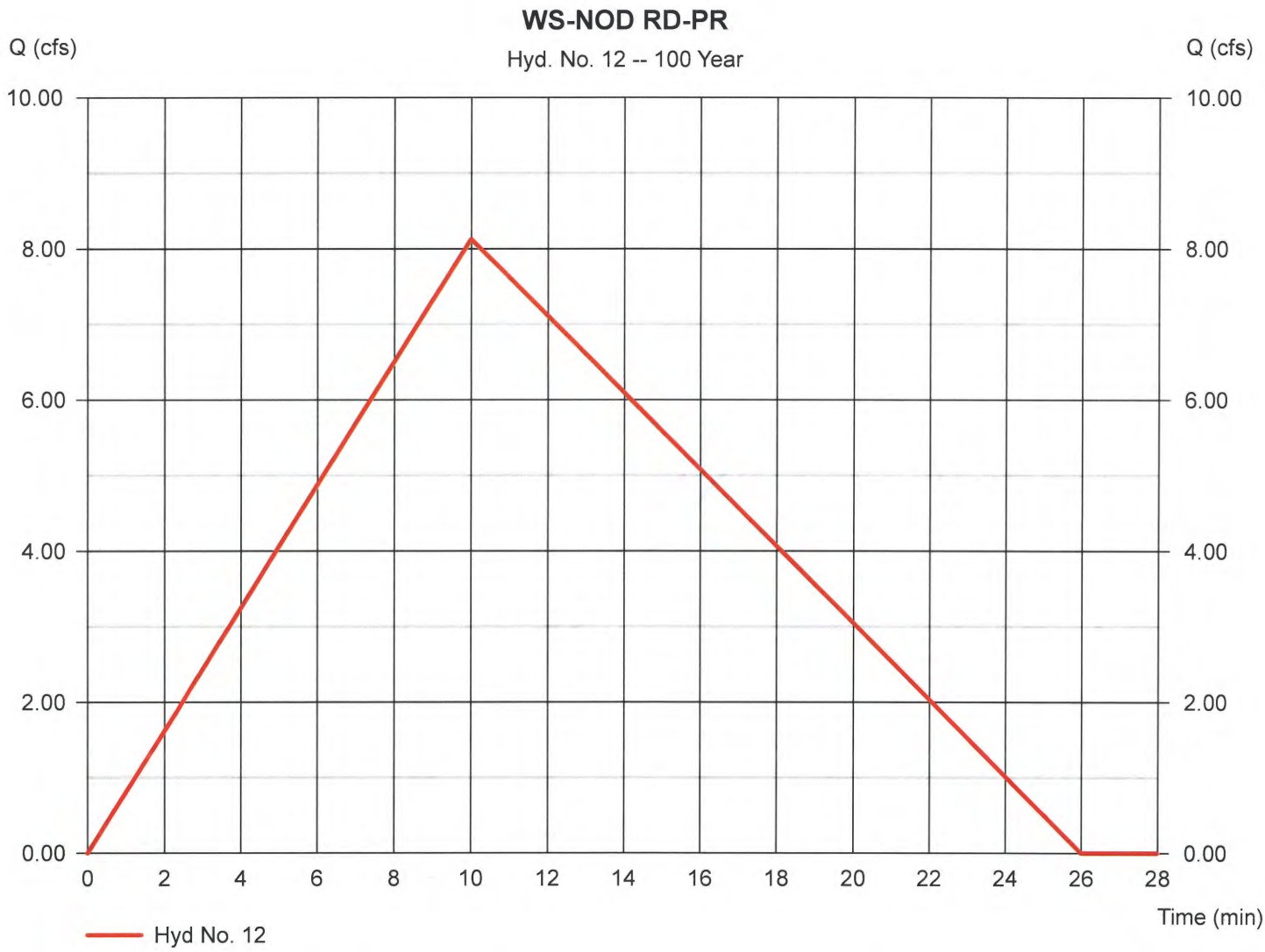
Hydrograph Report

Hyd. No. 12

WS-NOD RD-PR

Hydrograph type	= Rational	Peak discharge	= 8.125 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 6,501 cuft
Drainage area	= 1.850 ac	Runoff coeff.	= 0.53*
Intensity	= 8.286 in/hr	Tc by User	= 10.00 min
IDF Curve	= 03.18.2022 (IN PER HR).IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.570 x 0.20) + (0.370 x 0.15) + (0.910 x 0.90)] / 1.850

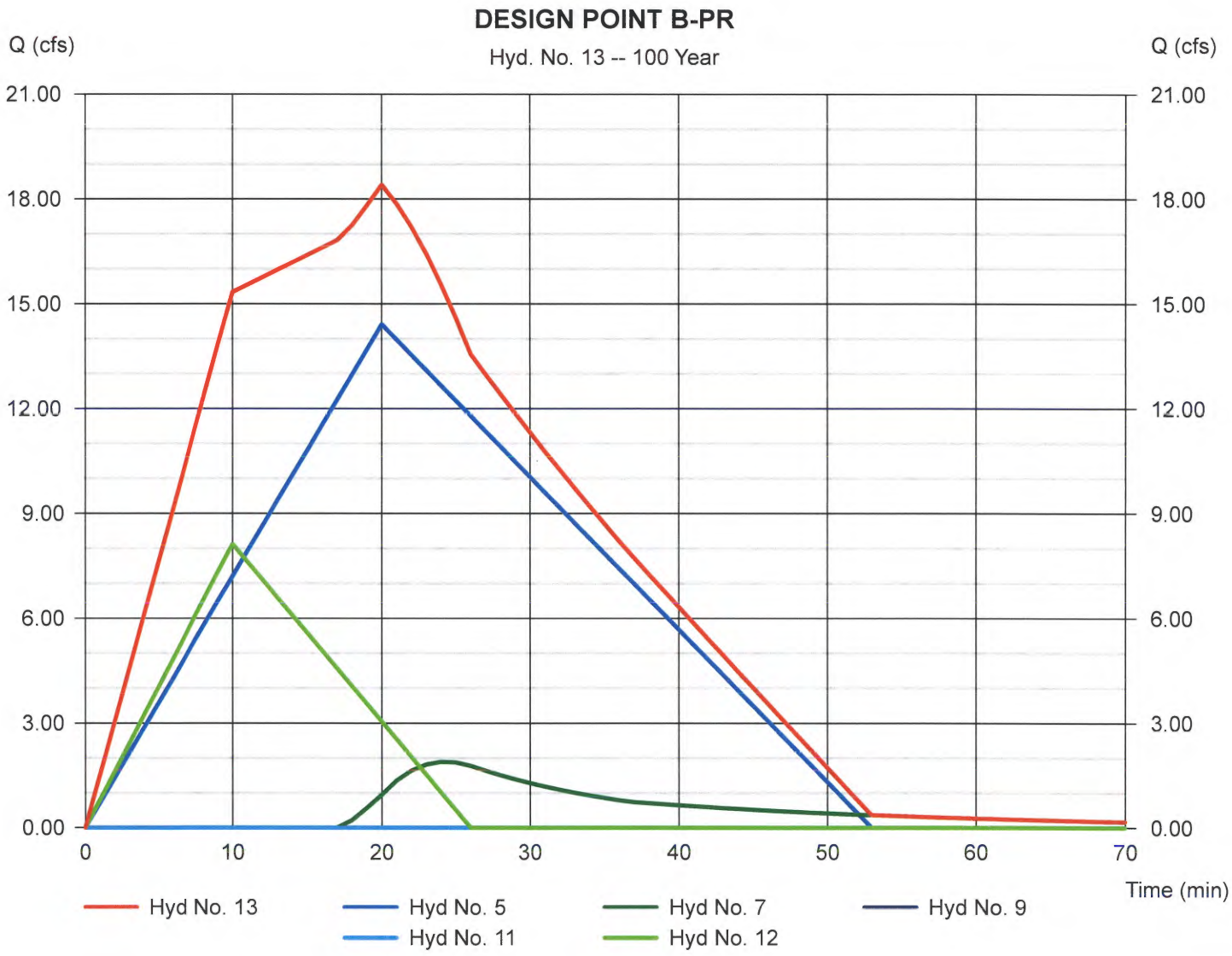


Hydrograph Report

Hyd. No. 13

DESIGN POINT B-PR

Hydrograph type	= Combine	Peak discharge	= 18.41 cfs
Storm frequency	= 100 yrs	Time to peak	= 20 min
Time interval	= 1 min	Hyd. volume	= 31,695 cuft
Inflow hyds.	= 5, 7, 9, 11, 12	Contrib. drain. area	= 11.770 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	19.9470	3.7000	0.7227	--------
2	24.7287	3.9000	0.7298	--------
3	0.0000	0.0000	0.0000	--------
5	31.2346	3.9000	0.7271	--------
10	37.2329	4.0000	0.7298	--------
25	43.3642	3.8000	0.7207	--------
50	50.3480	4.0000	0.7268	--------
100	53.5698	3.6000	0.7151	--------

File name: 03.18.2022 (IN PER HR).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	4.18	3.01	2.40	2.02	1.76	1.57	1.42	1.30	1.20	1.12	1.05	0.99
2	5.02	3.62	2.89	2.44	2.12	1.89	1.71	1.57	1.45	1.35	1.26	1.19
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	6.37	4.61	3.69	3.11	2.71	2.41	2.18	2.00	1.85	1.72	1.61	1.52
10	7.49	5.43	4.34	3.66	3.19	2.84	2.57	2.35	2.18	2.03	1.90	1.79
25	9.05	6.54	5.23	4.42	3.85	3.43	3.11	2.85	2.63	2.45	2.30	2.17
50	10.20	7.39	5.92	5.00	4.36	3.88	3.51	3.22	2.97	2.77	2.60	2.45
100	11.50	8.29	6.62	5.59	4.87	4.34	3.93	3.60	3.33	3.11	2.92	2.75

Tc = time in minutes. Values may exceed 60.

