



TONGANOXIE PLANNING COMMISSION

Agenda

May 5, 2022

7:00 p.m.

City Council Chambers

303 S. Bury Street

Planning Commission Members

Monica Gee - Patti Bitler - John Kirk - Howie Brewington - Amanda Horner - Meagan Vestal - Angela Schultz

*There may be an audio recording of the meeting which will be utilized to prepare the meeting minutes.

CALL TO ORDER – Planning Commission Meeting

1. APPROVAL OF PC MINUTES – March 3, 2022

2. OLD BUSINESS

3. EX PARTE COMMUNICATION

4. NEW BUSINESS

a) Consideration of Preliminary Plat for Deer Creek at property generally located at the intersection of 24/40 and Smiley Road, Tonganoxie, KS 66086

b) Consideration of Special Use Permit for Tongie Tykes Daycare located at 707 E 4th Street, Tonganoxie KS 66086

4. GENERAL INFORMATION

a) January 2022 Home Builder's Association Reports

5. ADJOURN



TONGANOXIE PLANNING COMMISSION
Meeting Minutes
March 3, 2022 7:00 p.m.
303 S. Bury Street

CALL TO ORDER

- Chair Monica Gee opened the meeting at 7:00 p.m.
- 1. Roll Call:** Planning Commission members present were Chair Monica Gee, Vice Chair Patti Bitler, John Kirk, Howie Brewington, Amanda Horner, Meagan Vestal and Angela Schultz. Assistant City Manager Dan Porter and Planning Clerk Lindsay Huntington were also present.
- 2. APPROVAL OF PC MINUTES – February 3, 2022**
 - **Ms. Bitler made a motion to approve the minutes from the February 3, 2022 Commission meeting.**
 - **Mr. Kirk seconded the motion.**
 - **Vote of all ayes, motion carried.**
- 3. OLD BUSINESS**
 - No items.

EX PARTE COMMUNICATION

- None

4. NEW BUSINESS

- a) Swearing in for Planning Commissioners Patti Bitler and John Kirk
 - Ms. Huntington conducted the Oath of Officer for both Ms. Bitler and Mr. Kirk renewing their term with the Planning Commission
- b) Discussion of Budget Options/Requests for 2023
 - Mr. Porter presented a slideshow of comprehensive plans and explained what the role of the Planning Commissioner would take with these plans. He explained the budget process and asked for recommendations from the Commission to be presented to the City Council.
 - The Planning Commission members presented various ideas and agreed to revisit this topic again on a future agenda to provide more feedback.

5. GENERAL INFORMATION

- (a) November and December 2021 Home Builder's Association Reports
 - Ms. Gee noted the Homebuilder's Association reports for November and December 2021.

6. ADJOURN

- **Ms. Vestal made a motion to adjourn the meeting.**
- **Mr. Brewington seconded the motion**
- **Vote of all ayes, motion carried.**
- **Meeting adjourned at 7:27 p.m.**

Respectfully submitted,


Lindsay Huntington

Lindsay Huntington, Planning Clerk

DRAFT

CITY OF TONGANOXIE, KANSAS

APPLICATION FOR PRELIMINARY PLAT AND FINAL PLAN APPROVAL

Requested Action	Fee Paid 	Date Rec'd	Date Published	Hearing Date
<input checked="" type="checkbox"/> Preliminary Plat	_____	_____	_____	_____
<input type="checkbox"/> Street & Storm Sewer Plan	_____	_____	_____	_____
<input type="checkbox"/> Sanitary Sewer Plan	_____	_____	_____	_____
<input type="checkbox"/> Waterline Plan	_____	_____	_____	_____
<input type="checkbox"/> Final Plat	_____	_____	_____	_____
<input type="checkbox"/> Site Plan	_____	_____	_____	_____
<input type="checkbox"/> Landscaping Plan	_____	_____	_____	_____

Name of Development Deer Creek

General Location 00000 Smiley Rd, 1920403001001000

Applicant:

Name: Development Strategies Contact: _____ Address: _____
 Phone/Fax: _____

Owner/Developer: _____ Contact: Kent Slavens

Name: AG28 LLC
 Address: _____
 Phone/Fax: _____

E-mail Address _____

Engineer:
 Name: Landplan Engineering Contact: G L Maurer

Address: _____

Phone/Fax: _____

E-Mail Address _____

SUBDIVISION INFORMATION:

- Gross acreage of plat: 17.27 ac
- Total number of lots: 45
 - Residential Business _____ Industrial _____ Other _____
- Existing zoning R-5F Proposed zoning CGP

THE owner herein agrees to comply with the subdivision regulations for Tonganoxie, as amended, and all other pertinent ordinances or resolutions of Tonganoxie, and statutes of the State of Kansas. The undersigned further states that he is the owner of the proposed for platting.

OWNER'S SIGNATURE 4628 LLG by
John Slawik

OFFICE USE:

RECEIVED BY _____

Date _____ Fee Submitted _____



**Civil Engineering
Landscape Architecture
Community Planning
Surveying**

1310 Wakarusa Drive Suite 100 Lawrence, KS 66049 | (785) 843-7530 | info@landplan-pa.com

Letter of Transmittal

To: Melanie Bilby
Planning Development
City of Tonganoxie
526 4th Street
Tonganoxie, KS 66086

Date: March 24, 2022
 RE: Deer Creek

 Job #: 20213026

**We are sending you
the following items:**

attached

under separate cover

- Shop Drawings
- Original Letter
- Prints

- Change Order
- Original Plans
- Electronic File

- Specifications
- _____

Copies	Date	No.	Description
1		1	Review Fee Preliminary Plat \$700.00
1		2	Rezoning Exhibit, Deed
1		3	Application Preliminary Plat
3		4	Drainage Study, Traffic Study
3		5	Deer Creek Preliminary Plat

These are transmitted as checked below:

- For Approval
- For Your Use

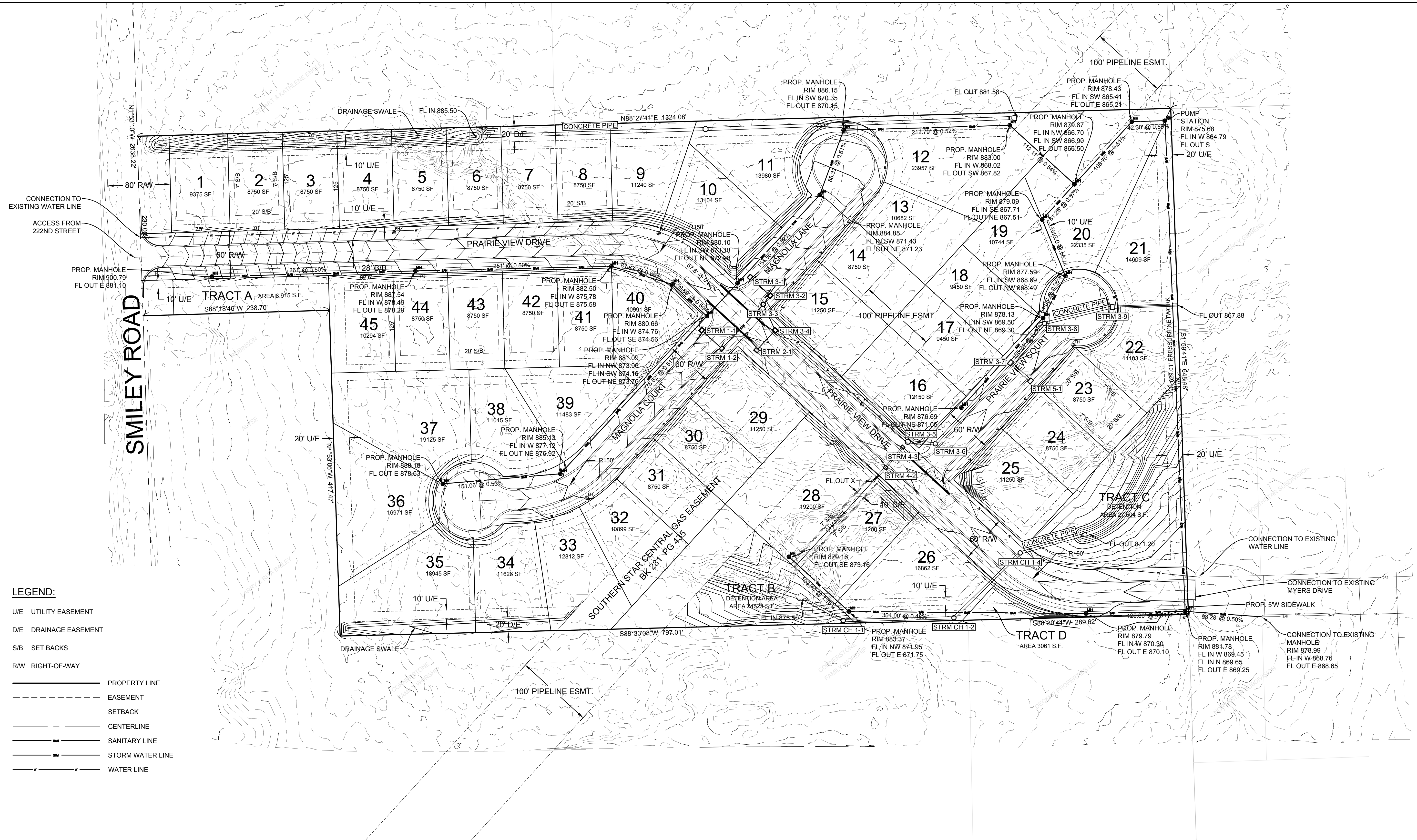
- As Requested
- For Review and Comment

- _____
- _____

Remarks:

Copy to

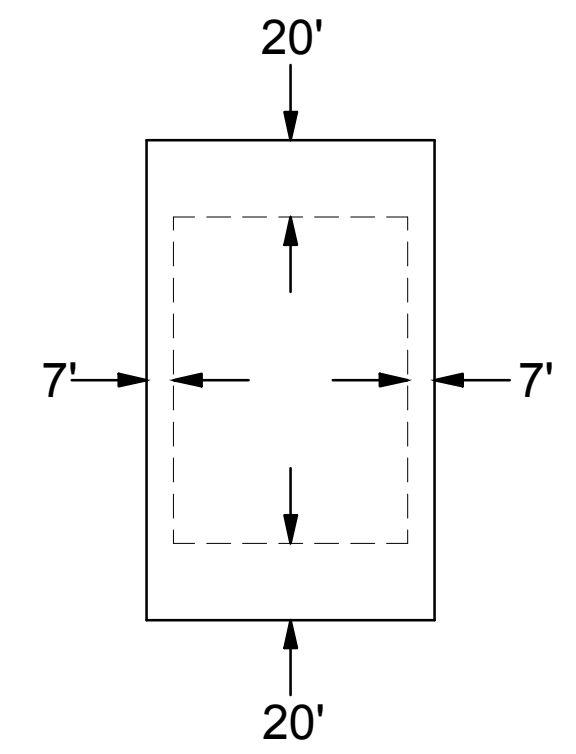
Signed



LEGEND:

- U/E UTILITY EASEMENT
- D/E DRAINAGE EASEMENT
- S/B SET BACKS
- R/W RIGHT-OF-WAY
- PROPERTY LINE
- EASEMENT
- SETBACK
- CENTERLINE
- SANITARY LINE
- STORM WATER LINE
- WATER LINE

