PLANNED DEVELOPMENT DISTRICT

STONE CREEK FALLS

A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST
CITY OF REPUBLIC, GREENE COUNTY, MISSOURI

June 2, 2021
Revised January 30, 2023

PROJECT NO. 2103-041

TATE ENGINEERING CONSULTANTS

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STATE OF MISSOURI
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NUMBER E-17940
REGISTERED PROFESSIONAL ENGINEER
1-30-23

STONE CREEK FALLS

PLANNED DEVELOPMENT DISTRICT (PDD)

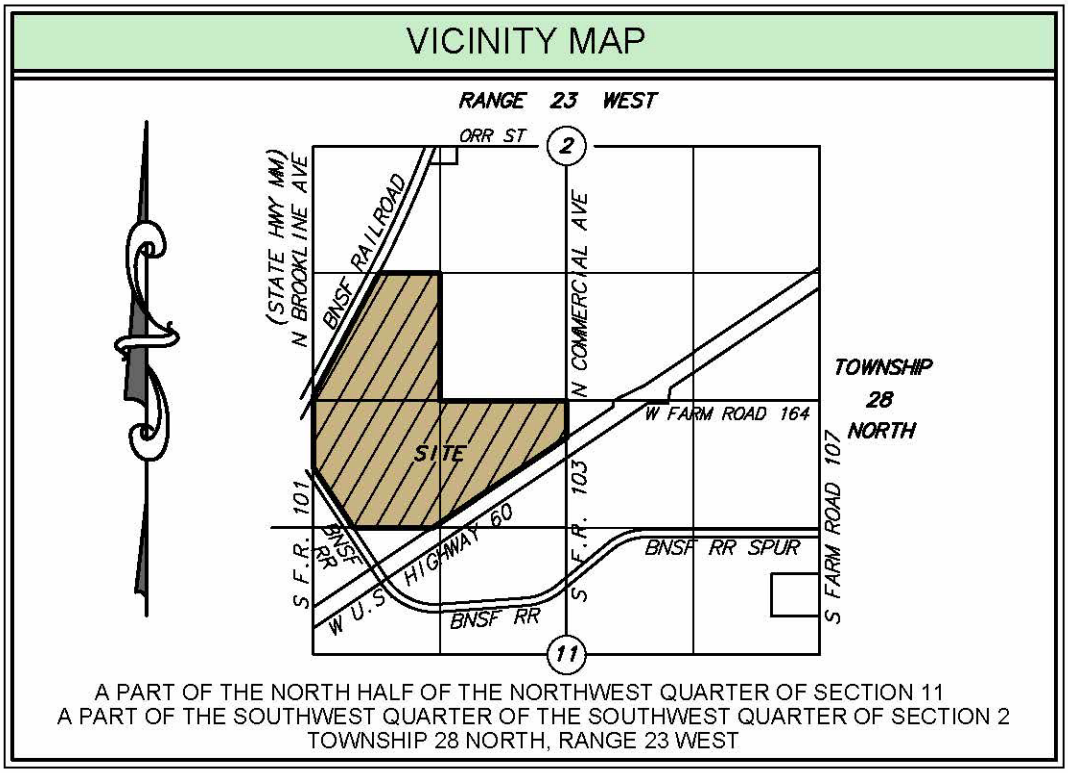
TABLE OF CONTENTS

STONE CREEK FALLS

PLANNED DEVELOPMENT DISTRICT (PDD)

1. PROJECT DESCRIPTION AND LOCATION

This project consists of 92.85 acres of land and is located along the north side of US 60 Highway and west of Farm Road 103.



STONE CREEK FALLS PROPERTY DESCRIPTION

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QAURTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27'19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

2. LAND USE SUMMARY

The current zoning of the southern 62.44 acres is C-2 General Commercial District. The remaining north 30.41 acres is currently zoned AG Agriculture District. The proposed land uses, land allocations and their relationships are shown on the Land Use Plan (Exhibit 1).

The following table presents the proposed land uses and development areas for this development.

Table 2.1 Land Allocation Summary Table

Total Project Area: 92.85 Acres

Lot Number	Area S.F.	Area Acres	Land Use
1	108,900	2.50	Commercial
2	118,693	2.72	Commercial
3	177,500	4.07	Commercial
4	152,124	3.49	Commercial
5	120,039	2.76	Commercial
6	217,800	5.00	Multi-Family
7	222,901	5.12	Multi-Family
8	217,767	5.00	Multi-Family
9	294,317	6.76	Multi-Family
10	218,467	5.02	Multi-Family
11	217,883	5.00	Multi-Family
12	217,800	5.00	Multi-Family
13	217,801	5.00	Multi-Family
14	217,800	5.00	Multi-Family
15	217,800	5.00	Multi-Family
16	274,836	6.31	Multi-Family
Common Area 1	276,755	6.35	Common Area
Common Area 2	158,468	3.64	Common Area
Street Right of Way	396,884	9.11	Right of Way
Total	4,044,536	92.85	
Lot Number	Area S.F.	Area Acres	Land Use
Total Commercial (Lots 1-5)	677,256	15.55	Commercial
Total Multi-Family (Lots 6-16)	2,535,173	58.20	Multi-Family
Total Common Area	435,223	9.99	Common Area
Street Right of Way	396,884	9.11	Right of Way

Proposed Multi-Family Residential Density

1,396 Units Land Area 58.20 Acres 24 Units/Acre

Building Setbacks:

U.S. Highway 60 Frontage -- 25 Feet

All other Front, Rear and Sides -- 15 Feet

Maximum Building Height -- 4 Story

Commercial Land Area 15.66 Acres.

Maximum Lot Coverage 90 percent

Building Setbacks:

Front -- 15 Feet

Rear -- 15 Feet

Side Street -- 15 Feet

Interior Side -- 6 Feet

The type of commercial uses anticipated will compliment the residential uses. Pedestrian sidewalks and access throughout the entire development as shown on the development plan will help encourage pedestrian access and interaction with the mixed commercial areas in the development.

Permitted Commercial Uses:

Permitted uses as listed in the City of Republic Municipal Code Article 405.150 “C-1” Commercial District Regulations, Article 405.160 “C-2” General Commercial District Regulations and Article 405.165 “C-3” General Commercial District including, but not limited to the following:

- Miscellaneous store retailers such as florists, office supplies, stationery, gift stores, novelty and souvenir stores, used merchandise stores, pet and pet supplies stores, art dealers, tobacco stores, electronics and appliance stores, health and personal care stores, clothing and clothing accessories stores, sporting goods, hobby and music stores.

- General retail businesses including pawn shops and second-hand stores; pet stores; print shops and photocopying establishments; restaurants including drive-in, pick-up, and drive-up facilities; doughnut shops; package

liquor; book; tobacco; furniture; appliance; drug; grocery; flower; jewelry; clothing.

- Office or office buildings including health clinics, medical doctors and dental offices, accountants, real-estate, engineering, architecture, finance, insurance, and other professional service offices.

- Personal service establishments including beauty parlors; barbershops; custom tailoring; dry cleaning and laundry pick-up; shoe repair; self-service laundromats; express or mailing offices; hearing aid and eye glass shops, professional, scientific and technical services.

- Private schools and studios for art, dance, drama, music or photography and private and publicly funded schools, preschools and daycare facilities.

- Veterinarian, dog grooming, boarding or similar place of animal care, provided that only treatment be given to animals kept within the building or office. No outside cages, kennels, fences, equipment, materials, etc. associated with livestock or other large animals shall be stored on the premises.

- Government buildings and associated uses.

3. ARCHITECTURAL THEME

Architectural exterior building materials covering outside walls may consist of brick veneer, pre-cast elements, stone veneer, architectural style LP Wood siding, and/or EIFS. Buildings shall have a minimum of 30% of brick, stone or equivalent masonry product on exterior walls. All roofs shall contain shadow line type (or equivalent) architectural shingles. Structures shall be two, three, and four-story units with wood frame construction.

The apartments will be studio, one, two or three bedroom units.

CONCEPT RENDERING

4. STORMWATER MANAGEMENT

A lake is proposed in the lower portion of this development. Stormwater detention will be provided in the area above the normal pool of the proposed lake and the top of the detention berm and outlet spillway. The proposed detention will control the peak runoff from the developed area and detain flows to not exceed predeveloped conditions. Downstream conditions will be analyzed and necessary measures take to assure no adverse effects result from the construction of this development. An “Engineers Report for Storm Water Detention” is included in Exhibit 2.

Existing storm piping will be extended from the detention basin to capture runoff from the site and offsite runoff from north to convey drainage to the detention basin. The site will be graded and drainage system extended to convey runoff across the site while maintaining allowable depths of flow and velocity.

There are no identified flood zones on the property based on the Flood Insurance Rate Maps 29077 C 0318 E and 29077 C 0316 E Dated 12-17-2010 prepared by the Federal Emergency Management Agency.

A sediment and erosion control plan will be required for this development. The Missouri Department of Natural Resources requires the development of a storm

water pollution prevention plan (SWPPP) to address erosion control requirements both during and after completion of construction.

Undisturbed vegetation will be left wherever possible to filter runoff as sheet flow. Best Management Practices for sediment/erosion control will be used where necessary to prevent sediment runoff.

5. UTILITIES

The development will utilize all current municipal utilities. Water service is available via an existing water main along the north right of way line of US 60 Highway, and along the west right of way line of Farm Road 103. Water mains will be sized and extended into the development to provide water supply and fire protection. See Infrastructure Plan. (Exhibit 1)

Liberty Utilities will provide electric power. All utilities will be constructed underground.

Natural gas supply will be provided by Spire Inc.

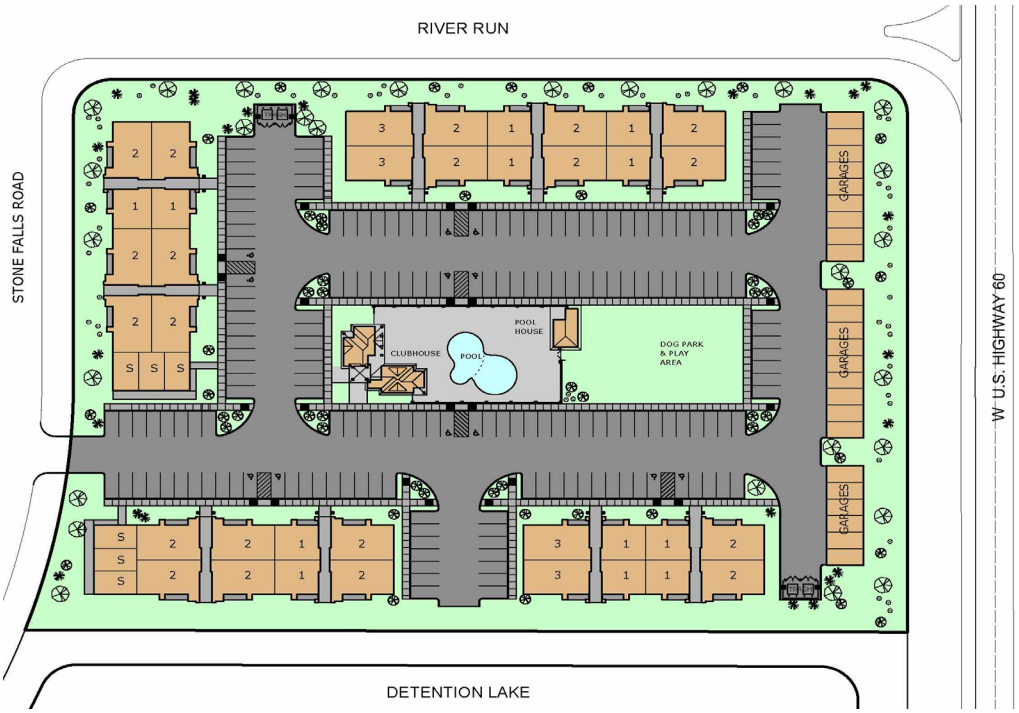
6. WASTEWATER DISPOSAL

This development will connect to the City of Republic's existing collection system. An existing sanitary sewer line is located onsite. A portion of the existing sanitary sewer is located in the area of the proposed lake. This sanitary sewer line will be relocated around the lake to allow access for maintenance purposes. Sanitary sewer mains will be extend to each lot and service laterals will be extended to each building from the existing sanitary sewer mains. See Infrastructure Plan. (Exhibit 1)

7. PARKING REQUIREMENTS

The parking requirements of the commercial lots shall comply with the zoning requirements set forth in The City of Republic Municipal Code for the specific use of each site.