Precip. file name: 02.07.2022 Rainfall Precipitation.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	3.35	0.00	4.47	5.39	6.66	7.59	8.63
SCS 6-Hr	1.86	2.25	0.00	2.89	3.43	4.16	4.70	5.29
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

Attachment 4

Soil Infiltration Testing

Attachment 4

Soil Infiltration Testing

Narrative:

In late January 2022, nine test pits were conducted at the subject site. The test pits were conducted with an excavator by advancing holes to between 4 and 7 feet below existing grade. Three locations were selected throughout the site in the general area of the each of the proposed Water Quality/Infiltration Basins (WQB1, WQB2 and WQB3). The locations of the test pits and soil profile logs are depicted on Sheet TP-1 (Attachment 4). The soil profile was logged for each test pit. Logs of the soil profiles are attached. Where practical, the total depth of excavation was advanced to at or below the proposed bottom elevation of the water quality/infiltration basin and in soils that are characteristic of the soil profile below the basins and into which the stormwater is proposed to infiltrate.

A PVC standpipe was installed in each of the excavations prior to backfilling. The pipe consisted of a ten-foot long, 3-inch diameter solid pipe. Following excavation of the pit, the pipe was placed by pushing it into the un-disturbed soil in the bottom of the excavation, and the excavation was backfilled as the pipe was maintained as plumb as possible.

On March 15, 16 and 17, 2022, additional measurements were taken and in-situ infiltration testing was conducted. The amount of pipe exposed above the natural ground surface (i.e., stick-up length) was measured and noted. In one case, a pipe was cut from its original ten-foot length. The depth below grade of the bottom of the pipe was determined by subtracting the stick-up length from the total pipe length. The depth from the top of pipe to the soil encountered at the bottom of the pipe was measured and noted. There was no standing groundwater noted in any of the pipes.

Following measuring of the pipe stick-up length, water was poured in the pipe until water overflowed the top of the pipe, and the time was noted. It was observed that the ground surface surrounding the stand pipes was saturated due to recent precipitation and spring thaw conditions and that pre-soaking would not be required, as soils were already in a saturated condition. Following filling the rate of decent of water in the pipes was noted and logged. The drop in inches at measured time intervals was measured and noted for each standpipe and the data summarized on a spreadsheet. The steady-state drop rate as water neared the bottom of the pipe was calculated to estimate a steady-state infiltration rate. In some standpipes, water levels were measured over the course of 3 days.

Collected data and analysis is provide in the attached spreadsheets. A summary of the data is also included in the attached Table 1.

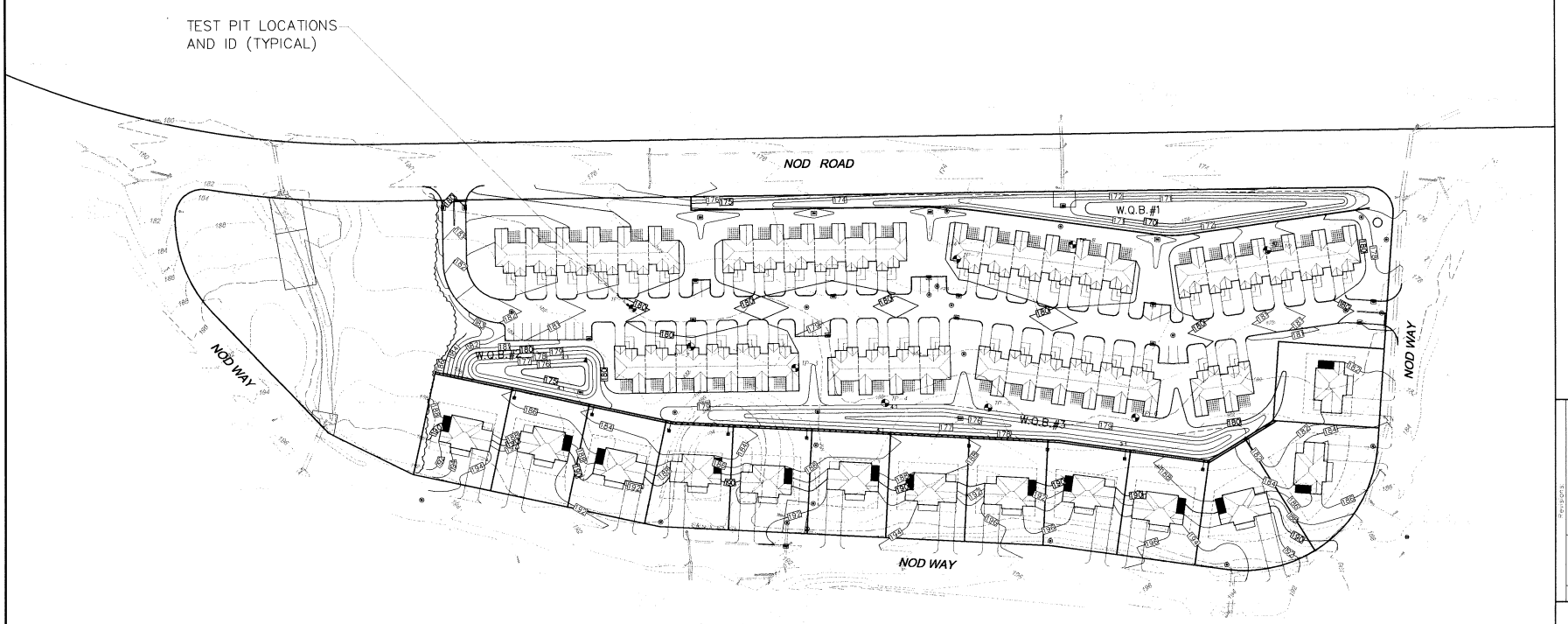
The data indicated the following:

- Subsurface soils in the areas of the proposed Water Quality Basins WQB1, and WQB3 are characterize by sands and gravels with low groundwater tables and higher infiltration rates and are suitable soil types for the infiltration systems proposed. The data indicate that stormwater collected and detained in WQB1 and WQB3 would have no trouble infiltrating into the underlying ground within 48 to 72 hours after a storm event.
- Subsurface soils in the areas of the proposed Water Quality Basin WQB2 are sands and gravels but contain higher concentrations of finer materials and are less permeable than soils found in the areas of WQB1 and WQB3. The data indicate that stormwater collected and detained in WQB2 would likely not infiltrate into the underlying ground within 48 to 72 hours after a storm event. An integrated underdrain and use of perforated piping connecting WQB2 to the outlet structure in WQB3 is therefore proposed. The underdrain and perforated pipe system would facilitate drainage of the basin within 48 to 72 hours after a storm event.
- The groundwater table in the areas of WQB3 and WQB1 is located below the bottom elevation of the proposed Water Quality/Infiltration basins. There would be no anticipated reduction in the volumetric capacity of the basins due to the presence of high groundwater conditions.
- The subsurface soils in WQB1 and WWB3 have sufficient permeability to provide for complete evacuation of the infiltration basin and underground storage systems within 24 hours after termination of a precipitation event. Assuming the long-term infiltration rate were 25% of the slowest measured infiltration rate (2.9 in/hr), which would be 0.73 in/hr. The Water Quality/Infiltration Basins would be anticipated to drain in (24 inches/0.73 in/hr. = 33 hours. These calculated times indicate complete infiltration in much less than the 48-to 72-hr period recommended by the SWQM.

LEGEND

- = PROPOSED CATCH BASIN
- = PROPOSED SANITARY MANHOLE
- = PROPOSED YARD DRAIN
- = PROPOSED DRAINAGE MANHOLE
- = PROPOSED FLARED END SECTION
- = PROPOSED STORM DRAIN CULVERT
- 381.0 = PROPOSED SPOT GRADE
- 170 = PROPOSED CONTOUR
- = PROPOSED DRAINAGE DIVIDE
- TP-1 = TEST PIT LOCATIONS AND ID
- = WATER FLOW DIRECTION

TEST PIT LOCATIONS AND ID (TYPICAL)



GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

TP-1

TEST PIT LOCATION PLAN

100 NOD WAY LLC

100 NOD ROAD
AVON, CONNECTICUT

Date: 05-06-2022 | Drawn by: DRF | Job no: 19144
Scale: 1" = 50' | Checked by: DSZ | Sheet no: 1 OF 1

No.	Date	Description
		Revisions

F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
Phone (860) 653-8000 Fax (860) 844-8800
Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects www.fahesketh.com • mail@fahesketh.com

P:\2019\19144 - 100 Nod Road\Submittals\2022-05-06\19144 SP-1 2022-05-06.dwg, Standard, May 11, 2022 - 8:43:21 AM

5/6/2022

100 Nod Way LLC

Table 1

Stand Pipe and Infiltration Data

						Standpipe		
Test Pit ID	Ground Elevation (feet)	Depth of Test Pit (feet)	El. of Bottom of Test Pit (feet)	Groundwater Elevation (feet)	Bottom of Basin Elevation (feet)	Stick-up (feet)	Bottom of Pipe El. (feet)	Infiltration Rate (in/hr)
TP-1	179.6	4.5	175.1	<175.1	175.0	2.3	175.1	0.52
TP-2	179.5	5.5	174.0	<174.0	175.0	4.3	174.0	0.56
TP-3	181.5	8.2	173.3	<175.8	176.0	1.8	173.3	3600
TP-4	182.0	7.5	174.5	<174.5	176.0	2.1	174.5	51
TP-5	181.2	8.1	173.1	<173.1	176.0	1.9	173.1	69
TP-6	179.3	7.3	172.0	<172.0	176.0	2.3	172.0	63
TP-7	176.3	7.9	168.4	<168.4	170.0	1.9	168.4	130
TP-8	172.6	7.7	164.9	<164.9	170.0	2.2	164.9	2.9
TP-10	175.2	6.9	168.3	<168.3	170.0	3.0	168.3	138