TYP. LOT SETBACK



LEGAL DESCRIPTION

A REPLAT OF PART OF LOTS 8, 9, 10, 11, 12, 13, 20 AND ALL OF LOTS 14, 15, 16, 17, 18, AND 19 TOGETHER WITH THAT PART PLATTED AS ROADWAY LYING ADJACENT TO SAID LOTS OF SUFFERT'S SUBDIVISION IN THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 11 SOUTH, RANGE 21 EAST OF THE 6TH P.M., ALL IN THE CITY OF TONGANOXIE, LEAVENWORTH COUNTY, KANSAS, MORE PARTICULARLY DESCRIBED BY JESSE A. NOLL, P5-1711, DATED NOVEMBER 18, 2021, AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE SOUTH 01 DEGREE 53 MINUTES 10 SECONDS EAST, ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 1,313.11 FEET TO THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER OF SAID SOUTHWEST QUARTER AND THE POINT OF BEGINNING; THENCE NORTH 88 DEGREES 27 MINUTES 41 SECONDS EAST, ALONG THE NORTH LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, A DISTANCE OF 1,324.08 FEET TO THE NORTHEAST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER; THENCE SOUTH 01 DEGREE 59 MINUTES 41 SECONDS EAST, ALONG THE EAST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, A DISTANCE OF 648.48 FEET; THENCE SOUTH 88 DEGREES 30 MINUTES 44 SECONDS WEST, A DISTANCE OF 289.62 FEET TO THE NORTHEAST CORNER OF CORNERSTONE FAMILY WORSHIP, A PLATTED SUBDIVISION IN THE CITY OF TONGANOXIE, LEAVENWORTH COUNTY, KANSAS, RECORDED IN DOCUMENT NUMBER 2015P00008 AT THE LEAVENWORTH COUNTY REGISTER OF DEEDS OFFICE; THENCE SOUTH 88 DEGREES 33 MINUTES 08 SECONDS WEST, ALONG THE NORTH LINE OF SAID CORNERSTONE FAMILY WORSHIP, A DISTANCE OF 797.01 FEET (797.11 FEET PLATTED) TO THE NORTHWEST CORNER OF SAID CORNERSTONE FAMILY WORSHIP; THENCE NORTH 01 DEGREE 53 MINUTES 06 SECONDS WEST, A DISTANCE OF 417.47 FEET; THENCE SOUTH 88 DEGREES 18 MINUTES 46 SECONDS WEST, A DISTANCE 238.70 FEET TO THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER; THENCE NORTH 01 DEGREE 53 MINUTES 10 SECONDS WEST, ALONG THE WEST LINE OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER, A DISTANCE OF 230.09 FEET TO THE NORTHWEST CORNER OF SAID SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER AND THE POINT OF BEGINNING.

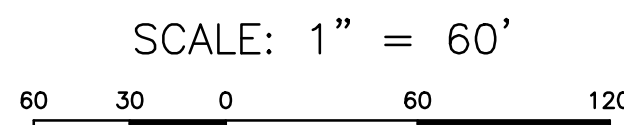
THE ABOVE CONTAINS 758,320 SQUARE FEET, MORE OR LESS, OR 17.41 ACRES, MORE OR LESS, AND IS SUBJECT TO ANY AND ALL RIGHTS OF WAY, EASEMENTS AND ENCUMBRANCES, IF ANY.

GENERAL NOTES

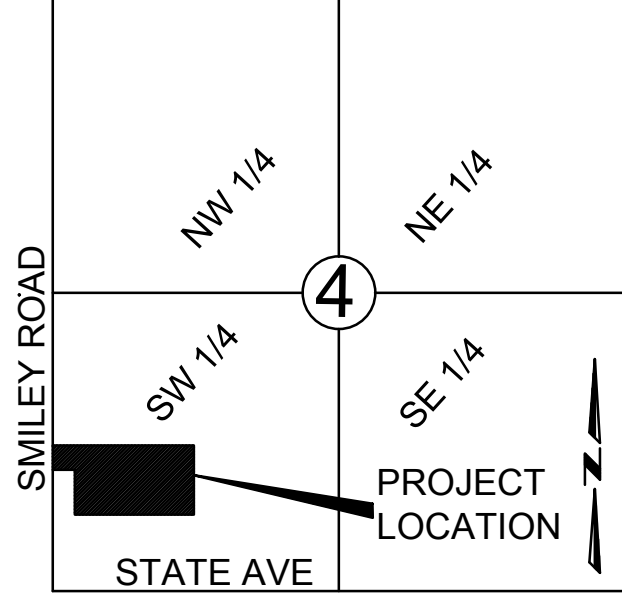
- OWNER: Development Strategies, LLC
- LAND PLANNER: Landplan Engineering, P.A., 1310 Wakarusa Dr., Lawrence, KS 66049.
- ENGINEER/SURVEYOR: Landplan Engineering, P.A., 1310 Wakarusa Dr., Lawrence, KS 66049.
- Topographic information obtained from field survey performed by Landplan Engineering, August 2021.
- This property lies outside of the 100 Year Flood Plain as shown on FEMA's Flood Boundary and Floodway maps.
- A Homeowner's Association will be formed for this subdivision with protective covenants and restrictions filed when Final Plat is recorded.
- Tracts A,B,C&D shall be owned and maintained by Homeowner's Association per the covenants and restrictions.
- Deer Creek Subdivision shall be limited to single family.
- Subdivision monument entry sign may be placed southeast corner of the Prairie View Drive & 222nd Street intersection, provide such sign meets all required setbacks and is not located with the vehicle sight-visibility triangles at the intersection.
- SETBACK: Front yard building setback may be reduced to 20 feet for homes with side or rear loaded garages. Side yard building setback may be reduced to 7 feet. Rear yard building setback may be reduced to 20 feet.