The parking requirements of the multi-family lots shall be computed based on the number of units and the unit mix of each lot as follows:



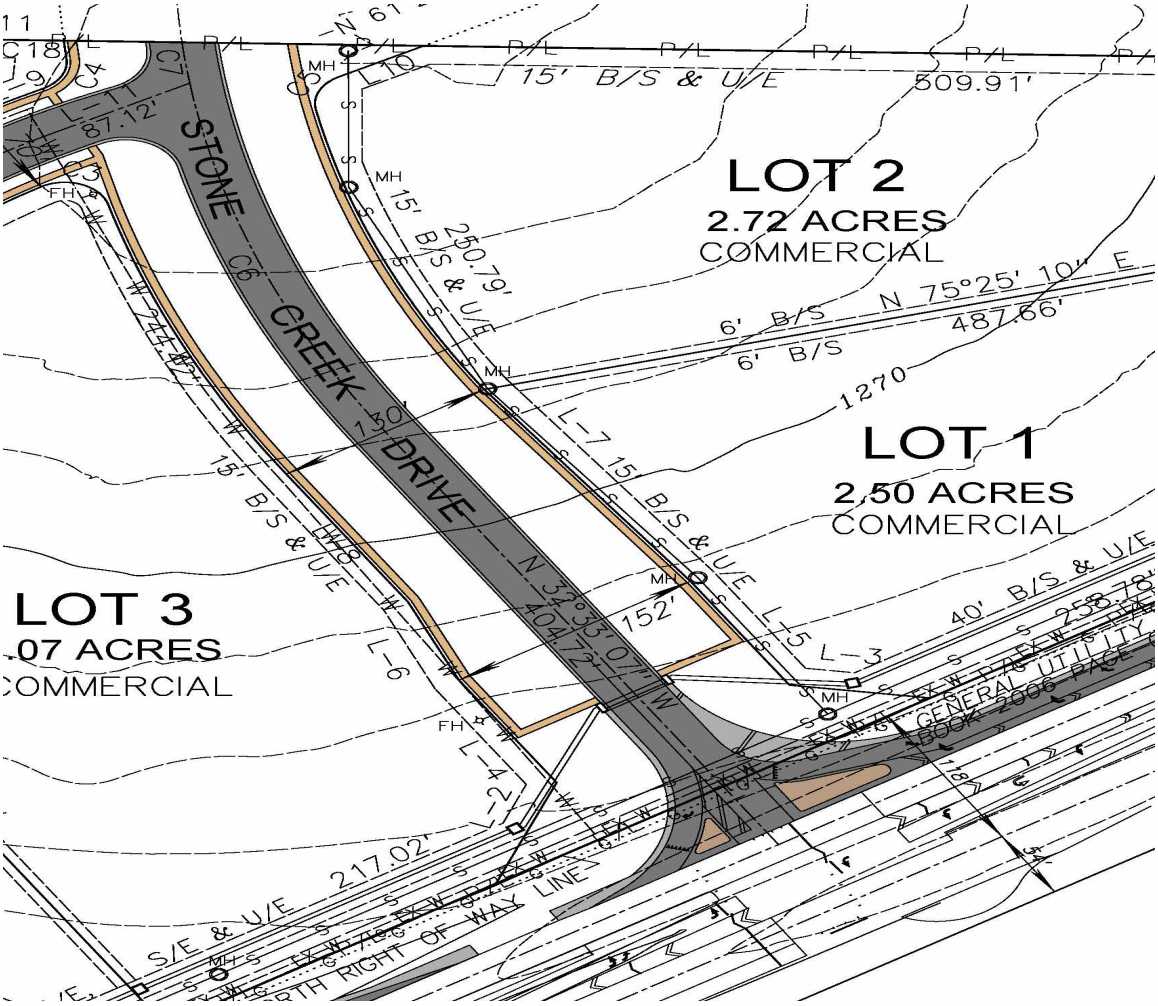
A typical unit/mix as shown above has 120 units on 5.00 acres. (24 Units Per Acre). This unit / parking tabulation is as follows:

UNIT MIX	NUMBER	SPACES/UNIT	SPACES REQUIRED
STUDIO UNITS	12	1	12
1 BEDROOM UNITS	36	1.5	54
2 BEDROOM UNITS	60	2	120
3 BEDROOM UNITS	12	2	24
TOTAL	120		210
Total Spaces/Unit			1.75

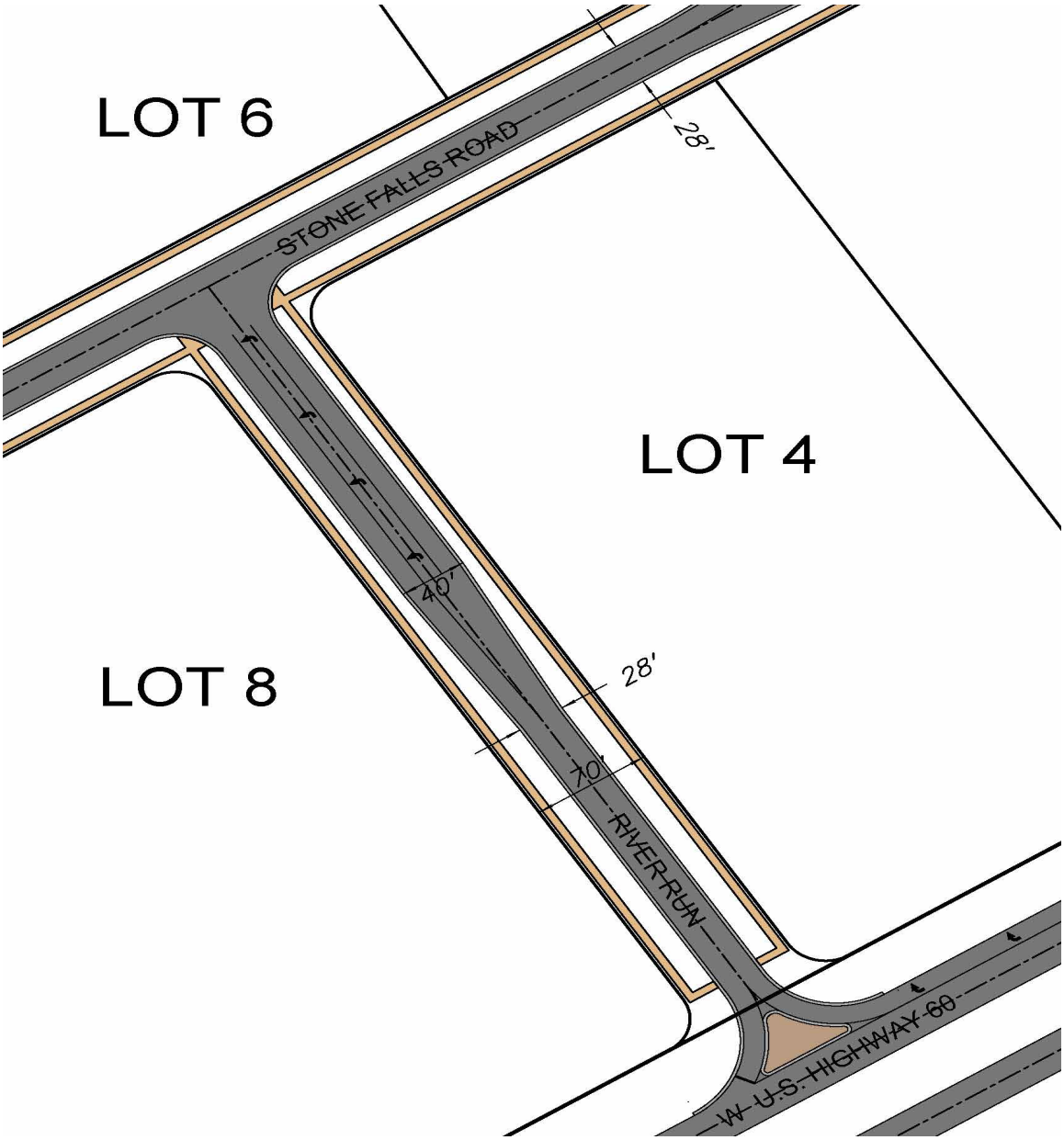
Two parking spaces per unit are required for two and three bedroom units, but since many of the units will be studio or single bedroom apartments, two parking spaces per apartment unit is not necessary. Proposed rental contracts will not allow for multiple people to reside in these smaller studio units.