19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

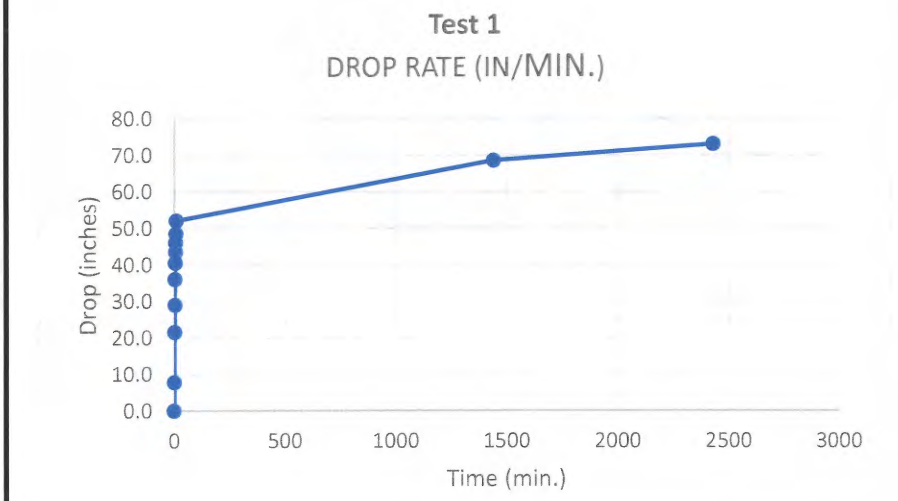
TP-1, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 6.8' = 82"
Top of Pipe to ground Level = 2.3' = 28"

Test 1

Time (min)	drop (inches)
0	0.0
1	7.8
2	21.5
3	29.0
4	36.0
5	40.5
6	43.5
7	46.0
8	48.5
9	52.0
1440	68.5
2428	73.0

Drop Rate (in/min) =	0.01		
Drop Rate (in/hour) =	0.52	Ave Drop Rate =	0.52 (in/hr)



19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

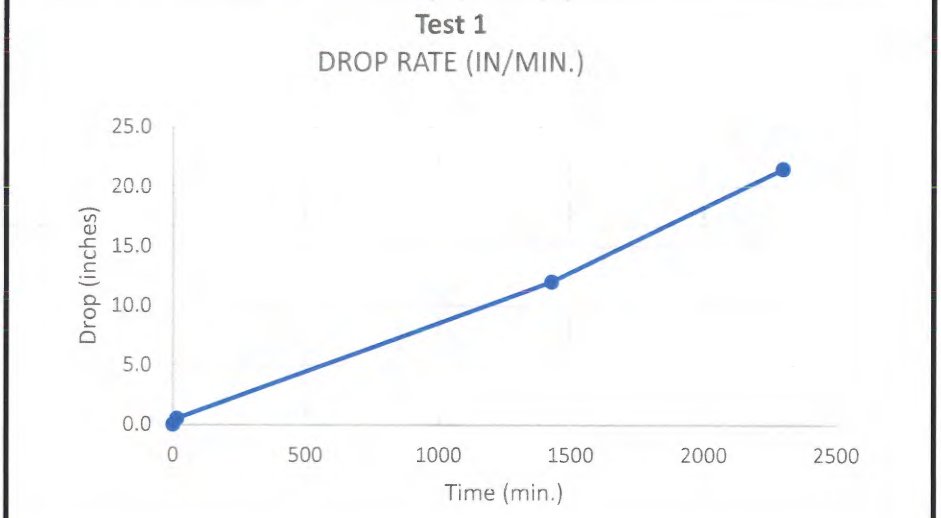
TP-2, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 9.8' =117"
Top of Pipe to ground Level = 4.3' = 51.5"

Test 1

Time (min)	drop (inches)
0	0.0
15	0.5
1428	12.0
2298	21.5

Drop Rate (in/min) =	0.01		
Drop Rate (in/hour) =	0.56	Ave Drop Rate =	0.56 (in/hr)



19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

TP-3, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 10.0' = 120"
Top of Pipe to ground Level = 2.1' = 21.5"

Test 1

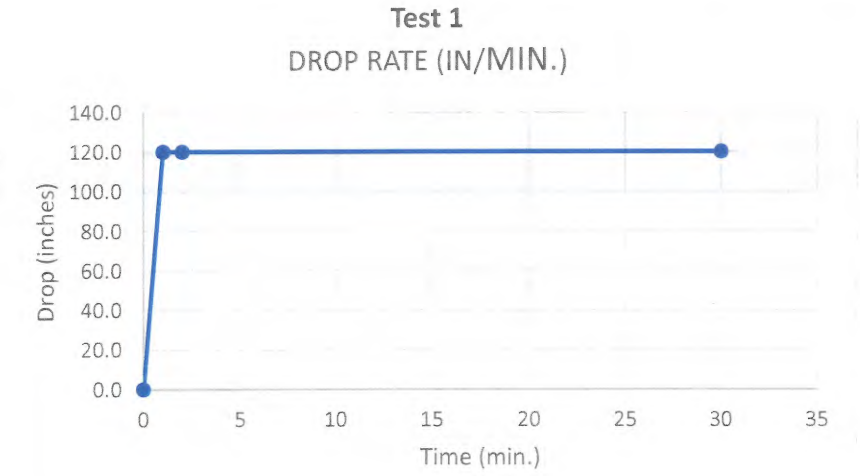
Time (min)	drop (inches)
0	0.0
1	120.0
2	120.0
30	120.0

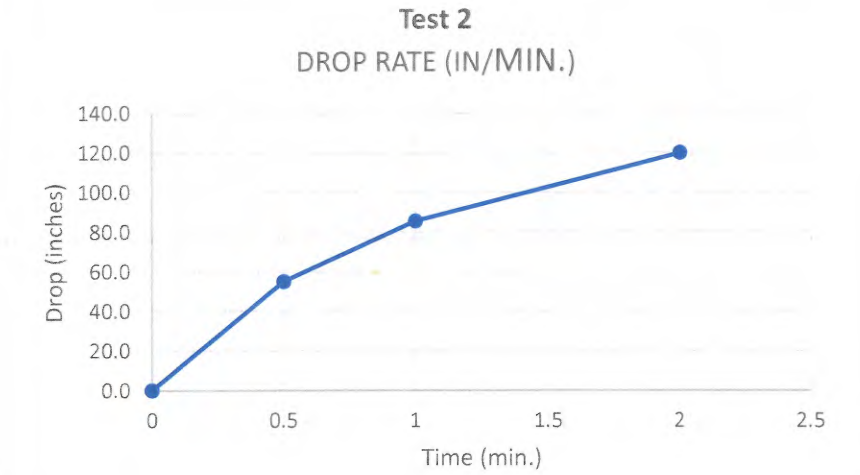
Drop Rate (in/min) = 60 *
Drop Rate (in/hour) = 3600

Test 2

Time (min)	drop (inches)
0	0.0
0.5	55.0
1	85.5
2	120.0

Ave Drop Rate = 3600 (in/hr)





* - Test 2 Data used to calculate Drop Rate

19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

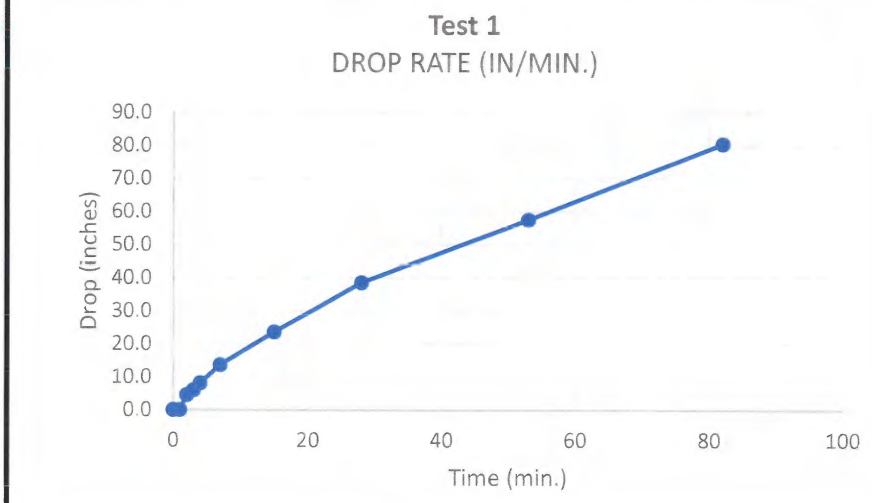
TP-4, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 9.6' = 115"
Top of Pipe to ground Level = 2.1' = 25"

Test 1

Time (min:s)	drop (inches)
0	0.0
1	0.0
2	4.5
3	6.0
4	8.0
7	13.5
15	23.5
28	38.5
53	57.5
82	80.5
1068	120.0

Drop Rate (in/min) =	0.85		
Drop Rate (in/hour) =	51	Ave Drop Rate =	51 (in/hr)



19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

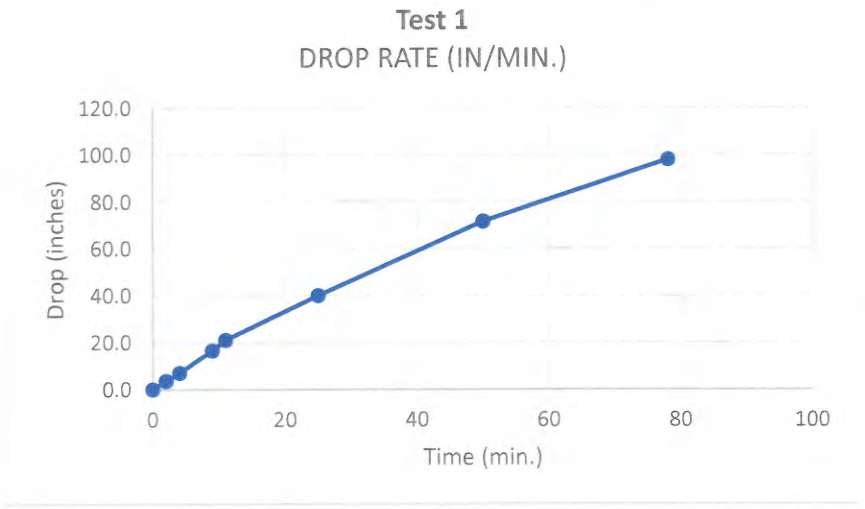
TP-5, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 10.0' = 120"
Top of Pipe to ground Level = 1.90' = 23"

Test 1

Time (min:s)	drop (inches)
0	0.0
2	3.5
4	7.0
9	16.5
11	21.0
25	40.0
50	71.5
78	98.0
1065	120.0