SITE SUMMARY

TOT. AREA	758,320 SF	17.41 AC
TOT. LOT AREA	527,388 SF	12.12 AC
TOT. TRACT AREA	64,003 SF	1.47 AC
TOT. ROW AREA	166,929 SF	3.83 AC
TOT. # LOTS	45	
MIN. LOT AREA	8,750 SF	0.20 AC
MAX. LOT AREA	22,335 SF	0.51 AC
AVG. LOT AREA	11,720 SF	0.27 AC



LOCATION MAP



SECTION 4-11-21,
LEAVENWORTH COUNTY, KANSAS,
(NOT TO SCALE)

LANDPLAN ENGINEERING P.A.
Lawrence, KS • Kansas City, MO • The Woodlands, TX
1310 Wakarusa Drive, Suite 100
Lawrence, Kansas 66049
785.843.7530 (p) | 785.843.2410 (f)
info@landplan-pa.com | www.landplan-pa.com

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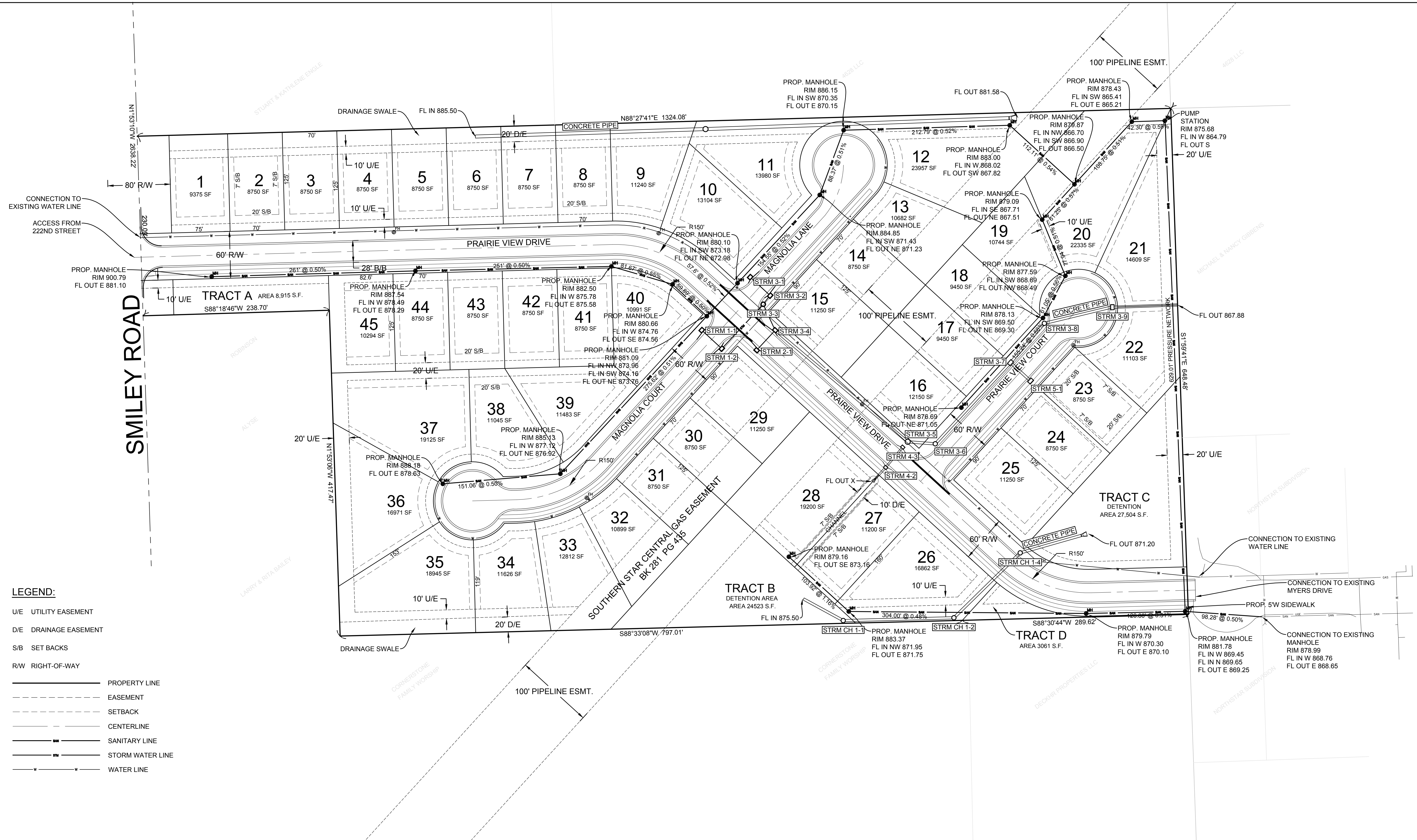
DEER CREEK ADDITION NO. 1
PRELIMINARY PLAT
CITY OF TONGANOXIE
LEAVENWORTH COUNTY
KANSAS