8. PROPOSED PUBLIC STREETS, DRIVES, AND SIDEWALKS

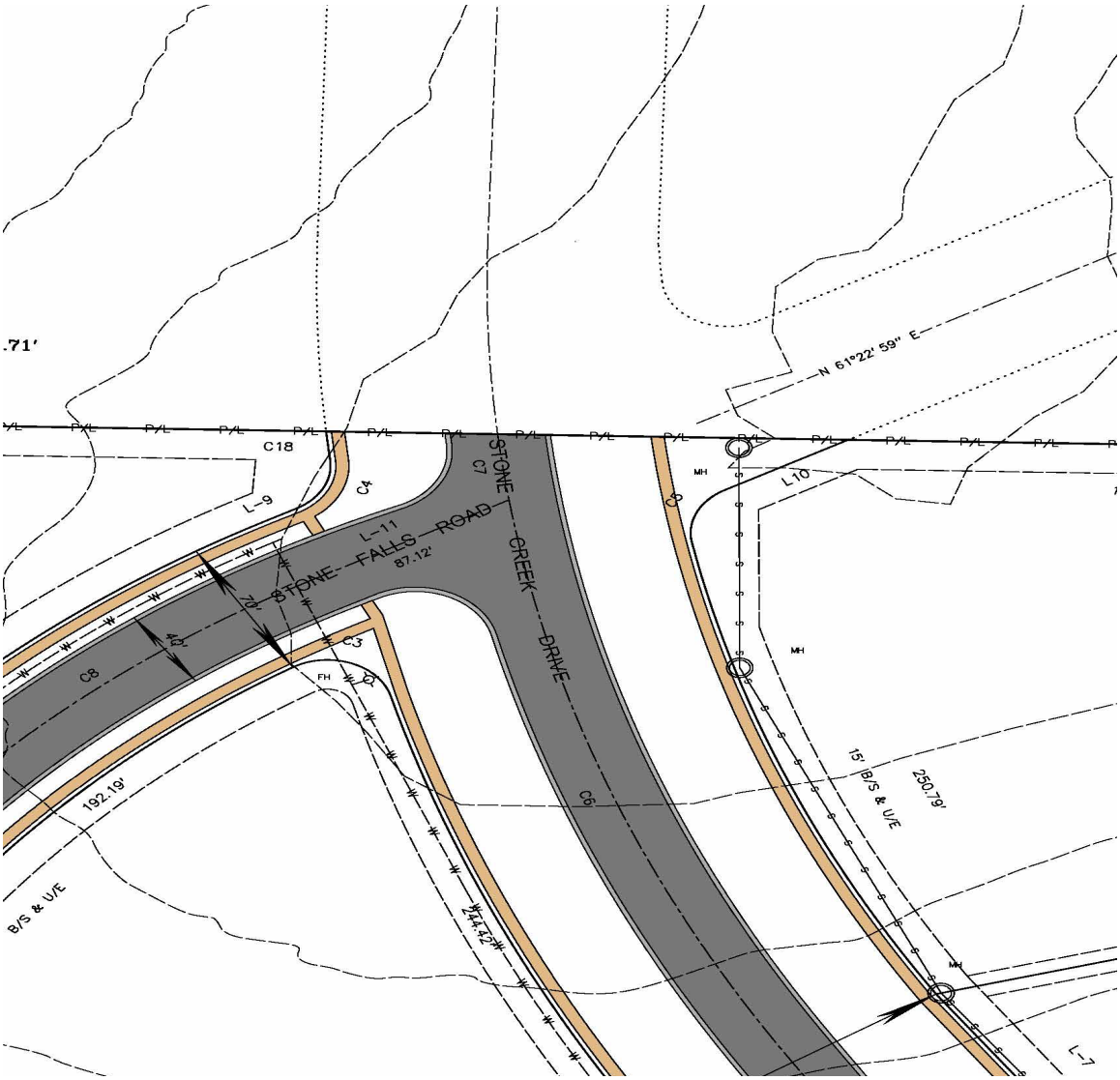
The development will access U.S. Highway 60 at two locations:



Stone Creek Drive is proposed as a primary arterial. This road is also the possible future right of way of State Highway MM. Proposed pavement widths for this road will be provided to meet what is required by this development. The widths of right of way provided will allow for future widening by MODOT for the new alignment of State Highway MM. This road will also be the new alignment of Farm Road 103 and allow for crossing U.S. Highway 60 at 90 degrees and eliminate the existing Farm Road 103 entrance. The intersection of Stone Creek Drive and U.S. Highway 60 will be a signalized intersection. A traffic impact assessment has been completed by Dane Seiler with CJW Dated May 21, 2021.



River Run is proposed as a collector with 70 feet of right of way and 28 feet minimum pavement width from back of curb to back of curb widening to 40 feet to provide a left turn lane unto Stone Falls Road. This street will have access to U.S. Highway 60 with a right-in right-out. A right turn lane will be provided on U.S. Highway 60.

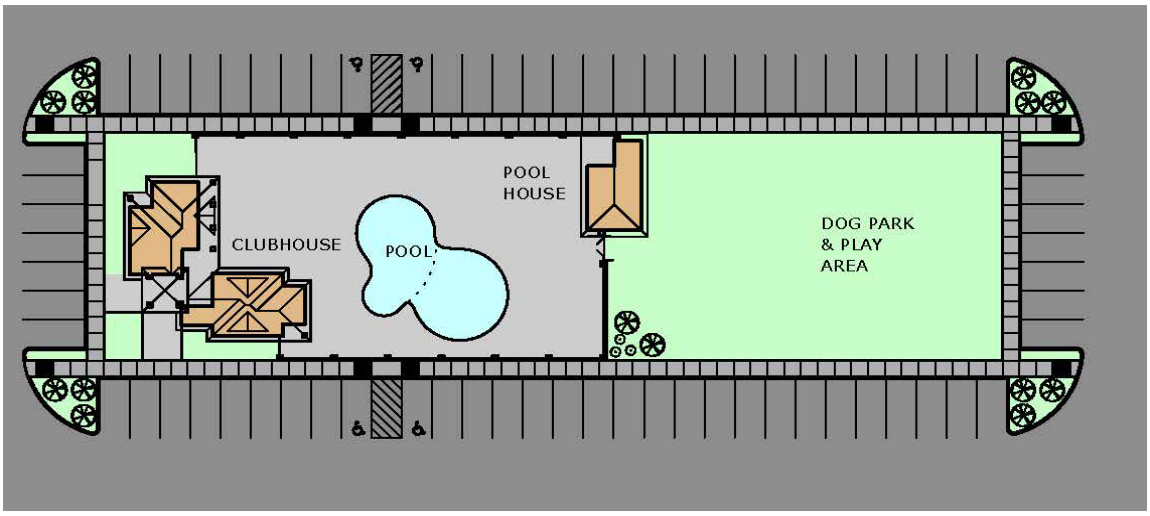


Stone Falls Road is proposed as a collector with 70 feet of right of way width and 28 feet minimum pavement width from back of curb to back of curb widening to 40 feet to provide a left turn lane unto Stone Creek Drive. This street will continue in the future to existing Farm Road 103 as shown on the Land Use Plan (Exhibit 1).

Sidewalks are proposed on both sides of the public streets and are 5 feet in width. Sidewalks will be extensive throughout the development with pedestrian access to every building and facility amenity. Pedestrian sidewalks and access throughout the entire development will help encourage pedestrian access and interaction with the commercial areas in the development.

9. OPEN SPACE AND LANDSCAPING

The proposed development will include a considerable amount of open space. Stone Creek will feature approximately 10 acres of common area containing two large lake areas with fountains, aeration, paved hiking trails, docks for fishing and viewing the lake, and manmade water falls circulated by pumping water from the lower lake. Each multi-family lot will also contain open space with amenities such as a clubhouse, pool, pool house, dog park, and play area.



10. PRELIMINARY COVENANTS

The developer desires to provide for the orderly and quality development of the subdivision by way of the filing of Declaration of Covenants, Conditions and Restrictions applicable to all portions of the development. Said Declaration of Covenants, Conditions and Restrictions will provide for requirements for improving the development and prohibit certain uses, for the mutual benefit of all residents in the development.

Letter Of Intent

Stone Creek Falls PDD

To Whom It May Concern:

Countryland would like to request a hearing regarding the proposed zoning application to the PDD Development known as Stone Creek Falls.

Stone Creek Falls is a new Multi-Family and Commercial district for the City of Republic, with a true Live, Shop, Dine, design concept and with a Life With a View life style.

Our plan is to make this an exciting new concept, the first of its kind in the City of Republic. Stone Creek will feature an 8-10 acre lake, complete with fountains, aeration, paved hiking trails, docks for fishing and viewing the lake, and north end of lake will be a man- made Stone Creek Falls that will be pumped from bottom of Lake to create creek and water falls and help with water quality and aquatic life. Our Commercial pad sites are of the size to attract types of businesses that require larger parking areas that are needed for our area.

We intend for this community to be one that catches the eye of West bound traffic to Republic and would be the Gateway to the City of Republic's East entry corridor. We are adjacent to the new City of Republic public sign project, also Countryland and the City of Republic along with the MODOT have entered into discussions to be a development partner, to help complete the State MM Hwy access across 60 Hwy to move the existing problem of MM & 60 with the trains and stop light issues. Our New City Street will eventually become MM. These improvements are vital to 60 & MM corridor, one of the most active in the entire area for growth. Countryland and staff feel this development is perhaps the most important of all parcels in the new MM corridor. This property gives path for the future MM to cross 60 Hwy in areas that assist to achieve the connections the ZZ to the south. Even the current traffic at MM & 60 is already untenable and dangerous, with traffic lights, trains, and the amount of construction traffic north on MM, the traffic, and all traffic on 60 & MM is going to grow substantially in the next five years. This Development paves the way for all this growth.

Thanks for your consideration in this matter, any questions or comments are greatly appreciated. My team and I would do our best to help, just let us know.

Sean Coatney Owner of Countryland Homes & ATW,LLC

LAND USE AND INFRASTRUCTURE PLAN

STONE CREEK FALLS

A PLANNED DEVELOPMENT DISTRICT

A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11
A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST
CITY OF REPUBLIC, GREENE COUNTY, MISSOURI

SURVEY DESCRIPTION

SOURCE OF DESCRIPTION – BOOK 2020 PAGE 026224-20

A TRACT OF LAND, BEING A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2, AND A PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 28 NORTH, RANGE 23 WEST, CITY OF REPUBLIC, GREENE COUNTY, MISSOURI, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 NORTH 01°49'35" EAST, 46.90 FEET TO A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE NORTH 29°30'07" EAST A DISTANCE OF 1,320.77 FEET; THENCE CONTINUING ALONG SAID SOUTHEASTERLY RIGHT OF WAY LINE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 11,559.19 FEET, A DELTA OF 00°39'49", AN ARC LENGTH OF 133.85 FEET, AND A CHORD WHICH BEARS NORTH 29°10'12" EAST HAVING A CHORD DISTANCE OF 133.85 FEET TO A POINT ON THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG SAID NORTH LINE SOUTH 89°03'23" EAST, 646.94 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2; THENCE ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2 SOUTH 01°47'15" WEST, 1,331.77 FEET TO A POINT ON THE NORTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 88°45'55" EAST ALONG SAID NORTH LINE 1,320.71 FEET TO THE NORTHEAST CORNER OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE SOUTH 01°40'20" WEST ALONG THE EAST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11 A DISTANCE OF 388.84 FEET TO A POINT ON THE NORTH RIGHT OF WAY LINE OF U.S. HIGHWAY 60; THENCE SOUTH 57°27' 19" WEST ALONG SAID NORTH RIGHT OF WAY LINE A DISTANCE OF 1,694.96 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER; THENCE NORTH 88°52'01" WEST ALONG SAID SOUTH LINE A DISTANCE OF 806.65 FEET TO A POINT ON THE EAST RIGHT OF WAY LINE OF BURLINGTON NORTHERN SANTA FE RAILROAD; THENCE NORTH 32°25'12" WEST ALONG SAID EAST LINE A DISTANCE OF 780.16 FEET TO A POINT ON THE WEST LINE OF SAID NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 11; THENCE NORTH 01°50'57" EAST ALONG SAID WEST LINE A DISTANCE OF 683.29 FEET TO THE POINT OF BEGINNING, AND CONTAINING 92.85 ACRES OF LAND, MORE OR LESS, SUBJECT TO EASEMENTS AND/OR RIGHTS OF WAY.