Drop Rate (in/min) =	1.15		
Drop Rate (in/hour) =	69	Ave Drop Rate =	69 (in/hr)



19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

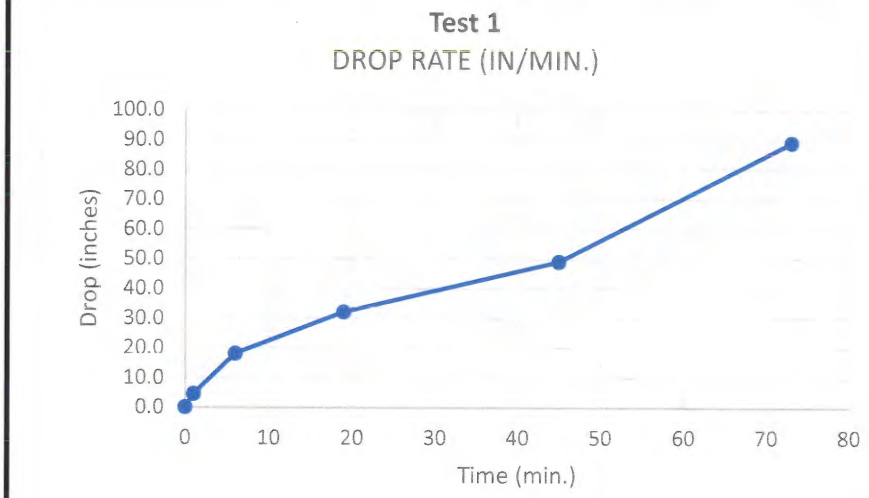
TP-6, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 9.6' = 115"
Top of Pipe to ground Level = 2.3' = 27"

Test 1

Time (min:s)	drop (inches)
0	0.0
1	4.5
6	18.0
19	32.0
45	49.0
73	89.0
1061	115.0

Drop Rate (in/min) =	1.06		
Drop Rate (in/hour) =	63	Ave Drop Rate =	63 (in/hr)



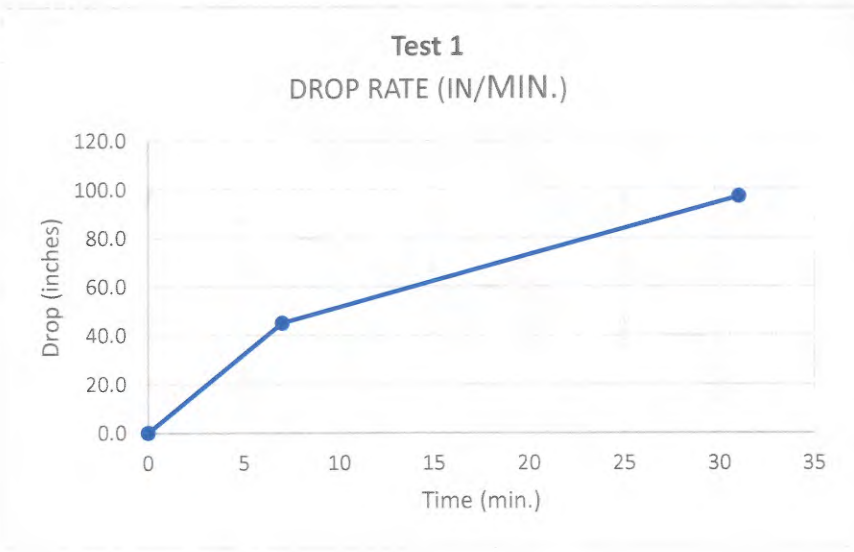
19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

TP-7, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe =9.8' = 118"
Top of Pipe to ground Level = 1.9' = 23"

Test 1

	Time (min)	drop (inches)	
	0	0.0	
	7	45.0	
	31	97.0	
	1031	118.0	
Drop Rate (in/min) =	2.17		
Drop Rate (in/hour) =	130		Ave Drop Rate = 130 (in/hr)



19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

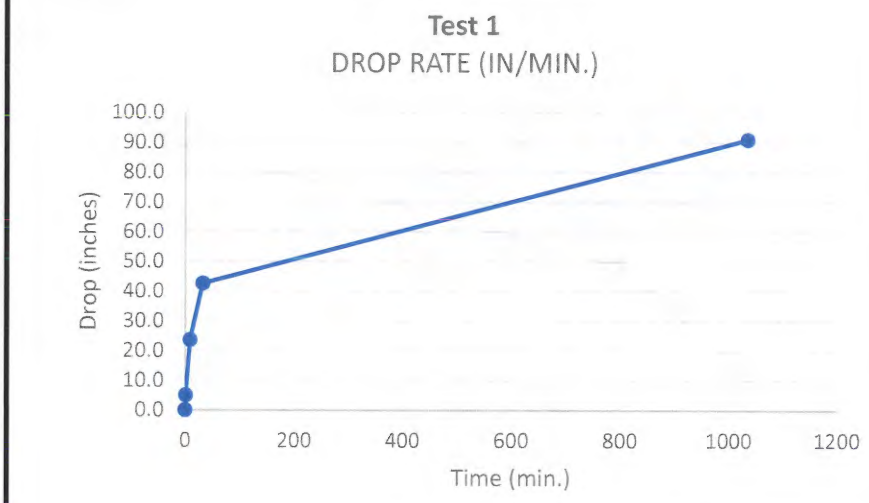
TP-8, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 9.9' = 119"
Top of Pipe to ground Level = 2.2' = 26.5"

Test 1

Time (min:s)	drop (inches)
0	0.0
1	5.0
9	23.5
32	42.5
1035	91.0

Drop Rate (in/min) =	0.05		
Drop Rate (in/hour) =	2.9	Ave Drop Rate =	2.9 (in/hr)



19144 - 100 NOD ROAD
INFILTRATION TESTING SUMMARY

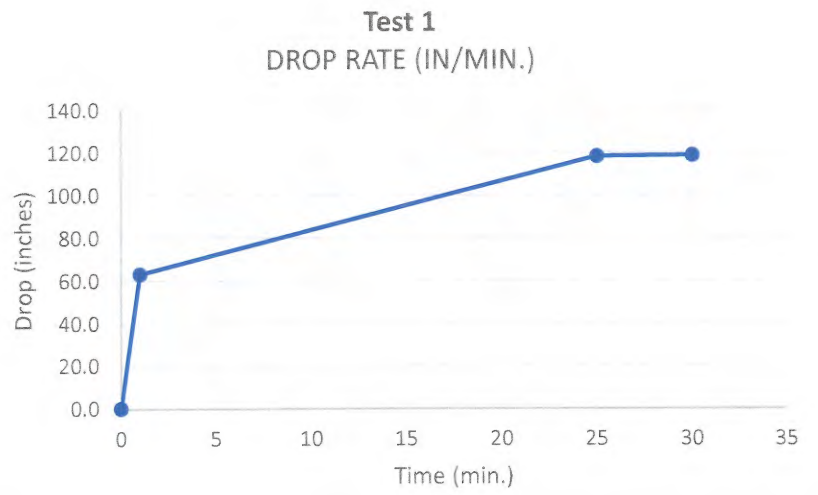
TP-10, 3" SDR-21 PVC Standpipe

Top of Pipe to Bottom of Pipe = 9.9' = 118.5"
Top of Pipe to ground Level = 3.0' = 36"

Test 1

Time (min:s)	drop (inches)
0	0.0
1	63.0
25	118.0
30	118.5

Drop Rate (in/min) =	2.29		
Drop Rate (in/hour) =	138	Ave Drop Rate =	138 (in/hr)



Attachment 5

Hydraulic Analysis

Pipe to Pipe Design Analysis

Using

Rational Method and Manning Equation

STORM DRAINAGE SYSTEM DESIGN COMPUTATION SHEET

F. A. Hesketh & Associates, Inc.

Civil & Traffic Engineers - Surveyors

Planners - Landscape Architects

JOB: 19144 - 100 NOD ROAD

CALCULATED BY: DRT DATE: May 6, 2022

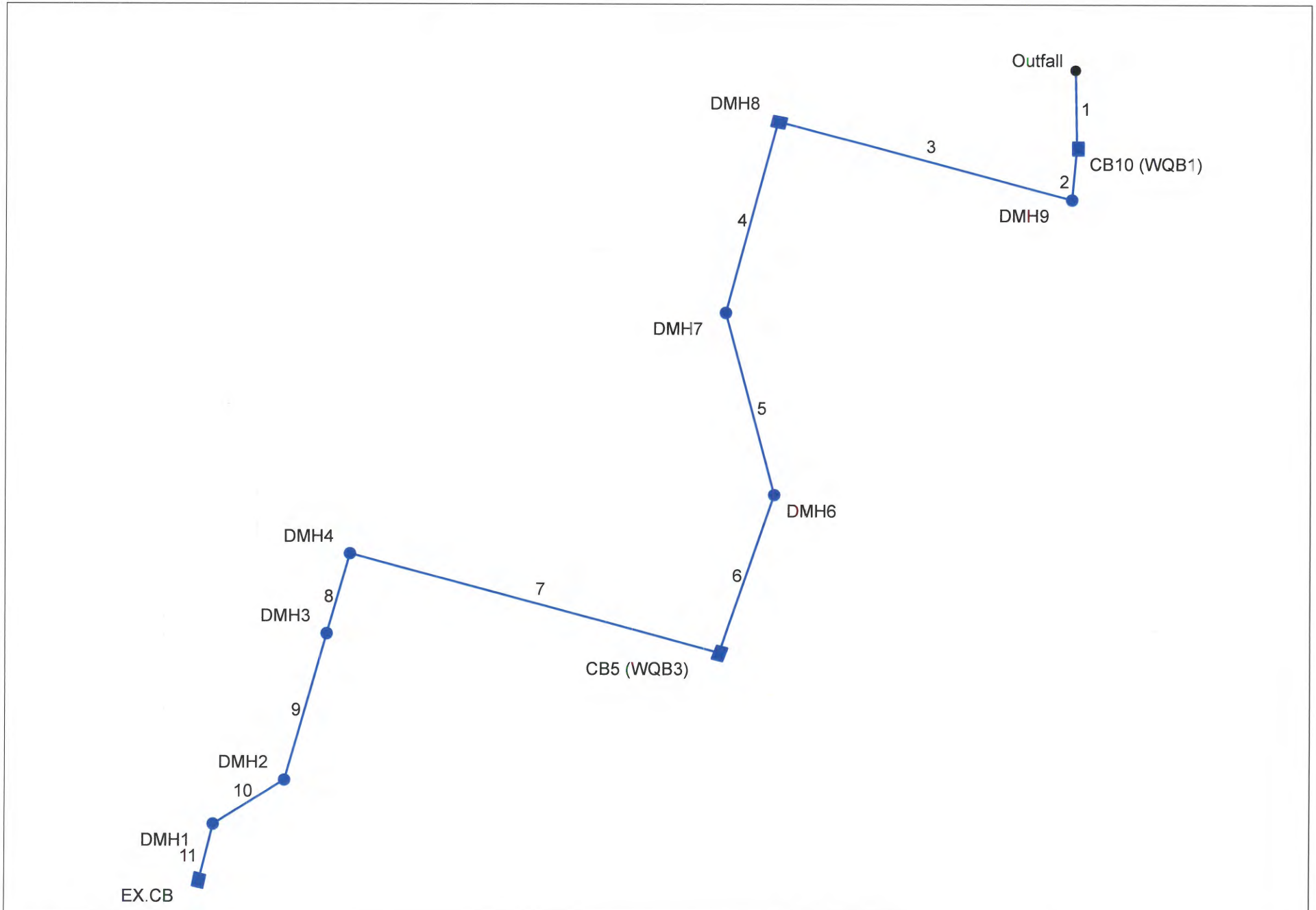
CHECKED BY: _____ CHECKED BY: _____ DATE: _____ .