REV	DATE	DESCRIPTION
1	12/16/22	PER COMMENTS

DATE: 3.8.2022
PROJECT NO.: 2021.3026
DESIGNED BY: CLR
DRAWN BY: CLR
CHECKED BY: CLM

ISSUE SHEET NO.
1

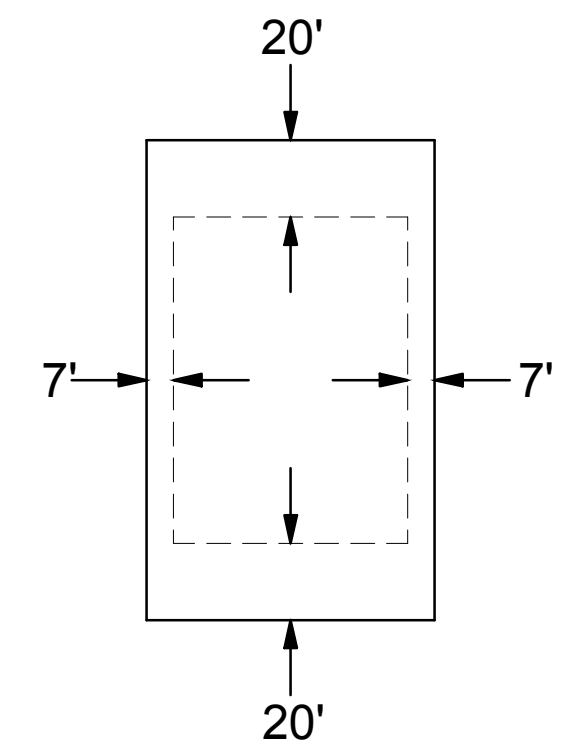
OF 1 SHEETS



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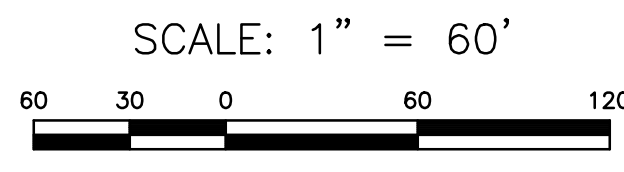
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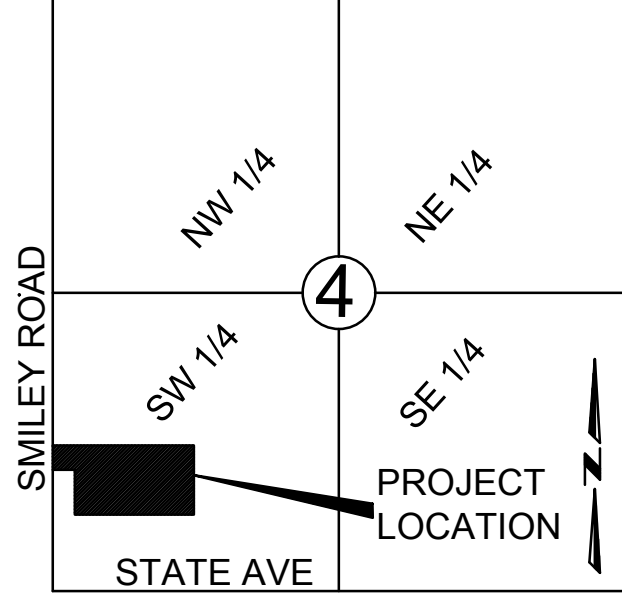
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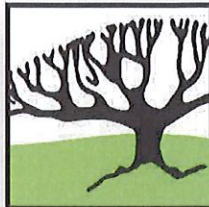
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DEER CREEK ADDITION NO. 1
PRELIMINARY PLAT
CITY OF TONGANOXIE
LEAVENWORTH COUNTY
KANSAS

REV	DATE	DESCRIPTION
1	12/16/22	PER COMMENTS

DATE: 3.23.2022
PROJECT NO.: 2021.3026
DESIGNED BY: CLR
DRAWN BY: CLR
CHECKED BY: CLM

ISSUE SHEET NO.
1
OF 1 SHEETS



**LANDPLAN
ENGINEERING^{PA}**

Preliminary Drainage Study For

Deer Creek Addition (Phase 1)

Development Strategies, LLC

**Smiley Road, Tonganoxie,
Leavenworth County, KS**

Prepared By:

**Landplan Engineering, PA
1310 Wakarusa Drive Suite 100
Lawrence, KS 66049
(785) 843-7530**

**Landplan Project #: 20213026
March, 2022**



**Babak MardanDoost, PE
Kansas License: 27549**

Adi Smadi, IE

TABLE OF CONTENTS

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1. GENERAL

Deer Creek Addition is a 72.29-acre property located on the east side of the Smiley Road, north of Cornerstone Family Worship, and to the northwest of the North Star Subdivision in Tonganoxie, Leavenworth County, Kansas. This property is adjoined by undeveloped land to the north and east with residential acreage to the west. The existing 72.29-acre property is mostly undeveloped land with adjacent land use to the west that includes townhouses as single-family residences. The adjacent areas to the west and south of the property have an approximate area of 85.67 acres. This area discharges to the Deer Creek site as an off-site basin via the roadside ditches of Smiley Road and two existing culverts. After passing through the property, all portions of the drainage areas discharge to the east, which ultimately discharges to Tonganoxie Creek.

A small portion of Deer Creek (1.5 ac.) located to the east of the property is identified as a special flood hazard area (Zone AE) subject to inundation by the 1% annual flood chance (refer to Appendix E, Panel 201030C0302G: Eff, 7/16/2015).

The proposed plan for the total area of Deer Creek is to deliver the improvements in several phases. However, the main focus of this report is to study the first phase (Phase 1) of this multi-phase development along with adjacent off-site areas under existing and developed condition in order to determine the impact of the proposed development. Specifically, Phase 1 development is approximately 17.21 acres consisting of a 45-lot single-family residential subdivision, along with roads, utilities, lawns, a detention pond, and the associated landscaping.

2. EXISTING CONDITIONS

In general, stormwater runoff in the property flows naturally from west to east. The topography of the property, along with Smiley Road, divide the total area of Deer Creek to four main basins, named EAST 1 Basin (56.91 acres), EAST 2 Basin (7.97 acres), EAST 3 Basin (81.56 acres), and EAST 4 Basin (11.59 acres). While EAST 1 Basin is located at the south of the property, EAST 3 Basin and EAST 4 Basin are located at the north portion of the property. All of the basins (Except EAST 2 Basin) receive off-site run off from the adjacent land located to the west of Smiley Road.

EAST 1 Basin (with an on-site area of 17.99 acres) receives off-site run-off from two sub-basins including Off-site 1 (10.15 acres) and Off-site 2 (28.77 acres). Off-site 1 sub-basin drains to the portion of Deer Creek which will be impacted by Phase 1 development along its southern boundary. Off-site 2 sub-basin drains along Smiley Road to the north, and then discharges east to the same portion of the site via an existing Corrugated Metal Pipe (CMP) pipe. The run-off

then discharges to an existing agricultural pond located on the adjacent property to the east of the Phase 1 development which ultimately discharges to Tonganoxie Creek.

EAST 2 Basin is located in the middle of the property and north of the proposed Phase 1 development. East 2 Basin discharges to FEMA ZONE AE at the east corner of the property.

EAST 3 and EAST 4 Basins are located on the northern portion of the property and drain to the east. The EAST 3 Basin (81.56 acres) receives off-site run-off from the west to sub-basin Off-site 3 (42.47 acres). It receives on-site run-off to sub-basin On-site 3 (39.09 acres). EAST 3 Basin directly discharges to the FEMA Zone AE Floodplain of Tonganoxie Creek. The EAST 4 Basin (11.59 acres) receive off-site run-off from the west to sub-basin Off-site 4 (4.28 acres). It receives on-site run-off to sub-basin On-site 4 (7.31 acres).