CURVE DATA

#	Radius	Delta	Length	Chord	Tangent	Chord Bearing
1	500.00'	62°38' 18"	546.82'	519.80'	304.23'	S 01°49' 02" E
2	500.00'	89°24' 30"	780.23'	703.45'	494.86'	S 77°50' 26" E
3	25.00'	106°39' 53"	46.54'	40.11'	33.58'	N 68°31' 52" W
4	25.00'	67°50' 37"	29.60'	27.90'	16.81'	N 27°27' 41" W
5	25.00'	72°42' 36"	31.73'	29.64'	18.40'	S 25°01' 41" W
6	742.00'	23°56' 06"	309.97'	307.72'	157.28'	S 20°35' 04" E
7	742.00'	02°37' 21"	33.96'	33.96'	16.98'	S 07°18' 21" E
8	500.00'	26°55' 38"	234.98'	232.83'	119.70'	S 47°55' 10" W
9	500.00'	22°59' 58"	200.71'	199.36'	101.72'	N 45°57' 20" E
10	25.00'	90°00' 00"	39.27'	35.36'	25.00'	N 12°27' 19" E
11	25.00'	90°00' 00"	39.27'	35.36'	25.00'	S 77°32' 41" E
12	25.00'	90°00' 00"	39.27'	35.36'	25.00'	S 12°27' 19" W
13	25.00'	90°00' 00"	39.27'	35.36'	25.00'	N 77°32' 41" W
14	25.00'	45°05' 57"	19.68'	19.17'	10.38'	N 06°57' 08" E
15	25.00'	45°05' 57"	19.68'	19.17'	10.38'	S 68°50' 24" E
16	25.00'	61°26' 30"	26.81'	25.54'	14.86'	S 60°13' 22" W
17	60.00'	151°38' 24"	158.80'	116.34'	237.47'	S 60°13' 22" W
18	807.00'	01°03' 03"	14.80'	14.80'	7.40'	S 05°56' 06" E

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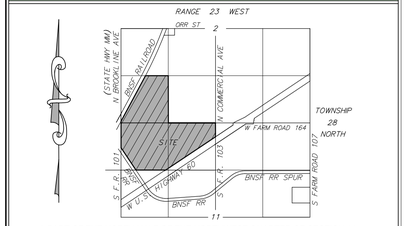
VICINITY MAP



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A PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 2
TOWNSHIP 28 NORTH, RANGE 23 WEST

CONTOUR INTERVAL 2'

0 150' 300'
75' SCALE 1" = 150'

BASIS OF BEARINGS

BEARINGS ARE BASED UPON GRID NORTH, MISSOURI COORDINATE OF 1983, CENTRAL ZONE MISSOURI GEOGRAPHIC REFERENCE SYSTEM CONTROL MONUMENTS GR-50 & GR-50A.

BENCHMARK

MISSOURI GEOGRAPHIC REFERENCE SYSTEM MONUMENT GR-50
STANDARD DNR DISK SET IN 12" CONCRETE POST
EAST ROW LINE ROUTE ZZ
ELEVATION= 1227.69 NAVD 1988

POINT OF BEGINNING
NW COR. N 1/2 NW 1/4 SEC. 11, T28N, R23W

COURSE TABLE

LINE	BEARING	DISTANCE
L-1	N 01°49' 35" E	46.90'
L-2	N 21°57' 11" E	89.98'
L-3	S 82°13' 24" E	78.53'
L-4	N 32°33' 07" W	100.45'
L-5	N 32°33' 07" W	101.94'
L-6	N 23°34' 55" W	70.55'
L-7	S 35°46' 51" E	195.29'
L-8	S 32°33' 07" E	125.29'
L-9	N 61°22' 59" E	13.81'
L-10	S 61°22' 59" W	53.74'
L-11	N 61°22' 59" E	87.12'

LEGEND

B/S	BUILDING SETBACK
U/E	UTILITY EASEMENT
D/E	DRAINAGE EASEMENT
S/E	SANITARY SEWER EASEMENT
1250	EXISTING CONTOURS
PA PA PA	PROPERTY LINE
OHE OHE OHE	OVERHEAD ELECTRIC
EXS EXS EXS	EXISTING SANITARY SEWER LINE
S S S	PROPOSED SANITARY SEWER LINE
EXW EXW EXW	EXISTING WATER LINE
W W W	PROPOSED WATER LINE
EXG EXG EXG	EXISTING GAS LINE
UGC UGC UGC	UNDERGROUND CABLE
MH	SANITARY SEWER MANHOLE
PP	POWER POLE
FH	FIRE HYDRANT
CI	CURB INLET

The City of Republic is not responsible to build, improve, maintain, or otherwise service the ingress and egress way, driveway, drainage improvements, common areas, lakes, trails, and other appurtenances. Maintenance of all common areas and detention basin will be provided by a property owners association

Proposed Multi-Family Residential Density
1,396 Units — Land Area 58.20 Acres — 24 Units/Acre
Building Setbacks:
U.S. Highway 60 Frontage — 25 Feet
All other Front, Rear and Sides — 15 Feet
Maximum Building Height — 4 Story

Commercial Land Area 15.66 Acres.
Maximum Lot Coverage 90 percent
Building Setbacks:
Front — 15 Feet
Rear — 15 Feet
Side Street — 15 Feet
Interior Side — 6 Feet

KNOWN ALL MEN BY THESE PRESENTS THAT I, LAWRENCE E JANSEN, DO HEREBY DECLARE THAT THIS PLAT WAS PREPARED UNDER MY SUPERVISION FROM AN ACTUAL SURVEY OF THE LAND HEREIN DESCRIBED, AND THAT THE CORNER MONUMENTS AND LOT CORNER PINS SHOWN HEREON WERE PLACED UNDER THE PERSONAL SUPERVISION OF LAWRENCE E JANSEN LS 2385 IN ACCORDANCE WITH THE MISSOURI MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS, AND IN ACCORDANCE WITH THE SUBDIVISION REGULATIONS OF REPUBLIC, MISSOURI.

Lawrence E Jansen 1-30-23
LAWRENCE E. JANSEN PLS 2385 DATE

CLASS "URBAN" SURVEY
EIP ● -- EXISTING IRON PIN
SIP ○ -- SET IRON PIN
--X--X-- FENCELINE
P – PLAT DISTANCE
M – MEASURED DISTANCE
D– DEED DISTANCE
Job No.: 2103-041
Date: 1-30-2023
Location: HWY 60 & F.R. 103 REPUBLIC, MO

STATE OF MISSOURI
LAWRENCE EUGENE JANSEN
NUMBER LS-2385
REGISTERED LAND SURVEYOR
1-30-23

GLOBAL
PRECISION SURVEYING, L.L.C.
P.O. BOX 790, REPUBLIC, MO 65738
PHONE (417) 883-0300 FAX (417) 883-0335
CERTIFICATE OF AUTHORITY
NUMBER LS-2010000563

EXHIBIT 1

PINNACLE DESIGN CONSULTANTS

CIVIL • STRUCTURAL ENGINEERING

417-501-8820 • pinnacledc.com

ENGINEERS REPORT

FOR
STORM WATER DETENTION

STONE CREEK FALLS
A NEW COMMERCIAL SUBDIVIONS IN REPUBLIC, MISSOURI

February 9, 2021

TO: Ms. Karen Haynes
Principal Planner
Community Development Department
City of Republic, Missouri

BY: David Bodeen, PE
Pinnacle Design Consultants
304-B W. Erie St.
Springfield, MO 65807

TABLE OF CONTENTS

May 25, 2021

Ms. Haynes:

The purpose of this preliminary report is to provide information as to the capacity and discharge of the proposed detention basin serving Stone Creek Falls development, and to show that the proposed basin has the capacity meet all of the required city of Republic criteria for detention.

The site generally drains from north to south to an existing natural depression. The existing and proposed drainage area is considered to be 156 acres. It is the developer's intent to create a large lake, with flood detention above the water level of the lake. For the purposes of this report, the surface area of the lake(s) is 7.0 acres, and the water elevation is an assumed elevation of 100.00.

A review of the soil analysis shows a mixed soil type of B & C over the entire drainage area.

TABLE 1E. EAST WATERSHED DATA

Conditions/Parameter	Area, acres Site (total watershed)	Curve Number site (total watershed)	Time of Concentration. min
Pre-project	156	65	48
Post-project	156	79	44

See * Worksheets for Curve Number calculations.
See soil maps for soil data and rating tables.

TABLE 2. PEAK FLOW CALCULATION / COMPARISON

Return Frequency	Q (pre-dev) c.f.s.	Dev Q to Basin	Discharge Out of Basin	Stage
2yr.	14	66	4	100.68
10 yr.	55	153	33	101.41
100 yr.	148	311	88	102.43

*Top of berm = 103.43

See the pond report at the end of the data sheets for the east side for a stage / storage / discharge table, and structure data.

SUMMARY:

In summary, in my professional opinion that the proposed design meets all required design criteria. It is our hope that the City of Republic agrees with this opinion.

Respectfully Submitted:

DDB

David Bodeen, PE
Pinnacle Design Consultants, LLC

Search

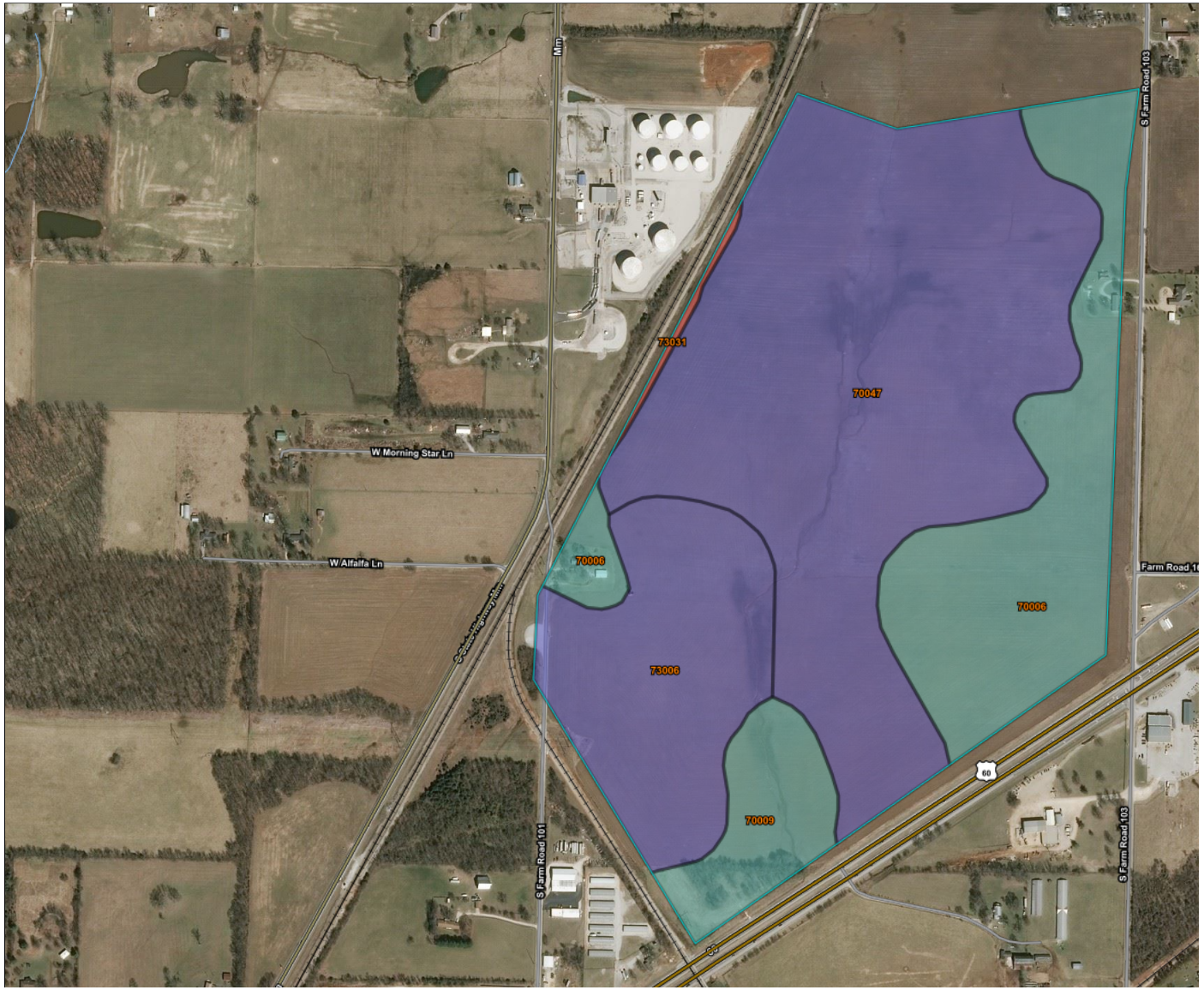
Properties and Qualities Ratings

Open All | Close All

- Soil Chemical Properties
- Soil Erosion Factors
- Soil Health Properties
- **Soil Physical Properties**
  - Available Water Capacity
  - Available Water Storage
  - Available Water Supply, 0 to 100 cm
  - Available Water Supply, 0 to 150 cm
  - Available Water Supply, 0 to 25 cm
  - Available Water Supply, 0 to 50 cm
  - Bulk Density, One-Third Bar
  - Linear Extensibility
  - Liquid Limit
  - Organic Matter
  - Percent Clay
  - Percent Sand
  - Percent Silt
  - Plasticity Index
  - Saturated Hydraulic Conductivity (Ksat)
  - Saturated Hydraulic Conductivity (Ksat), Standard Classes
  - Surface Texture
  - Water Content, 15 Bar
  - Water Content, One-Third Bar
- **Soil Qualities and Features**
  - AASHTO Group Classification (Surface)
  - AASHTO Group Index
  - Depth to a Selected Soil Restrictive Layer
  - Depth to Any Soil Restrictive Layer
  - Drainage Class
  - Frost Action
  - Frost-Free Days
  - Hydrologic Soil Group

Map — Hydrologic Soil Group

Scale (not to scale)



View Description | View Rating

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☑

☐ Detailed Description

Advanced Options

Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: ○ Lower ◉ Higher

View Description | View Rating

- Map Unit Name
- Parent Material Name
- Representative Slope
- Soil Slippage Potential
- Subsidence, Initial
- Subsidence, Total
- Unified Soil Classification (Surface)

Water Features

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

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surv design of map units and the level of detail shown in the resulting soil map are dependent on that map 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 been shown at a more detailed scale.

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Greene County, Missouri (MO077)

Summary by Map Unit — Greene County, Missouri (MO077)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70006	Creldon silt loam, 1 to 3 percent slopes	C	34.0	21.7%
70009	Goss gravelly silt loam, 8 to 15 percent slopes	C	10.2	6.5%
70047	Wanda silt loam, 2 to 5 percent slopes	B	84.3	53.8%
73006	Peridge silt loam, 2 to 5 percent slopes	B	27.4	17.5%
73031	Gerald silt loam, 0 to 2 percent slopes	D	0.7	0.5%
Totals for Area of Interest			**156.7**	**100.0%**

Description — Hydrologic Soil Group

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

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

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

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

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

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

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

Rating Options — Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

TR55 Tc Worksheet

Hyd. No. 1

Pre-Developed

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.130		0.011		
Flow length (ft)	= 200.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.77		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 30.20**	**+**	**0.00**	**+**	**0.00**	**=**	**30.20**
Shallow Concentrated Flow							
Flow length (ft)	= 1600.00		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	=2.28		0.00		0.00		
Travel Time (min)	**= 11.69**	**+**	**0.00**	**+**	**0.00**	**=**	**11.69**
Channel Flow							
X sectional flow area (sqft)	= 10.00		0.00		0.00		
Wetted perimeter (ft)	= 10.00		0.00		0.00		
Channel slope (%)	= 2.00		0.00		0.00		
Manning's n-value	= 0.030		0.030		0.015		
Velocity (ft/s)	=7.02						
			0.00				
					0.00		
Flow length (ft)	({0})2500.0		0.0		0.0		
Travel Time (min)	**= 5.93**	**+**	**0.00**	**+**	**0.00**	**=**	**5.93**

Total Travel Time, Tc ..... 47.82 min

Hydrograph Report

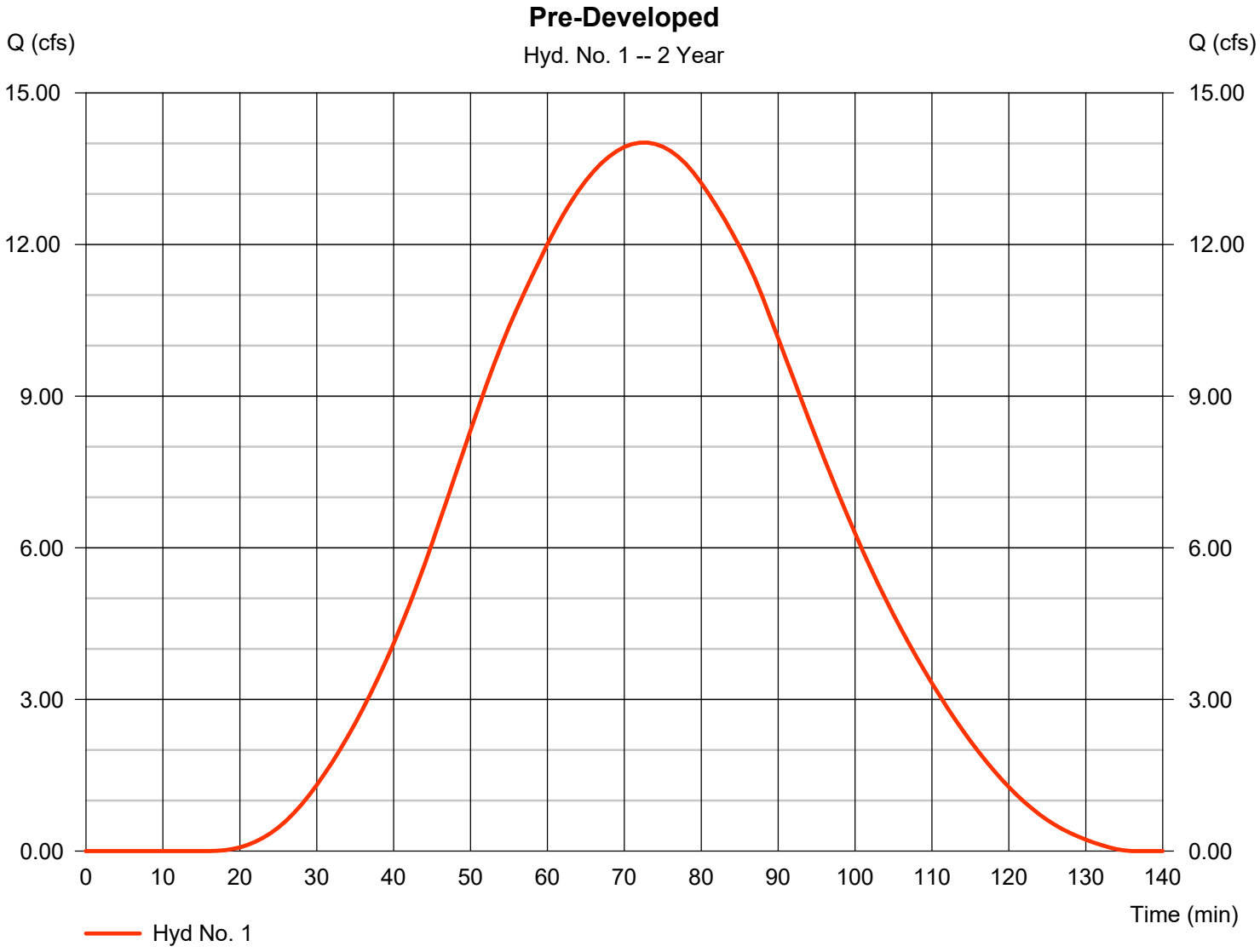
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Wednesday, 05 / 19 / 2021

Hyd. No. 1

Pre-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 14.02 cfs
Storm frequency	= 2 yrs	Time to peak	= 73 min
Time interval	= 1 min	Hyd. volume	= 44,540 cuft
Drainage area	= 156.000 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 47.80 min
Total precip.	= 1.77 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(44.000 x 74) + (112.000 x 61)] / 156.000



Hydrograph Report

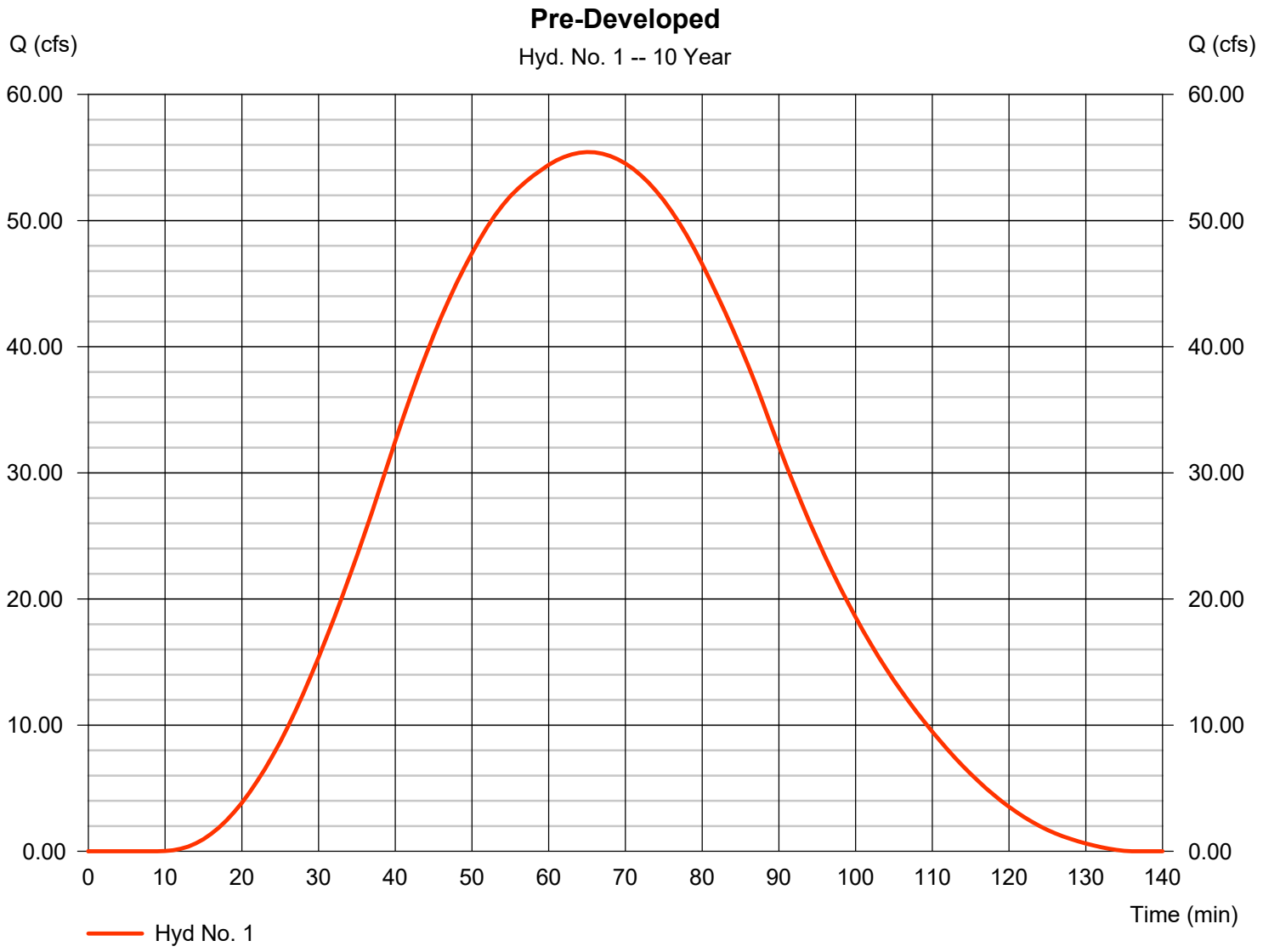
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Wednesday, 05 / 19 / 2021