EXISTING & PROPOSED CONDITIONS - 100 NOD ROAD

COVER CONDITION	WOODS		LANDSCAPED		IMPERVIOUS		TOTAL		
RUNOFF 'C'	$C_1 = 0.15$		$C_2 = 0.20$		$C_3 = .90$				
DRAINAGE AREA (Ac.)	A_1	$(AxC)_1$	A_3	$(AxC)_3$	A_3	$(AxC)_3$	A	AxC	C
WS-EAST-EX	6.84	1.03	1.71	0.34	1.30	1.17	9.85	2.54	0.26
WS-SITE-EX	0.99	0.15	7.66	1.53	0.00	0.00	8.64	1.68	0.19
WS-NOD RD-EX	0.37	0.06	0.29	0.06	0.82	0.74	1.49	0.86	0.58

COVER CONDITION	WOODS		LANDSCAPED		IMPERVIOUS		TOTAL		
RUNOFF 'C'	$C_1 = 0.15$		$C_2 = 0.20$		$C_3 = .90$				
DRAINAGE AREA (Ac.)	A_1	$(AxC)_1$	A_3	$(AxC)_3$	A_3	$(AxC)_3$	A	AxC	C
WS-EAST-PR	6.84	1.03	1.83	0.37	1.26	1.13	9.93	2.52	0.25
WQB1	0.00	0.00	2.24	0.45	1.92	1.73	4.16	2.18	0.52
WQB2	0.00	0.00	0.73	0.15	0.31	0.28	1.04	0.42	0.41
WQB3	0.00	0.00	2.24	0.45	0.79	0.71	3.03	1.16	0.38
WS-NOD RD-PR	0.37	0.06	0.59	0.12	0.87	0.79	1.84	0.96	0.52

Hydraflow Storm Sewers Plan



Project File: Pipe-to-pipe-2022-05-06.stm	Number of lines: 11	Date: 05-10-2022

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	30	0.00	9.92	0.00	0.00	2.58	24.0	24.0	5.0	15.88	22.62	6.70	24	1.00	168.93	169.23	170.34	170.64	172.83	172.00	OUTFALL-CB10
2	1	20	0.00	9.92	0.00	0.00	2.58	0.0	23.7	5.0	12.98	21.22	4.68	24	0.75	169.23	169.38	170.96	170.96	172.00	179.00	CB10-DMH9
3	2	116	0.00	9.92	0.00	0.00	2.58	0.0	22.9	5.1	13.25	19.03	4.59	24	0.60	169.38	170.08	171.42	171.67	179.00	179.00	DMH9-DMH8
4	3	76	0.00	9.92	0.00	0.00	2.58	0.0	22.4	5.2	13.43	19.06	4.57	24	0.61	170.08	170.54	172.05	172.19	179.00	179.20	DM8-DMH7
5	4	72	0.00	9.92	0.00	0.00	2.58	0.0	22.0	5.3	13.61	18.94	4.69	24	0.60	170.54	170.97	172.47	172.59	179.20	179.75	DM7-DMH6
6	5	64	0.00	9.92	0.00	0.00	2.58	0.0	21.5	5.3	13.78	19.13	4.67	24	0.61	170.97	171.36	172.91	173.03	179.75	178.00	DMH6-CB5
7	6	146	0.00	9.92	0.00	0.00	2.58	0.0	20.6	5.5	14.17	19.02	4.60	24	0.60	171.36	172.24	173.65	174.08	178.00	177.50	CB5-DMH4
8	7	32	0.00	9.92	0.00	0.00	2.58	0.0	20.3	5.5	14.26	54.79	5.46	24	5.00	172.24	173.84	174.44	175.18	177.50	185.30	DMH4-DMH3
9	8	58	0.00	9.92	0.00	0.00	2.58	0.0	20.0	5.6	14.43	69.30	11.00	24	8.00	178.44	183.08	179.06	185.86	185.30	192.20	DMH3-DMH2
10	9	32	0.00	9.92	0.00	0.00	2.58	0.0	19.7	5.6	14.52	24.50	4.62	24	1.00	183.08	183.40	186.10	186.21	192.20	192.05	DMH2-DMH1
11	10	22	9.92	9.92	0.26	2.58	2.58	19.6	19.6	5.7	14.59	24.50	4.64	24	1.00	183.40	183.62	186.46	186.54	192.05	191.60	DMH1-EX.CB

Project File: Pipe-to-pipe-2022-05-06.stm | Number of lines: 11 | Run Date: 05-10-2022

NOTES: Intensity = 53.57 / (Inlet time + 3.60) ^ 0.72; Return period = 100 Yrs. ; c = cir e = ellip b = box

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	OUTFALL-CB10	15.88	24	Cir	30	168.93	169.23	1.000	170.34	170.64	n/a	170.64	End	Grate
2	CB10-DMH9	12.98	24	Cir	20	169.23	169.38	0.750	170.96	170.96	0.37	171.33	1	Manhole
3	DMH9-DMH8	13.25	24	Cir	116	169.38	170.08	0.603	171.42	171.67	0.38	172.05	2	Manhole
4	DM8-DMH7	13.43	24	Cir	76	170.08	170.54	0.605	172.05	172.19	0.21	172.39	3	Manhole
5	DM7-DMH6	13.61	24	Cir	72	170.54	170.97	0.597	172.47	172.59	0.24	172.83	4	Manhole
6	DMH6-CB5	13.78	24	Cir	64	170.97	171.36	0.609	172.91	173.03	0.56	173.59	5	Grate
7	CB5-DMH4	14.17	24	Cir	146	171.36	172.24	0.603	173.65	174.08	0.34	174.42	6	Manhole
8	DMH4-DMH3	14.26	24	Cir	32	172.24	173.84	5.000	174.44	175.18	n/a	175.18 j	7	Manhole
9	DMH3-DMH2	14.43	24	Cir	58	178.44	183.08	8.000	179.06*	185.86*	0.24	186.10	8	Manhole
10	DMH2-DMH1	14.52	24	Cir	32	183.08	183.40	1.000	186.10*	186.21*	0.25	186.46	9	Manhole
11	DMH1-EX.CB	14.59	24	Cir	22	183.40	183.62	1.000	186.46*	186.54*	0.34	186.87	10	Combination