Site soils include Martin Silty Clay Loam (7303), Muscotah Silty Clay (7061), and Kennebec Silt Loam (7050), which are classified as a hydrological group C soils. Refer to Appendix D for soil maps from the United States Department of Agriculture (USDA) Web Soil Survey website. Based on the soil classification, Curve Numbers (CNs) for hydrological group C soil were used for this drainage study. Currently, the site is mostly pervious with nearly 55.1 acres of pasture land in good condition in the northern portion of the property. The remaining cover is pervious with nearly 17.2 acres of woods. A weighted CN for each of the sub-basins identified above has been aggregated in accordance with the identified soils and land covers. Refer to Figure 1 for the drainage area map and CNs of the existing condition. Appendix A summarizes run-off calculations for the existing condition.

3. PROPOSED IMPROVEMENTS

The proposed plan for Phase 1 of the development is to construct a 45-lot single-family residential site with lots approximately 0.2-acres in size. All associated roads and utilities will be considered in the construction of Phase 1 developments. Refer to Tables 1 & 2 and Figure 2.

The proposed Phase 1 improvements divides the site into four main drainage basins EAST 1 Basin, EAST 2 Basin, EAST 3 Basin and EAST 4 Basin. Because, the Phase 1 development is not going to affect EAST 3 Basin and EAST 4 Basin, their discharge to Tonganoxie Creek will not change.

EAST 1 Basin is divided to three main sub-basins including EAST 1-1 Basin, EAST 1-2 Basin, and EAST 1-3 Basin. EAST 1-1 Basin is an offsite basin and receives run-off from Off-site 1-1 area along the site's southern boundary. The main proposed drainage system of this basin is a V channel with a maximum slope of 0.6% along the southern boundary which discharges to a

proposed 36" High Density Polyethylene (HDPE) storm pipe. The 36" storm pipe discharges to the main outlet of the EAST 1 Basin after crossing the proposed road.

EAST 1-2 Basin is another main basin with an on-site area of 15 acres. For Phase 1 development, this basin drains to the site outlet via another 36" HDPE storm pipe with a minimum slope of 0.20%. In addition, the East 1-3 Basin is located on the east side of the property which directly discharges to the east along the eastern boundary of the Phase 1 development.

EAST 2 Basin discharges to another proposed V channel along with a proposed 48" HDPE storm pipe along a portion of the northern boundary of the Phase 1 development. Then, after draining to the northeast, it discharges to the proposed detention pond which runs to Tonganoxie Creek. EAST 2 basin is a 36.25-acre basin with on-site area of 9.04 acres, and off-site area of 27.21 acres. In some locations, the V channel is on top of the proposed 48" HDPE storm pipe which makes it a composite system with enough capacity to discharge runoff from the site to the detention pond.

The proposed detention pond is a dry detention pond located on the east side of the property and northeast of the Phase 1 development. The pond has two sets of outlets including a 20' wide weir structure along with a 48" HDPE storm pipe which discharges into the FEMA floodplain.

The proposed storm water management system maintains the general grading and keeps the run-off flowing in the same direction as the predeveloped condition. The run-off of EAST 1 Basin and EAST 2 Basin will be conveyed by the construction of V channels, HDPE pipes of various sizes, and inlets. Due to the increase of impervious area in the developed conditions, the additional flow and volume will be accommodated within the proposed dry detention pond to detain the increased runoff from the site development.

With the increase in the impervious area of the proposed conditions as well as the change in land use to residential and the proposed detention pond, no runoff increase is expected as shown in Table 3, Figure 2, Appendix B, and Appendix C.

4. ANALYSIS

Times of concentration were calculated based on the Lawrence Stormwater Management Criteria (Feb 1996) using overland flow, shallow concentrated flow, and channel/system flow. The CN for each drainage area is based on a weighted average of pervious and impervious areas for hydrologic group C soils. All storm routing calculations were performed using Autodesk Hydraflow hydrograph extension software. Peak flows for 10, and 100-year storm events were modeled using a synthetic 12-hr hydrograph storm based on 2014 rainfall

intensities for Leavenworth County supplied by the Kansas Department of Transportation (refer to Table 3).

5. CONCLUSION

This report indicates that the proposed detention pond will provide adequate volume for the increased run-off resulting from the proposed development, and will be able to limit the stormwater discharge from the site to the rates experienced prior to site development. With the restriction of a portion of the run-off within the detention basin along with the proposed storm water management system, the proposed runoff will have no adverse impact on the downstream properties.