Hyd. No. 1

Pre-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 55.43 cfs
Storm frequency	= 10 yrs	Time to peak	= 65 min
Time interval	= 1 min	Hyd. volume	= 191,385 cuft
Drainage area	= 156.000 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 47.80 min
Total precip.	= 2.61 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(44.000 x 74) + (112.000 x 61)] / 156.000



Hydrograph Report

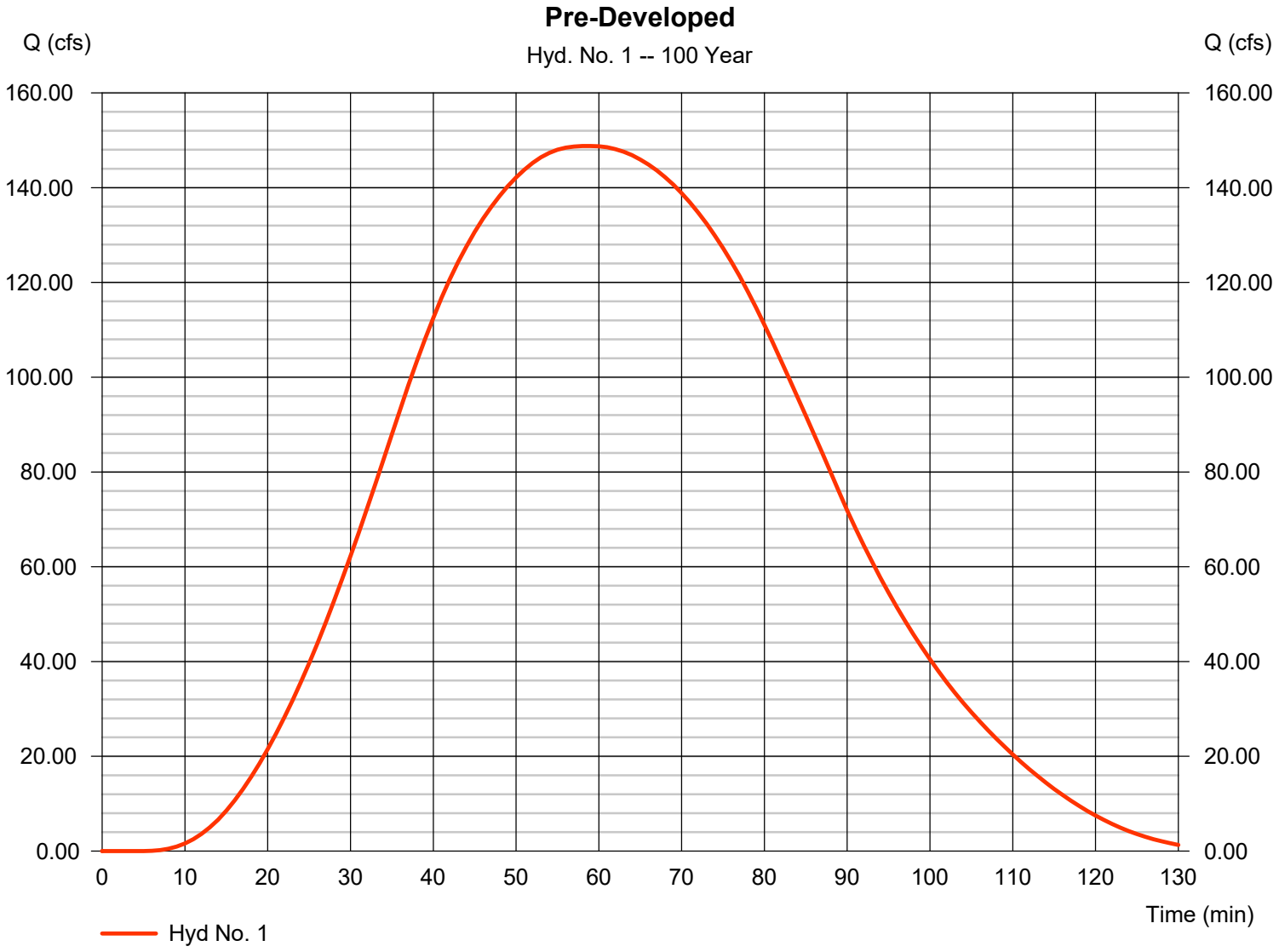
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Wednesday, 05 / 19 / 2021

Hyd. No. 1

Pre-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 148.80 cfs
Storm frequency	= 100 yrs	Time to peak	= 58 min
Time interval	= 1 min	Hyd. volume	= 528,253 cuft
Drainage area	= 156.000 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 47.80 min
Total precip.	= 3.84 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(44.000 x 74) + (112.000 x 61)] / 156.000



TR55 Tc Worksheet

Hyd. No. 2

Post-Developed

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.240		0.050		0.011		
Flow length (ft)	= 200.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 3.77		0.00		0.00		
Land slope (%)	= 1.00		0.00		0.00		
Travel Time (min)	**= 30.20**	**+**	**0.00**	**+**	**0.00**	**=**	**30.20**
Shallow Concentrated Flow							
Flow length (ft)	= 1600.00		0.00		0.00		
Watercourse slope (%)	= 2.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=2.28		0.00		0.00		
Travel Time (min)	**= 11.69**	**+**	**0.00**	**+**	**0.00**	**=**	**11.69**
Channel Flow							
X sectional flow area (sqft)	= 10.00		0.00		0.00		
Wetted perimeter (ft)	= 10.00		0.00		0.00		
Channel slope (%)	= 2.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=14.05						
			0.00				
					0.00		
Flow length (ft)	({0})1800.0		0.0		0.0		
Travel Time (min)	**= 2.14**	**+**	**0.00**	**+**	**0.00**	**=**	**2.14**
Total Travel Time, Tc							**44.03 min**

Hydrograph Report

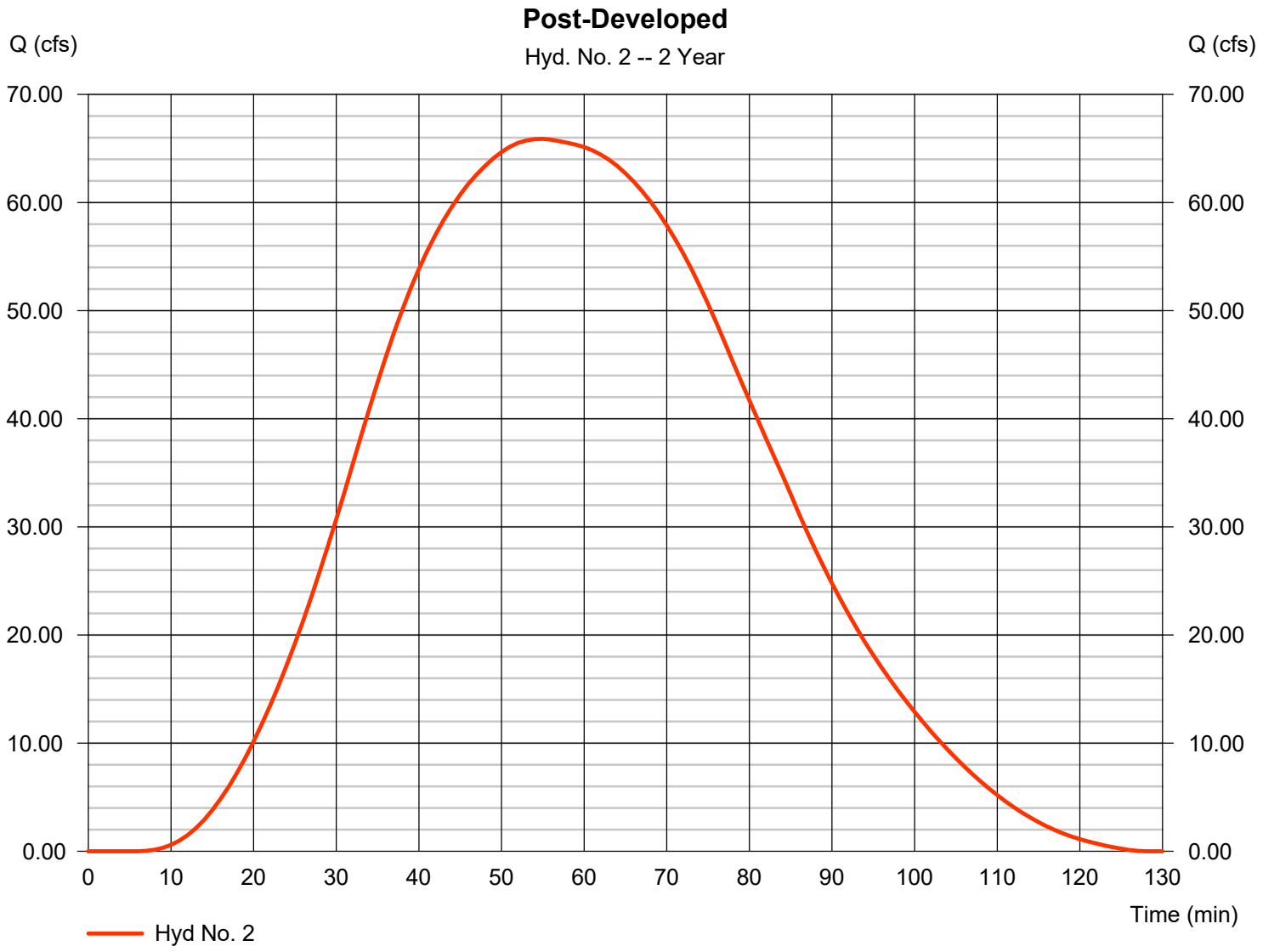
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 2

Post-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 65.89 cfs
Storm frequency	= 2 yrs	Time to peak	= 55 min
Time interval	= 1 min	Hyd. volume	= 221,297 cuft
Drainage area	= 156.000 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 44.00 min
Total precip.	= 1.77 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(67.000 x 86) + (27.000 x 91) + (42.000 x 61) + (20.000 x 74)] / 156.000