Project File: Pipe-to-pipe-2022-05-06.stm

Number of lines: 11

Run Date: 05-10-2022

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Inlet Report

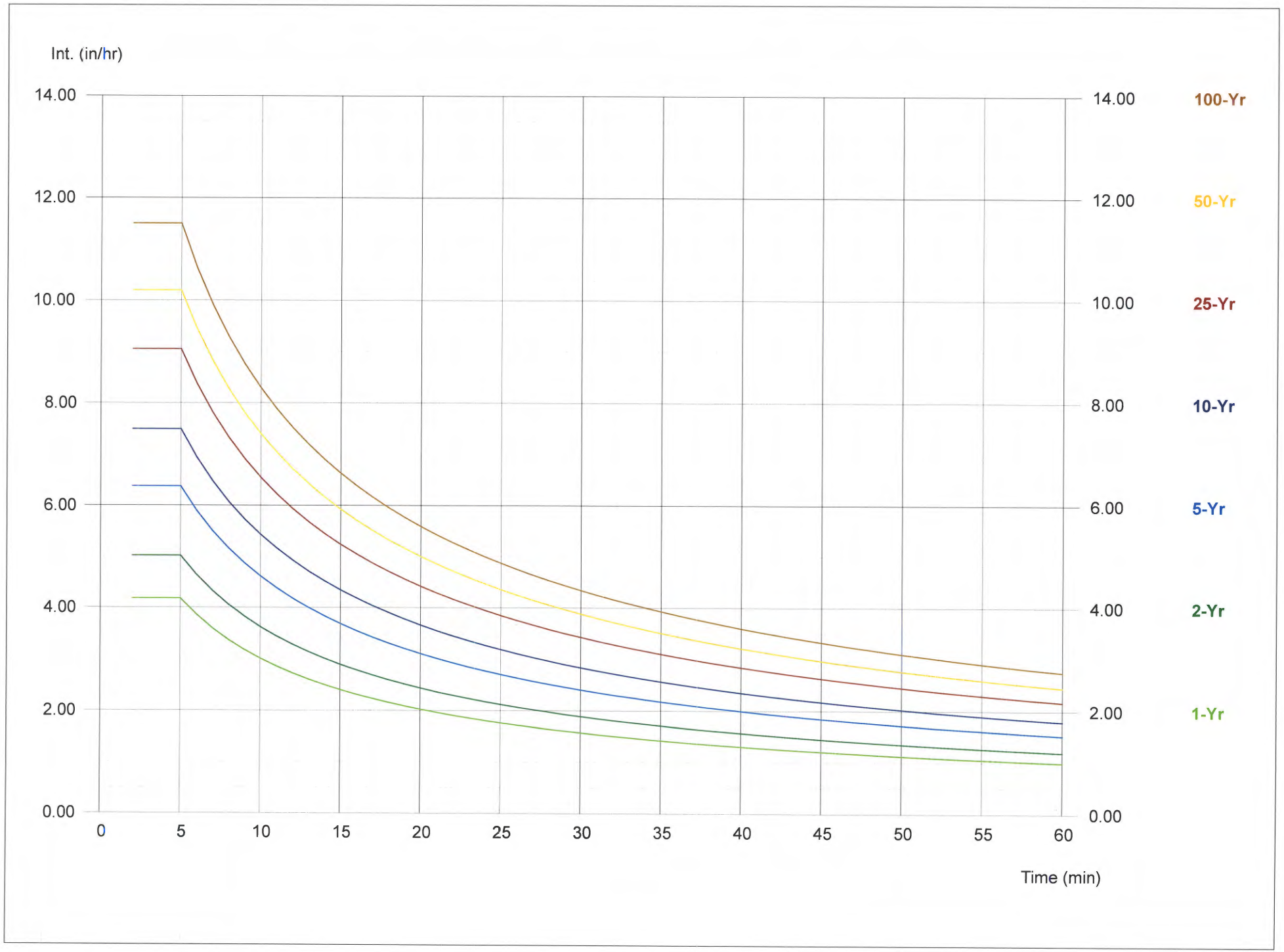
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB10 (WQB1)	3.00*	0.00	3.00	0.00	Grate	0.0	0.00	3.14	3.14	1.63	Sag	2.00	0.030	0.030	0.000	0.12	4.11	0.29	4.11	2.0	Off
2	DMH9	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
3	DMH8	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
4	DMH7	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
5	DMH6	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
6	CB5 (WQB3)	0.00	0.00	0.00	0.00	Grate	0.0	0.00	3.14	3.14	1.63	Sag	2.00	0.030	0.030	0.000	-0.17	-5.56	0.00	0.00	2.0	Off
7	DMH4	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
8	DMH3	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
9	DMH2	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
10	DMH1	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
11	EX.CB	14.59	0.00	14.59	0.00	Comb	3.0	5.83	3.14	3.14	1.63	Sag	2.00	0.030	0.030	0.000	0.67	22.44	0.84	22.44	2.0	Off

Project File: Pipe-to-pipe-2022-05-06.stm | Number of lines: 11 | Run Date: 05-10-2022

NOTES: Inlet N-Values = 0.016 ; Intensity = 53.57 / (Inlet time + 3.60) ^ 0.72; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer IDF Curves

IDF file: 02.03.2022 (IN PER HR).IDF



Attachment 6

Water Quality Volume Calculations

5/6/2021

100 NOD ROAD

Avon, Connecticut

Water Quality Volume Size Calculations

May 6, 2022

Minimum-Recommended Water Quality Volume (WQV)

Watershed	Total Area (Ac) A	Impervious Area (Ac)	Impervious (%) I	Runoff (R)	Min. Rec. WQV (ac-ft)	Min. Rec. WQV (Cu.Ft.)
WQB1	4.15	1.90	45.8	0.4621	0.15995	6,967
WQB2	1.04	0.31	29.7	0.3170	0.02739	1,193
WQB3	3.04	0.78	25.7	0.2812	0.07113	3,099

$$WQV = \frac{(1")(R)(A)}{12}$$

WQV = water quality volume (ac-ft)

R = volumetric runoff coefficient
0.05+0.009(I)

I = percent impervious cover

A= Site area (acres)

Provided Water Quality Volume

Water Quality Basins

Watershed	Elevations (Ft.)	Area (Sq. Ft.)	Avg. Area (Sq. Ft.)	Avg. Depth (FT)	Net. WQV (Cu. Ft.)	Total Provided WQV (Cu. Ft.)	Total Rec. WQV (Cu. Ft.)
WQ BASIN 1	170	3581				**9807**	6967
			2737	1.00	**2737**		
	171	5473					
			7071	1.00	**7071**		
	172	8668					

WQ BASIN 2	175	922				**7328**	1193
			1347	1.00	**1347**		
	176	1771					
			2388	1.00	**2388**		
	177	3005					
			3593	1.00	**3593**		
	178	4182					

Watershed	Elevations (Ft.)	Area (Sq. Ft.)	Avg. Area (Sq. Ft.)	Avg. Depth (FT)	Net. WQV (Cu. Ft.)	Total Provided WQV (Cu. Ft.)	Total Rec. WQV (Cu. Ft.)
WQ BASIN 3	176	840				**4959**	3099
			2225	1.00	**2225**		
	177	4450					
			4959	1.00	**4959**		
	178	9079					

Feasible & Prudent Alternatives Analysis – Inland Wetlands Application

Eagles' Point – A Residential Community

100 Nod Road

November 11, 2022

In accordance with Section 7.5 of the Avon IWWC regulations, the following Alternative Analysis is presented.

Development Summary:

- The site plan involves development of a residential development on 9.30 acres of land consisting of 13 single-family house lots and 42 townhouse attached units.
- The site is currently undeveloped. There are foundation remains and one driveway cut on Nod Way for one demolished farmhouse.
- The site slopes moderately from Nod Way westerly down to Nod Road.
- There is a narrow wetland corridor (4,413 s.f.) associated with the open watercourse located in the southerly portion of the property. There are no other inland wetlands or watercourses on the property. See Sheet PS-1 in the application plan set.
- The total 100 ft. Upland Review Area (URA #1) located on the property is 58,594 s.f. The total disturbance proposed in URA #1 is 6,340 s.f.
- The total 100 ft. Upland Review Area (URA #2) located off-site within the Nod Road ROW is 15,484 s.f. The total disturbance proposed in URA #2 is 7,241 s.f.
- There are no direct inland wetland or watercourse disturbances proposed.
- Specific regulated activities in the upland review areas include:
  - In URA #1, land disturbance typically associated with single family house construction on two proposed lots located in the northeast corner of the property as shown in detail on Sheets GR-1 and WI-1 in the application plan set.
  - In URA #2, installation of 260 l.f.+/- of 12" DIP water main in accordance with CTWater technical specifications and town roadway trench repair requirements. Work includes trenching and grass shoulder and bituminous pavement repair in the current paved roadway surface as shown in detail on Sheets UT-1 and PP-1 in the application plan set.
- Erosion and Sedimentation Control will consist of installation of protection to existing catch basins and placement of silt fencing along the perimeter of the project limits. Details for installation are included on Sheets GR-1, UT-1, SD detail sheets and notes and narrative included on Sheet NT-1.
- A Wetlands Impact Assessment prepared by William Kenny Associates demonstrates no adverse impact to any function of a wetland or watercourse. This determination satisfies the "no feasible and prudent alternative" requirement.

Nevertheless, below is a description of various design development alternatives evaluated during the planning and site design for the subject property:

1. On-Site Alternative Development. The property was evaluated for entirely single family or entirely multi-family residential development. In reviewing the 2016 Avon POCD for guidance, Chapter 11 - Future Land Use Recommendations provides a list of recommendations concerning future development on selected parcels of land in town. For the parcel at 100 Nod Road, the recommendation suggests this property may be appropriate for a cluster subdivision or small multi-family development. (See attached Page 114 from the POCD) Accordingly, the applicant evaluated various development

strategies including ones with all single family lots or all multi-family proposals and determined that the mix of housing unit types proposed with this application provided a diversity of housing types and a transitional use adjacent to Hunter's Run and nearby existing single family homes. This proposed mixed development layout provides the best opportunity to avoid direct impacts and minimize disturbances in the on-site Upland Review Area.

2. Water Line Extension. The applicant is proposing to extend the existing 12" public water main north within the Nod Road ROW to the property to serve both the multi-family and singe family uses proposed. The small disturbance in the Upland Review Area (URA #2) in the Nod Road ROW is associated with the installation of this water main extension following conventional installation practices. The disturbance will be temporary and with appropriate erosion control measures implemented, there will be no impact to the watercourse crossing under Nod Road.

3. No Development (a.k.a. as No Build) Alternative. This option assumes the property will continue to be left in its present undeveloped state. This option would be contrary to the recommendations noted in the 2016 POCD for 100 Nod Road and the previous development practices developed for most properties along this section of Nod Road.

In summary, based on the information presented for the alternatives outlined above, it is the applicant's position that the development as proposed is the most feasible and prudent development alternative for the property.

Tab 10

William L. Kenny
PWS, PLA

Mr. William L. Kenny has more than 30 years of experience in site and environmental assessments, planning, and construction. Mr. Kenny is a Professional Landscape Architect, Certified Professional Wetland Scientist, and a Soil Scientist.

Education

University of Massachusetts, 1993-1995. Postgraduate studies in soil science.

Yale University, MEM, 1992. Master of Environmental Management. Concentration and thesis work in ecosystem ecology, hydrology, and restoration.

University of Connecticut, BS, 1987. Bachelor of Science Degree in Landscape Design.

Representative Work Experience

Site Planning and Landscape Architecture

Mr. Kenny has more than 30 years of experience with site planning and landscape architectural projects either as the primary designer and project manager, a collaborating design professional, or construction contractor. Mr. Kenny has design and management experience with all project phases: from master planning and conceptual design to construction and bid document preparation and construction observation.

Wetland Delineation, Assessment, and Impact Mitigation

Mr. Kenny has extensive experience with tidal and inland wetland and watercourse delineation, assessment, and impact mitigation projects and obtaining related regulatory approvals as a project scientist and manager. Project work has included approval and construction documents for residential, commercial, recreational, and institutional developments. Specific tasks Mr. Kenny has completed include: (1) wetland delineations and functional assessments in Connecticut and New York in accordance with federal, state, and local requirements; (2) development planning and design consultation to minimize wetland impacts; (3) impact assessments and wetland construction mitigation designs; and (4) hydrologic evaluations for inland and tidal wetland restoration and creation projects.