TABLE 1 - CURVE NUMBER CALCULATIONS									
	SCS CURVE NUMBER							COMP.	
	72	74	77	79	82	83	98	AREA	CN
Existing Condition									
EAST 1 Basin	20.99 ac	11.20 ac	8.19 ac	10.28 ac	2.54 ac	1.40 ac	2.31 ac	56.91 ac	76.1
On-site 1	17.99 ac							17.99 ac	72.0
Off-site 1	0.79 ac	5.24 ac	3.30 ac	0.02 ac			0.80 ac	10.15 ac	76.7
Off-site 2	2.21 ac	5.96 ac	4.89 ac	10.26 ac	2.54 ac	1.40 ac	1.51 ac	28.77 ac	78.5
EAST 2 Basin	2.77 ac	5.13 ac					0.07 ac	7.97 ac	73.5
On-site 2	2.77 ac	5.13 ac					0.07 ac	7.97 ac	73.5
EAST 3 Basin		49.11 ac	14.48 ac	11.51 ac	3.54 ac	2.89 ac	0.03 ac	81.56 ac	75.9
On-site 3		39.09 ac						39.09 ac	74.0
Off-site 3		10.02 ac	14.48 ac	11.51 ac	3.54 ac	2.89 ac	0.03 ac	42.47 ac	77.7
EAST4 Basin		11.59 ac						11.59 ac	74.0
On-site 4		7.31 ac						7.31 ac	74.0
Off-site 4		4.28 ac						4.28 ac	74.0
Grand Total									
On-Site	20.76 ac	51.53 ac						72.29 ac	-
Off-site	3.00 ac	25.50 ac	22.67 ac	21.79 ac	6.08 ac	4.29 ac	2.34 ac	85.67 ac	-
Proposed Condition									
EAST 1 Basin	0.79 ac	5.24 ac	4.86 ac	0.02 ac		16.85 ac	0.80 ac	28.56 ac	80.4
EAST 1-1 Basin	0.79 ac	5.24 ac	2.59 ac	0.02 ac		0.00 ac	0.80 ac	9.44 ac	76.7
Off-site 1-1	0.79 ac	5.24 ac	2.59 ac	0.02 ac			0.80 ac	9.44 ac	76.7
EAST 1-2 Basin			2.27 ac			15.00 ac		17.27 ac	82.2
On-site 1-2						15.00 ac		15.00 ac	83.0
Off-site 1-2			2.27 ac					2.27 ac	77.0
EAST 1-3 Basin						1.85 ac		1.85 ac	83.0
On-site 1-3						1.85 ac		1.85 ac	83.0
EAST 2 Basin	4.98 ac	11.80 ac	3.47 ac	10.28 ac	2.38 ac	1.76 ac	1.58 ac	36.25 ac	77.4
On-site 2-1						0.36 ac		0.36 ac	83.0
On-Site 2-2	2.77 ac	5.84 ac					0.07 ac	8.68 ac	73.6
Offsite 2	2.21 ac	5.96 ac	3.47 ac	10.28 ac	2.38 ac	1.40 ac	1.51 ac	27.21 ac	78.6
EAST 3 Basin		49.11 ac	14.48 ac	11.51 ac	3.54 ac	2.89 ac	0.03 ac	81.56 ac	75.9
On-site 3		39.09 ac						39.09 ac	74.0
Offsite 3		10.02 ac	14.48 ac	11.51 ac	3.54 ac	2.89 ac	0.03 ac	42.47 ac	77.7
EAST 4 Basin		11.59 ac						11.59 ac	74.0
On-site 4		7.31 ac						7.31 ac	74.0
Offsite 4		4.28 ac						4.28 ac	74.0
Grand Total									
On-Site	2.77 ac	52.24 ac				17.21 ac	0.1 ac	72.29 ac	-
Off-site	3.00 ac	25.50 ac	22.81 ac	21.81 ac	5.92 ac	4.29 ac	2.34 ac	85.67 ac	-

TABLE 2 - TIMES OF CONCENTRATION SUMMARY

	AREA	CN	OVERLAND FLOW				SHALLOW CONCENTRATED FLOW			CHANNEL/SYSTEM FLOW				TIME OF CONC.	
			C	D	S	T(OLF)	D	S	T(SCF)	D	S	V	T(C/S)		
EXISTING CONDITIONS															
EAST 1 BASIN	56.91 ac	76.1	0.36	100 ft	11.7%	5.9 min	Unpaved	371 ft	19.7%	0.6 min	2626 ft	2.3%	4 fps	12.5 min	19.0 min
EAST 2 BASIN	7.97 ac	73.5	0.36	100 ft	2.4%	9.9 min	Unpaved	66 ft	2.4%	0.4 min	957 ft	3.5%	4 fps	4.0 min	14.4 min
EAST 3 BASIN	81.56 ac	75.9	0.51	129 ft	3.6%	7.9 min	Paved	148 ft	4.1%	0.5 min	4061 ft	2.5%	4 fps	16.9 min	25.3 min
EAST 4 BASIN	11.59 ac	74.0	0.36	107 ft	5.2%	8.0 min	Unpaved	357 ft	4.5%	2.0 min	928 ft	0.7%	2 fps	7.7 min	17.7 min
PROPOSED CONDITIONS															
EAST 1-1 Basin	9.44 ac	76.7	0.36	100 ft	13.3%	5.6 min	Unpaved	300 ft	7.3%	1.2 min	1400 ft	2.0%	4 fps	5.8 min	12.6 min
EAST 1-2 Basin	17.27 ac	82.2	0.36	180 ft	4.2%	11.1 min	Unpaved	400 ft	3.0%	2.4 min	980 ft	1.0%	4 fps	5.0 min	18.5 min
EAST 1-3 Basin	1.85 ac	83.0	0.36	100 ft	2.0%	10.6 min	-	-	-	-	-	-	-	-	10.6 min
EAST 2 BASIN	36.25 ac	77.4	0.36	100 ft	11.7%	5.9 min	Unpaved	371 ft	18.8%	0.6 min	2500 ft	2.3%	4 fps	10.4 min	16.9 min
EAST 3 BASIN	81.56 ac	75.9	0.51	129 ft	3.6%	7.9 min	Paved	148 ft	4.1%	0.5 min	4061 ft	2.5%	4 fps	16.9 min	25.3 min
EAST 4 BASIN	11.59 ac	74.0	0.36	107 ft	5.2%	8.0 min	Unpaved	357 ft	4.4%	2.0 min	928 ft	0.7%	2 fps	7.7 min	17.7 min

TABLE 3 - SUMMARY OF HYDROLOGIC MODELING AND DISCHRG

	AREA	CN	TC	Hydrograph	10-YR	100-YR
EXISTING CONDITIONS (_Pre)						
EAST 1 BASIN	56.91 ac	76.1	19.0	1	175.1 cfs	331.4 cfs
EAST 2 BASIN	7.97 ac	73.5	14.4	2	24.6 cfs	48.1 cfs
EAST 3 BASIN	81.56 ac	75.9	25.3	3	212.6 cfs	405.3 cfs
EAST 4 BASIN	11.59 ac	74.0	17.7	4	33.5 cfs	65.2 cfs
Combined	157.96 ac			5	434.8 cfs	828.7 cfs
PROPOSED CONDITIONS (_Pro)						
East 1 BASIN						
EAST 1-1 BASIN	9.44 ac	76.7	12.6	6	36.7 cfs	68.5 cfs
EAST 1-2 BASIN	17.27 ac	82.2	18.5	7	62.3 cfs	109.3 cfs
EAST 1-3 BASIN	1.85 ac	83.0	10.6	8	8.4 cfs	14.6 cfs
Combined (EAST 1 BASIN)	28.56 ac			9	104.3 cfs	186.9 cfs
EAST 2 BASIN	36.25 ac	77.4	16.9	10	115.7 cfs	215.3 cfs
Detention Pond				11	89.9 cfs	187.5 cfs
EAST 3 BASIN	81.56 ac	75.9	25.3	12	212.6 cfs	405.3 cfs
EAST 4 BASIN	11.59 ac	74.0	17.7	13	33.5 cfs	65.2 cfs
Combined	157.96 ac			14	414.6 cfs	803.4 cfs