Hydrograph Report

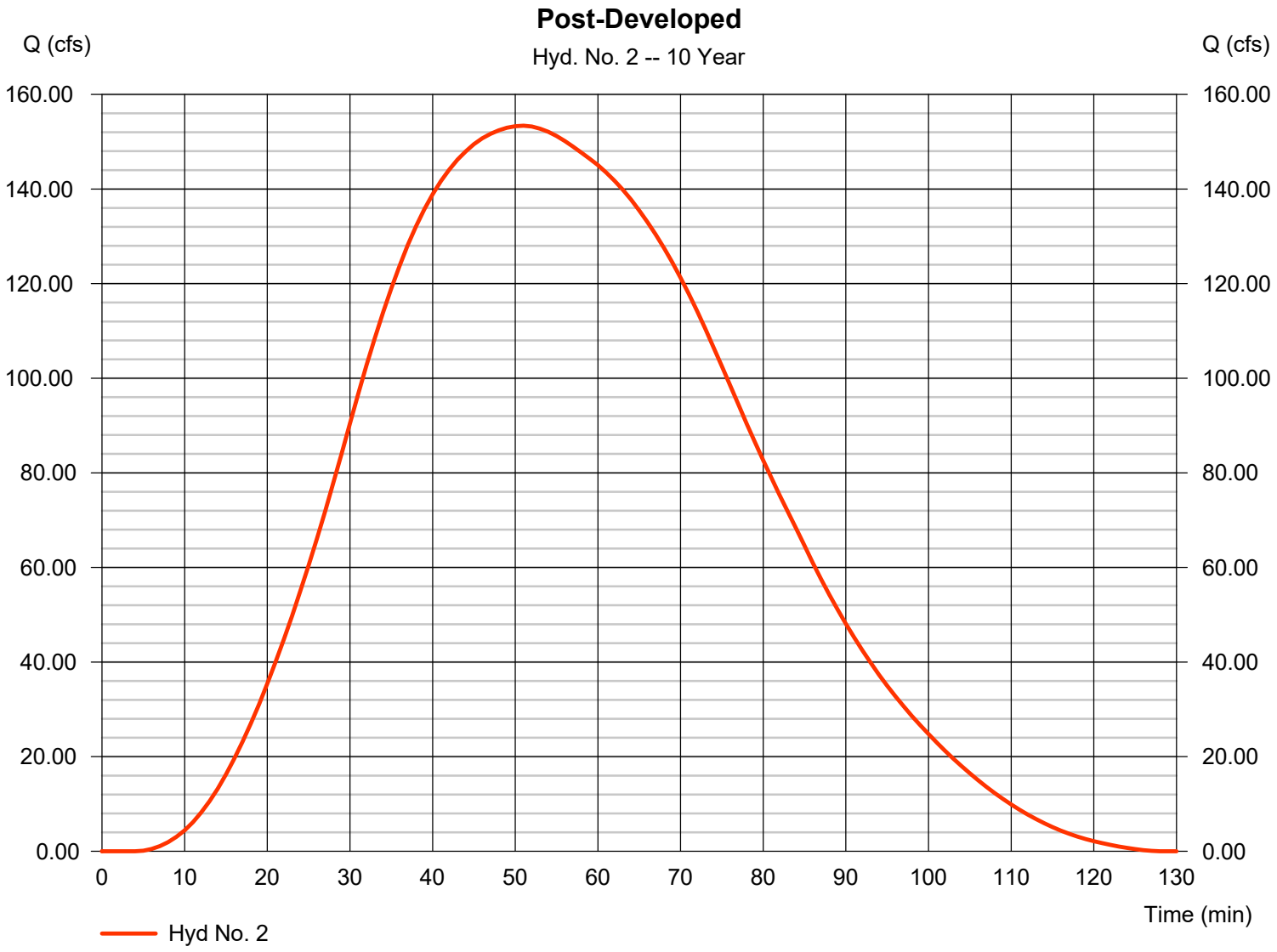
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 2

Post-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 153.38 cfs
Storm frequency	= 10 yrs	Time to peak	= 51 min
Time interval	= 1 min	Hyd. volume	= 513,700 cuft
Drainage area	= 156.000 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 44.00 min
Total precip.	= 2.61 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(67.000 x 86) + (27.000 x 91) + (42.000 x 61) + (20.000 x 74)] / 156.000



Hydrograph Report

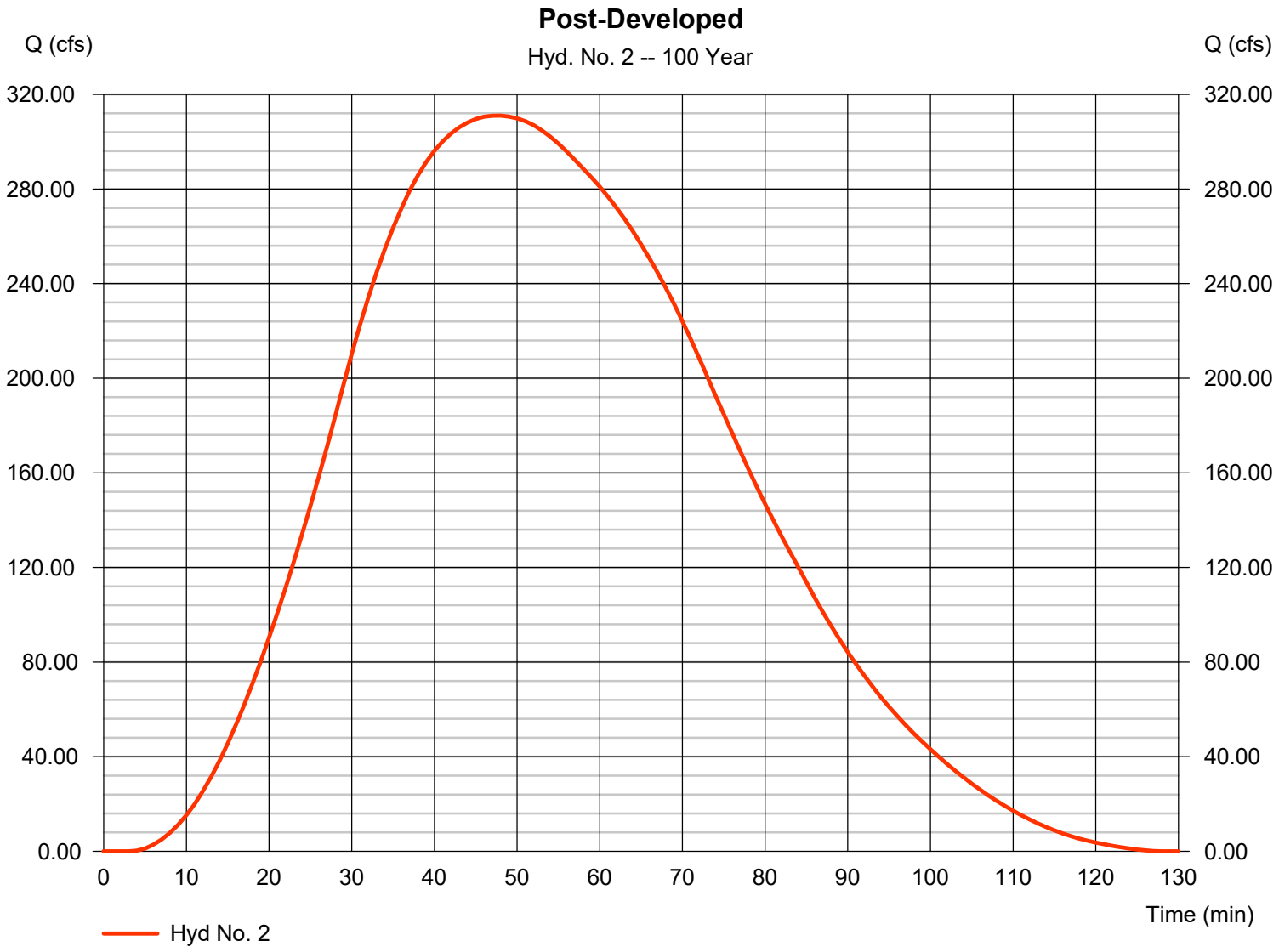
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 2

Post-Developed

Hydrograph type	= SCS Runoff	Peak discharge	= 311.02 cfs
Storm frequency	= 100 yrs	Time to peak	= 48 min
Time interval	= 1 min	Hyd. volume	= 1,032,393 cuft
Drainage area	= 156.000 ac	Curve number	= 79*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 44.00 min
Total precip.	= 3.84 in	Distribution	= Huff-1st
Storm duration	= 1.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(67.000 x 86) + (27.000 x 91) + (42.000 x 61) + (20.000 x 74)] / 156.000



Hydrograph Report

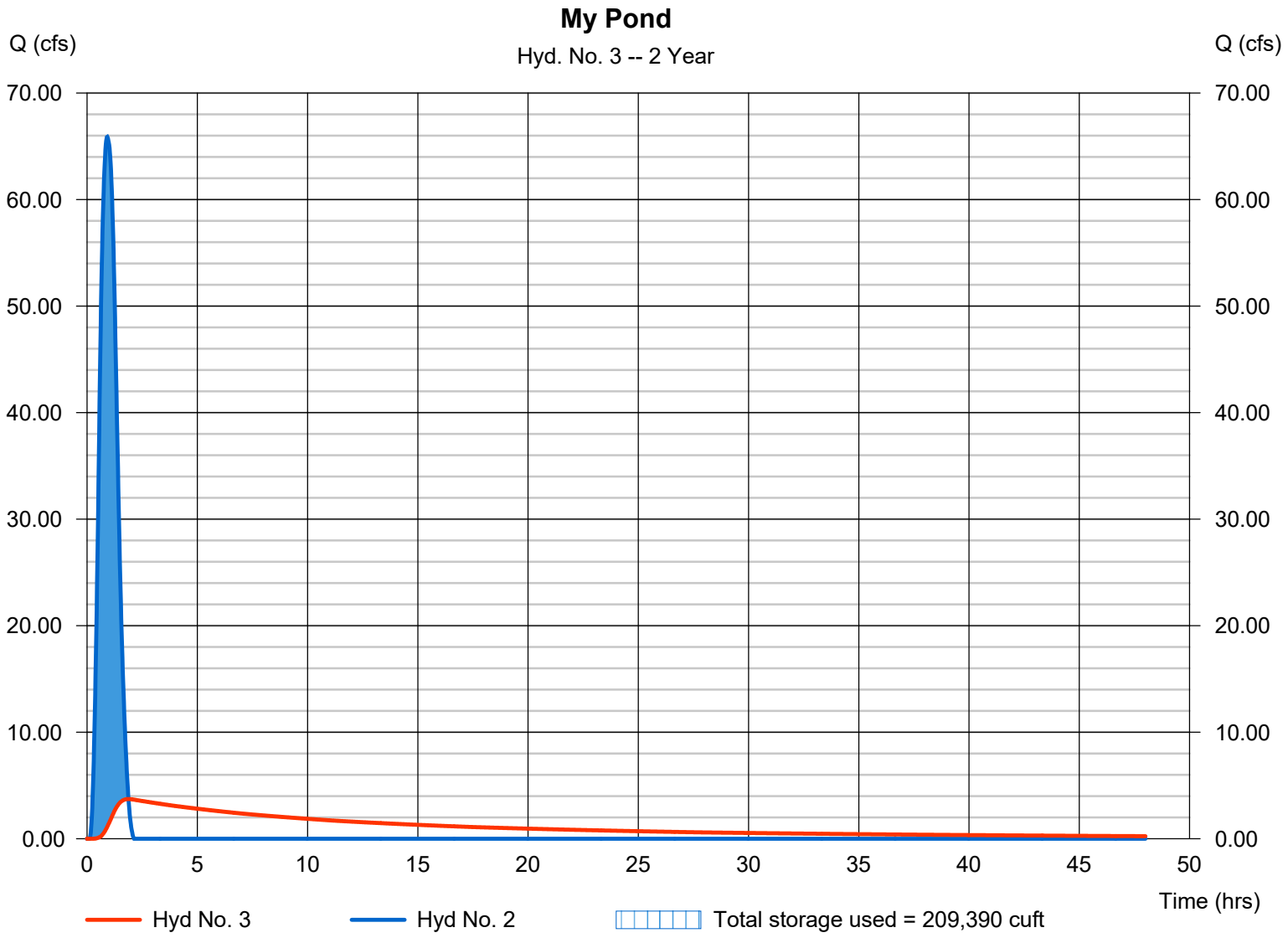
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 3

My Pond

Hydrograph type	=	Reservoir	Peak discharge	=	3.725 cfs
Storm frequency	=	2 yrs	Time to peak	=	1.88 hrs
Time interval	=	1 min	Hyd. volume	=	186,787 cuft
Inflow hyd. No.	=	2 - Post-Developed	Max. Elevation	=	100.68 ft
Reservoir name	=	My Pond	Max. Storage	=	209,390 cuft

Storage Indication method used.