Water Resource Management

Mr. Kenny has a wide range of experience with water resource management projects and attaining related development approvals and permits as a project manager and scientist. Project work has included stormwater pollution prevention plan preparation in accordance with New York City, New York State, and Connecticut requirements; stormwater treatment Best Management Practices design; stormwater pollutant loading and BMP effectiveness modeling; groundwater modeling for subsurface sanitary disposal systems, and erosion and sediment control plan preparation for residential, commercial,

recreational, and institutional developments.

Ecological Inventories and Impact Assessments

Mr. Kenny has broad experience with preparing ecological inventories and impact assessments and attaining related development approvals and permits as a project manager and scientist. Project work included Environmental Impact Statement (EIS) preparation to fulfill New York State requirements. Specific management or technical responsibilities included mapping and assessing existing conditions and potential impacts to bedrock and surficial geology, soils, vegetative communities, wetlands, surface and groundwater bodies, and wildlife and their habitat.

Regulatory Agency Consulting

Mr. Kenny has been retained by Connecticut municipalities to conduct analyses and prepare reports regarding inland wetlands and watercourses permit applications to be heard by local agencies. This work includes the review of wetland boundary delineations.

Public Speaking

CT Audubon – Recurring annual lecture since 2015 regarding native plants and communities.
Yale University – Lecturer regarding sustainable and ecological landscape design.
UConn – Advanced Master Gardener Program – Lecturer regarding innovative strategies for wetland restoration and management.
CT ASLA – Lecturer regarding innovative strategies for wetland restoration and management.
Connecticut Association of Conservation & Inland Wetlands Commissions - Lecturer regarding innovative strategies for wetland restoration and management.
New York Botanical Garden – Lecturer regarding innovative strategies for wetland restoration and management.

Professional Training

OSHA 24-hour HAZWOPER Training
Organic Land Care
CT DEP Master Wildlife Conservationist Program
Pond Management
Wetland Construction
Wetland Functional Assessment Techniques
Urban Stormwater Management Practices
Erosion and Sediment Control
Soil Sciences
Computer Aided Drafting

Publications

Kenny, W.L. 1995. The West River salt marsh: past and present. In *Proceedings of the West River Symposium*, ed. By E. McDiarmid, P.K. Barten, and C.J. Genshlea, 33-40. New Haven, CT: Center for Coastal and Watershed Systems, Yale School of Forestry and Environmental Studies.

Barten, P.K. and W.L. Kenny, 1997, The hydrologic structure and function of the West River marsh. In *Bulletin Number 100, Restoration of an Urban Salt Marsh: An Interdisciplinary Approach*, Bulletin Number 100, vol. ed. by D.G. Casagrande and bul. series ed. by J. A. Miller and J. Cappock, 103-122. New Haven, Connecticut: Yale School of Forestry and Environmental Studies.

Contributing graduate student author to:
Bormann, F.H., D. Balmori, and G.T. Geballe, 1993. *Redesigning the American lawn: a search for environmental harmony*. Yale University Press, New Haven and London.

Professional Affiliations and Registrations

Flood & Erosion Control Board, Fairfield, Connecticut (Member 2011- 2015)
Shellfish Commission, Fairfield, Connecticut (Member 1995 -2006, Chairman 1996 - 2005)
Connecticut Association of Wetland Scientist (Member 1999-present, Secretary 2001 - 2010)
Society of Soil Scientist of Southern New England (Associate Member 1995-2004, Professional Member 2004 -present)
Society of Wetland Scientists (Member 2001-present)
Certified Professional Wetland Scientist (#1372), Society of Wetland Scientists (2003-present)
Professional registration, Landscape Architecture
#664, State of Connecticut (1990-present)
#001869, State of New York (2003-present)
American Society of Landscape Architects (Member 2001-2010, 2013-present)
Ecological Society of America (Member 2020-2021)
Northeast Organic Farming Association (2004-present)
Certified Organic Land Care Professional (2005-present)

DAVID S. ZIAKS, P. E.
President & Principal Engineer
F. A. Hesketh & Associates, Inc.
East Granby, CT

BACKGROUND

Over 45 years of professional experience in private civil engineering practice with emphasis on site, utility infrastructure and roadway planning, design and construction. Extensive experience in all aspects relating to the planning, design, permitting and construction of retail, commercial and industrial sites, residential subdivisions, multi-family, active adult and affordable housing communities. Strong emphasis on the preparation of concept layout and facility plans, site design, roadway design, utility engineering, sub-surface sewage disposal systems, water and wastewater pumping stations, hydraulics and stormwater management including detention/retention facilities, LID design, construction coordination and inspection, environmental impact studies, erosion and sediment control plans, FEMA floodplain applications and other environmental considerations relating to site development, roadway design and construction activities.

EDUCATION

M. Eng. - Civil & Environmental Engineering and Management Science,
Stevens Institute of Technology, Hoboken, N. J. (1982)

B. S. - Civil Engineering, University of New Haven (1977)

Additional graduate studies in sanitary engineering at Virginia Polytechnic and State University, (1979)

PROFESSIONAL QUALIFICATIONS

Licensed Professional Engineer - CT

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers (Life Member)

PROFESSIONAL EXPERIENCE

F. A. Hesketh & Associates, Inc.
East Granby, Connecticut

2003 - Present President and Principal Engineer
1987 - 2003 Chief Engineer

Principal Engineer responsible for overall supervision and coordination of the firm's professional staff engaged in a wide variety of land planning, and civil and traffic engineering projects for both the private sector and governmental agencies. Extensive experience with public presentations and hearing testimony.

DAVID S. ZIAKS, P.E.
(Continued)
(2 of 2)

Megson & Heagle, C.E. & L. S.
Glastonbury, Connecticut

1983 - 1987 Project Manager

Project Manager/Senior Staff Engineer responsible for supervision and coordination of engineering personnel engaged in a diverse range of land planning, site engineering, and land surveying projects. Extensive involvement in soils testing and design of septic systems, detention basin design, and master planning for multi-family communities. Responsible for the organization and direction of projects, client liaison, preparation of reports, plans, estimates, and specifications, presentations and public hearing testimony, and construction administration.

Clinton Bogart Associates
Fort Lee, New Jersey

1981 –1983 Project Engineer

Project Engineer responsible for the preparation of reports, plans, estimates and specifications for a variety of commercial and industrial projects in the public and private sector in northern New Jersey. Scope of work for projects included environmental permit evaluations, layout, grading and utility design, hydraulic calculations and completion of permit applications.

Burns & Roe Industrial Services Corp.
Paramus, New Jersey

1979 – 1981 Project Engineer

Project Engineer in a large, multi-discipline engineering office with experience in the preparation of reports, plans, specifications and estimates for major industrial and energy projects in both the governmental and private sectors. Extensive involvement in nationwide projects related to determining the effects of the discharge of industrial wastewater to large municipal treatment facilities.

Cascio, Bechir, and Associates

North Haven, Connecticut

1977 - 1979 Junior Engineer

Junior Staff Engineer responsible for layout, design, and drafting of a variety of municipal, commercial and residential projects under the supervision of the Chief Engineer. Design experience in the preparation of facility plans, roadway plans, drainage analysis, septic system design and design of municipal sanitary sewer and water main distribution systems.

GUY A. HESKETH, P. E.

Chief Engineer
Manager of Civil Design Group
F.A. Hesketh & Associates, Inc.

BACKGROUND

More than 30 years of civil and environmental engineering experience: civil engineering experience with residential and commercial development, and environmental engineering experience with projects ranging from site assessments and investigations to remediation of hazardous waste sites. Experience with subdivision design, site layout and design, stormwater management, on-site sewage disposal and sanitary sewerage. Experience in on-site construction and remediation oversight and management and site environmental investigations.

EDUCATION

Master of Science - Civil and Environmental Engineering
Brigham Young University, Provo, Utah (1988)

Bachelor of Science - Civil Engineering
Brigham Young University, Provo, Utah (1986)

Associate in Engineering - Ricks College, Rexburg, Idaho (1981)

PROFESSIONAL QUALIFICATIONS

Licensed Professional Engineer
- Connecticut 0019394
- Massachusetts 42955
- Rhode Island 7347

PROFESSIONAL EXPERIENCE

F. A. Hesketh & Associates, Inc.
East Granby, Connecticut

2003 – Present Chief Engineer
1995 – Present Manager of Civil Design and Planning Group

Responsible for overseeing office design professionals in the planning and design of a wide range of private and public projects, including residential subdivisions, commercial and industrial sites, developments and municipal and state roadway design projects. Assisting clients in preparation of local wetlands and zoning permits, Connecticut Department of Energy & Environmental Protection permits, including Water Discharge Permits and Waste and Materials Management Permits.

General Permits for the Discharge of Stormwater (Industrial, Commercial, and Construction Activities), Analysis and design of stormwater and sanitary sewer systems for residential subdivisions, industrial and commercial site developments, and preparation of construction plans and documents for these projects.

International Technologies Corporation
Cincinnati, Ohio

1992 – 1995 Project Engineer

Responsible for managing on-site remediation of hazardous waste sites. Responsibilities included: coordinating efforts between the client and federal and local government agencies, analytical laboratories, and remediation contractors. Responsibilities also included remediation oversight, preparation of contract change orders, review of results of laboratory analysis, coordinating sampling efforts, data management, and preparation of reports.

Dames & Moore
Cincinnati, Ohio

1990 – 1992 Project Engineer

Project Engineer responsible for environmental sample collection, preparation of environmental permit applications, remedial design and preparation of bid documents and design drawings and specifications.

Bingham Engineering
Salt Lake City, Utah

1988 – 1990 Junior Staff Engineer

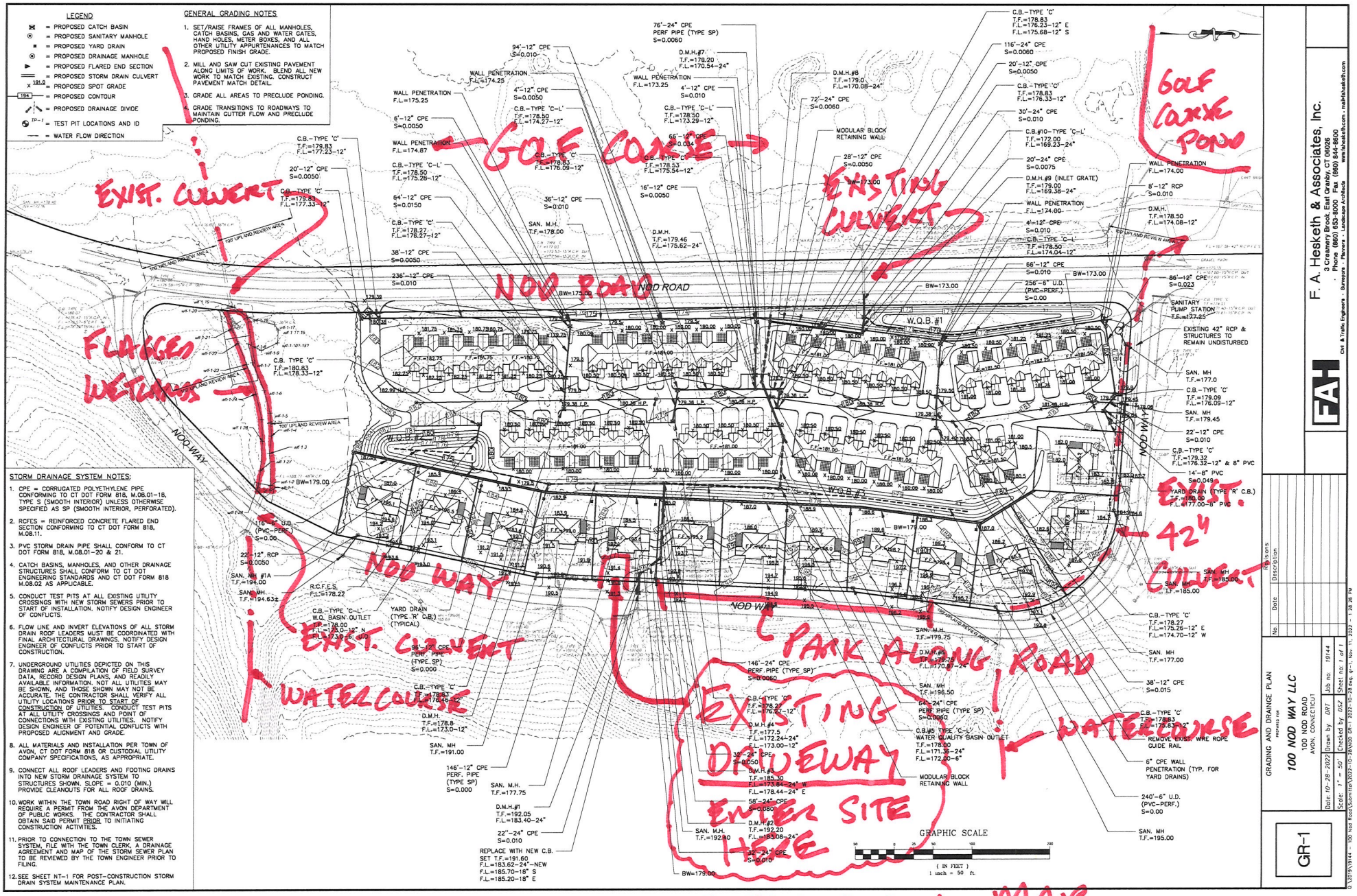
Engineer responsible for performing environmental site audits, geotechnical analysis of soils and wastes, and hydraulic and hydrogeologic computer modeling.

F.A. Hesketh & Associates, Inc.
Bloomfield, Connecticut

1979 – 1986 Survey and Junior Engineer

Junior staff engineer responsible for analysis and design of stormwater management facilities utilizing TR-55 computer modeling, layout and design of residential subdivisions and commercial site developments. Performed site soil analysis relating to the layout and design of on-site sewage disposal systems.

Survey party crew member. Performed boundary and topographic surveys, construction stakeout and generation of base mapping. Performed site soil analysis relating to the layout and design of on-site sewage disposal systems.


LEGEND
= PROPOSED CATCH BASIN
= PROPOSED SANITARY MANHOLE
= PROPOSED YARD DRAIN
= PROPOSED DRAINAGE MANHOLE
= PROPOSED FLARED END SECTION
= PROPOSED STORM DRAIN CULVERT
191.0 = PROPOSED SPOT GRADE
194 = PROPOSED CONTOUR
= PROPOSED DRAINAGE DIVIDE
TP-1 = TEST PIT LOCATIONS AND ID
= WATER FLOW DIRECTION
GENERAL GRADING NOTES
1. SET/RAISE FRAMES OF ALL MANHOLES, CATCH BASINS, GAS AND WATER GATES, HAND HOLES, METER BOXES, AND ALL OTHER UTILITY APPURTENANCES TO MATCH PROPOSED FINISH GRADE.
2. MILL AND SAW CUT EXISTING PAVEMENT ALONG LIMITS OF WORK. BLEND ALL NEW WORK TO MATCH EXISTING. CONSTRUCT PAVEMENT MATCH DETAIL.
3. GRADE ALL AREAS TO PRECLUDE PONDING.
4. GRADE TRANSITIONS TO ROADWAYS TO MAINTAIN GUTTER FLOW AND PRECLUDE PONDING.
STORM DRAINAGE SYSTEM NOTES:
1. CPE = CORRUGATED POLYETHYLENE PIPE CONFORMING TO CT DOT FORM 818, M.08.01-18, TYPE S (SMOOTH INTERIOR) UNLESS OTHERWISE SPECIFIED AS SP (SMOOTH INTERIOR, PERFORATED).
2. RCFES = REINFORCED CONCRETE FLARED END SECTION CONFORMING TO CT DOT FORM 818, M.08.11.
3. PVC STORM DRAIN PIPE SHALL CONFORM TO CT DOT FORM 818, M.08.01-20 & 21.
4. CATCH BASINS, MANHOLES, AND OTHER DRAINAGE STRUCTURES SHALL CONFORM TO CT DOT ENGINEERING STANDARDS AND CT DOT FORM 818 M.08.02 AS APPLICABLE.
5. CONDUCT TEST PITS AT ALL EXISTING UTILITY CROSSINGS WITH NEW STORM SEWERS PRIOR TO START OF INSTALLATION. NOTIFY DESIGN ENGINEER OF CONFLICTS.
6. FLOW LINE AND INVERT ELEVATIONS OF ALL STORM DRAIN ROOF LEADERS MUST BE COORDINATED WITH FINAL ARCHITECTURAL DRAWINGS. NOTIFY DESIGN ENGINEER OF CONFLICTS PRIOR TO START OF CONSTRUCTION.
7. UNDERGROUND UTILITIES DEPICTED ON THIS DRAWING ARE A COMPILATION OF FIELD SURVEY DATA, RECORD DESIGN PLANS, AND READILY AVAILABLE INFORMATION. NOT ALL UTILITIES MAY BE SHOWN, AND THOSE SHOWN MAY NOT BE ACCURATE. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO START OF CONSTRUCTION OF UTILITIES. CONDUCT TEST PITS AT ALL UTILITY CROSSINGS AND POINT OF CONNECTIONS WITH EXISTING UTILITIES. NOTIFY DESIGN ENGINEER OF POTENTIAL CONFLICTS WITH PROPOSED ALIGNMENT AND GRADE.
8. ALL MATERIALS AND INSTALLATION PER TOWN OF AVON, CT DOT FORM 818 OR CUSTODIAL UTILITY COMPANY SPECIFICATIONS, AS APPROPRIATE.
9. CONNECT ALL ROOF LEADERS AND FOOTING DRAINS INTO NEW STORM DRAINAGE SYSTEM TO STRUCTURES SHOWN. SLOPE = 0.010 (MIN.) PROVIDE CLEANOUTS FOR ALL ROOF DRAINS.
10. WORK WITHIN THE TOWN ROAD RIGHT OF WAY WILL REQUIRE A PERMIT FROM THE AVON DEPARTMENT OF PUBLIC WORKS. THE CONTRACTOR SHALL OBTAIN SAID PERMIT PRIOR TO INITIATING CONSTRUCTION ACTIVITIES.
11. PRIOR TO CONNECTION TO THE TOWN SEWER SYSTEM, FILE WITH THE TOWN CLERK, A DRAINAGE AGREEMENT AND MAP OF THE STORM SEWER PLAN TO BE REVIEWED BY THE TOWN ENGINEER PRIOR TO FILING.
12. SEE SHEET NT-1 FOR POST-CONSTRUCTION STORM DRAIN SYSTEM MAINTENANCE PLAN.
EXIST. CULVERT
FLAGGED WETLANDS
NOD ROAD
NOD WAY
EXIST. CULVERT
WATERCOURSE
GOLF COURSE
EXISTING CULVERT
GOLF COURSE POND
PARK ALONG ROAD
EXISTING DRIVEWAY ENTER SITE HERE
WATERCOURSE
EXIST. 42" CULVERT
SITE WALKING MAP
GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.
F. A. Hesketh & Associates, Inc.
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects
3 Creamery Brook, East Granby, CT 06026
Phone (860) 653-8000 Fax (860) 844-8600
www.fahesketh.com - mail@fahesketh.com
No. Date Description
Revisions
GRADING AND DRAINAGE PLAN
PREPARED FOR
100 NOD WAY LLC
100 NOD ROAD
AVON, CONNECTICUT
Date: 10-28-2022 Drawn by: DRT Job no: 19144
Scale: 1" = 50' Checked by: DSZ Sheet no: 1 of 1
GR-1
O:\2019\19144 - 100 Nod Road\Submittal\2022-10-28\NOD GR-1 2022-10-28.dwg, gr-1, Nov 11, 2022 - 1:26 PM