Hydrograph Report

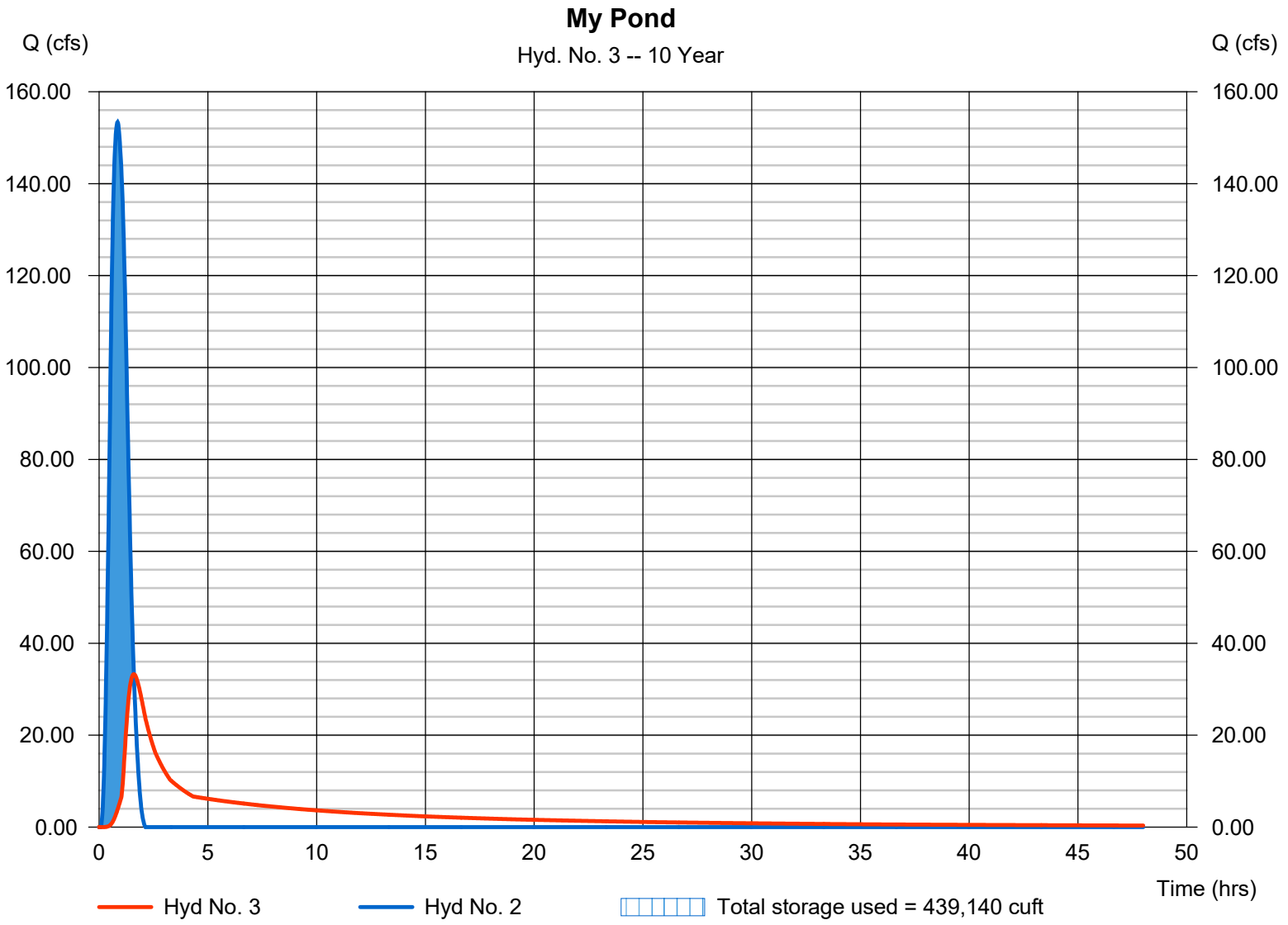
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 3

My Pond

Hydrograph type	= Reservoir	Peak discharge	= 33.28 cfs
Storm frequency	= 10 yrs	Time to peak	= 1.60 hrs
Time interval	= 1 min	Hyd. volume	= 471,073 cuft
Inflow hyd. No.	= 2 - Post-Developed	Max. Elevation	= 101.41 ft
Reservoir name	= My Pond	Max. Storage	= 439,140 cuft

Storage Indication method used.



Hydrograph Report

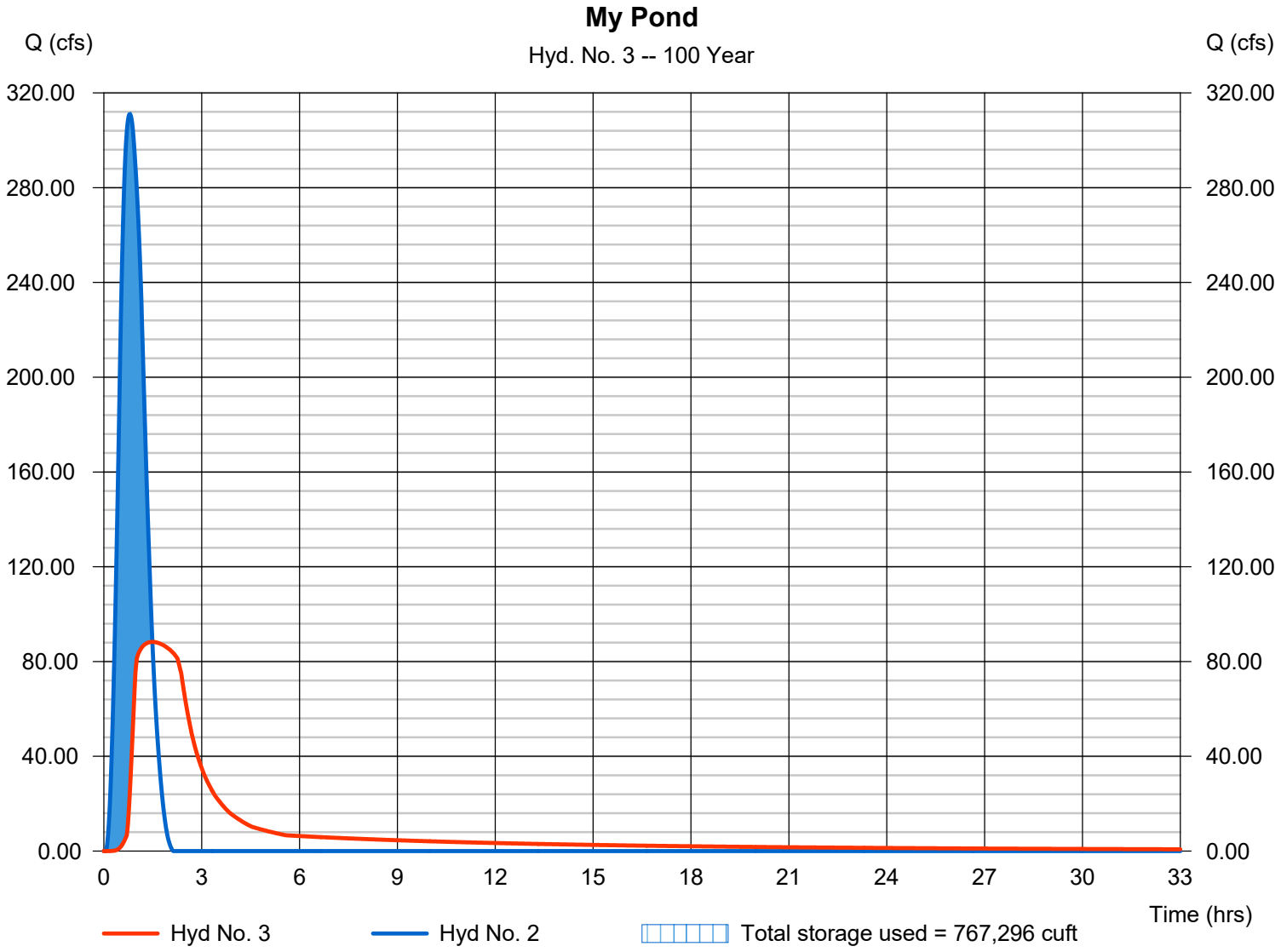
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Hyd. No. 3

My Pond

Hydrograph type	=	Reservoir	Peak discharge	=	88.27 cfs
Storm frequency	=	100 yrs	Time to peak	=	1.48 hrs
Time interval	=	1 min	Hyd. volume	=	988,160 cuft
Inflow hyd. No.	=	2 - Post-Developed	Max. Elevation	=	102.43 ft
Reservoir name	=	My Pond	Max. Storage	=	767,296 cuft

Storage Indication method used.



Pond Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2020 Tuesday, 05 / 25 / 2021

Pond No. 1 - My Pond

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Begining Elevation = 99.99 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	99.99	00	0	0
0.01	100.00	300,000	1,500	1,500
1.01	101.00	313,000	306,500	308,000
2.01	102.00	323,000	318,000	626,000
3.01	103.00	332,000	327,500	953,500
4.01	104.00	333,000	332,500	1,286,000

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	Inactive	Inactive	Inactive
Span (in)	= 36.00	15.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 94.00	1240.00	0.00	0.00
Length (ft)	= 100.00	1.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .010	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 2.00	25.00	Inactive	Inactive
Crest El. (ft)	= 100.00	101.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Rect	---	---
Multi-Stage	= Yes	Yes	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	99.99	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
0.01	1,500	100.00	72.11 ic	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.01	308,000	101.00	72.11 ic	0.00	---	---	6.66	0.00	---	---	---	---	6.660
2.01	626,000	102.00	83.31 ic	0.00	---	---	12.64 s	70.67 s	---	---	---	---	83.31
3.01	953,500	103.00	92.65 ic	0.00	---	---	10.36 s	82.26 s	---	---	---	---	92.62
4.01	1,286,000	104.00	99.02 ic	0.00	---	---	9.83 s	89.11 s	---	---	---	---	98.94