EAST 4 BASIN
TOTAL AREA = 11.59 AC.
TC = 17.7 MIN.
CN = 74.0
DISCHARGES TO EAST

Q10- YEAR= 33.5 CFS
Q100-YEAR= 65.2

OFF-SITE 4 (EAST 4 BASIN)
AREA = 4.28 AC.
CN= 74.0

OFF-SITE 3 (EAST 3 BASIN)
AREA = 42.47 AC.
CN= 77.7

FEMA FLOODPLAIN BOUNDARY
ZONE A
(FIRM 20103C0225G, effective.7/16/ 2015)

EAST 3 BASIN
TOTAL AREA = 81.56 AC.
TC = 25.3 MIN.
CN = 75.9
DISCHARGES TO EAST

Q10-YEAR= 212.6 CFS
Q100-YEAR= 405.3 CFS

Tonganoxie Creek

FEMA FLOODPLAIN BOUNDARY
ZONE AE
(FIRM 20103C0302G, effective.7/16/ 2015)

OFFSITE 1-2 (EAST 1 BASIN)
AREA = 28.61 AC.
CN= 78.5

EAST 2 BASIN
TOTAL AREA = 7.97 AC.
TC = 14.4 MIN.
CN = 73.5
DISCHARGES TO EAST

Q10-YEAR= 24.6 CFS
Q 100-YEAR= 48.1 CFS

EAST 1 BASIN
TOTAL AREA = 56.91 AC.
TC = 19.0 MIN.
CN = 76.1
DISCHARGES TO EAST

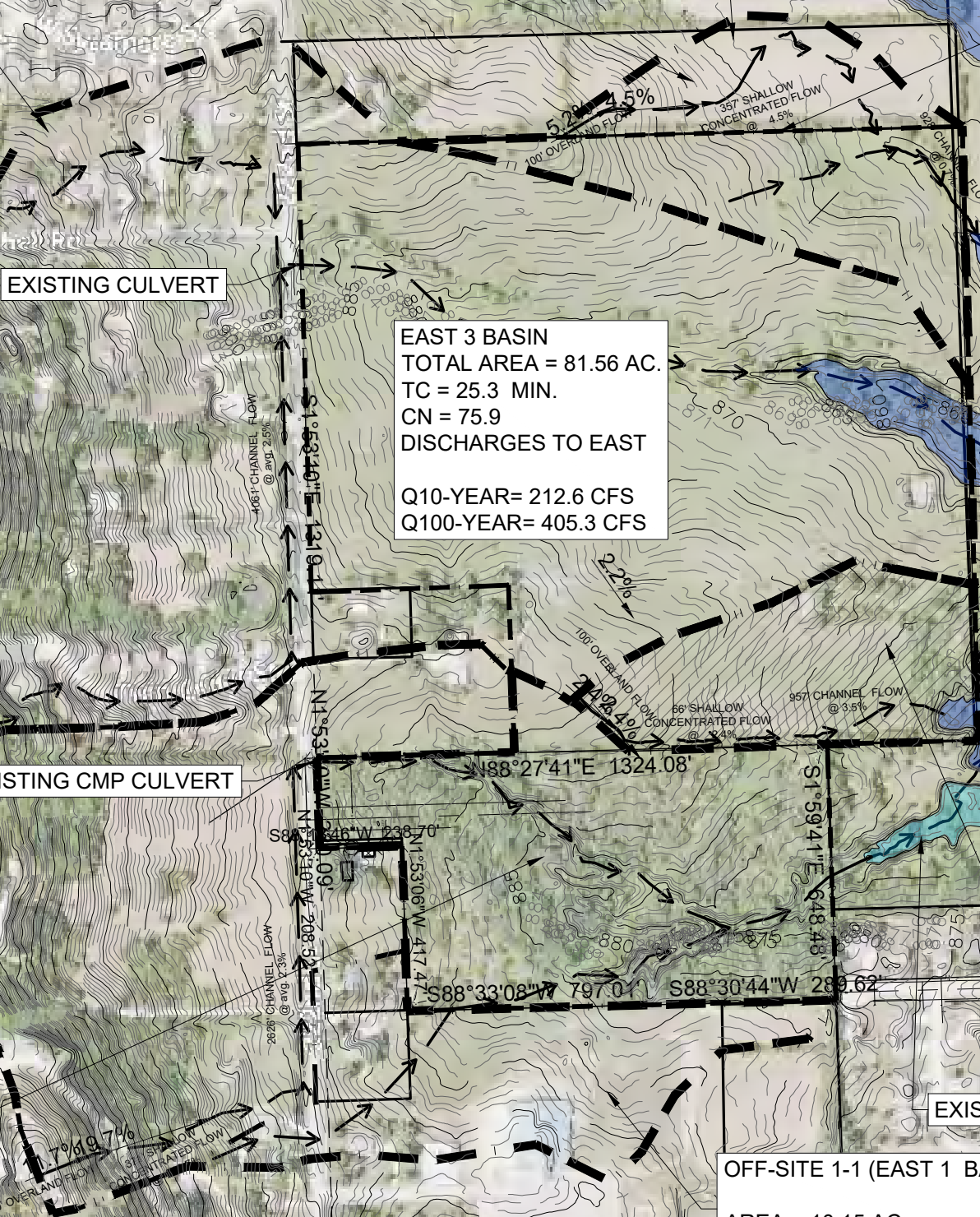
Q10-YEAR=175.1 CFS
Q100-YEAR=331.4 CFS

OFF-SITE 1-1 (EAST 1 BASIN)
AREA = 10.15 AC.
CN= 76.7

EXISTING CULVERT

EXISTING CMP CULVERT

EXISTING AGRICULTURE POND

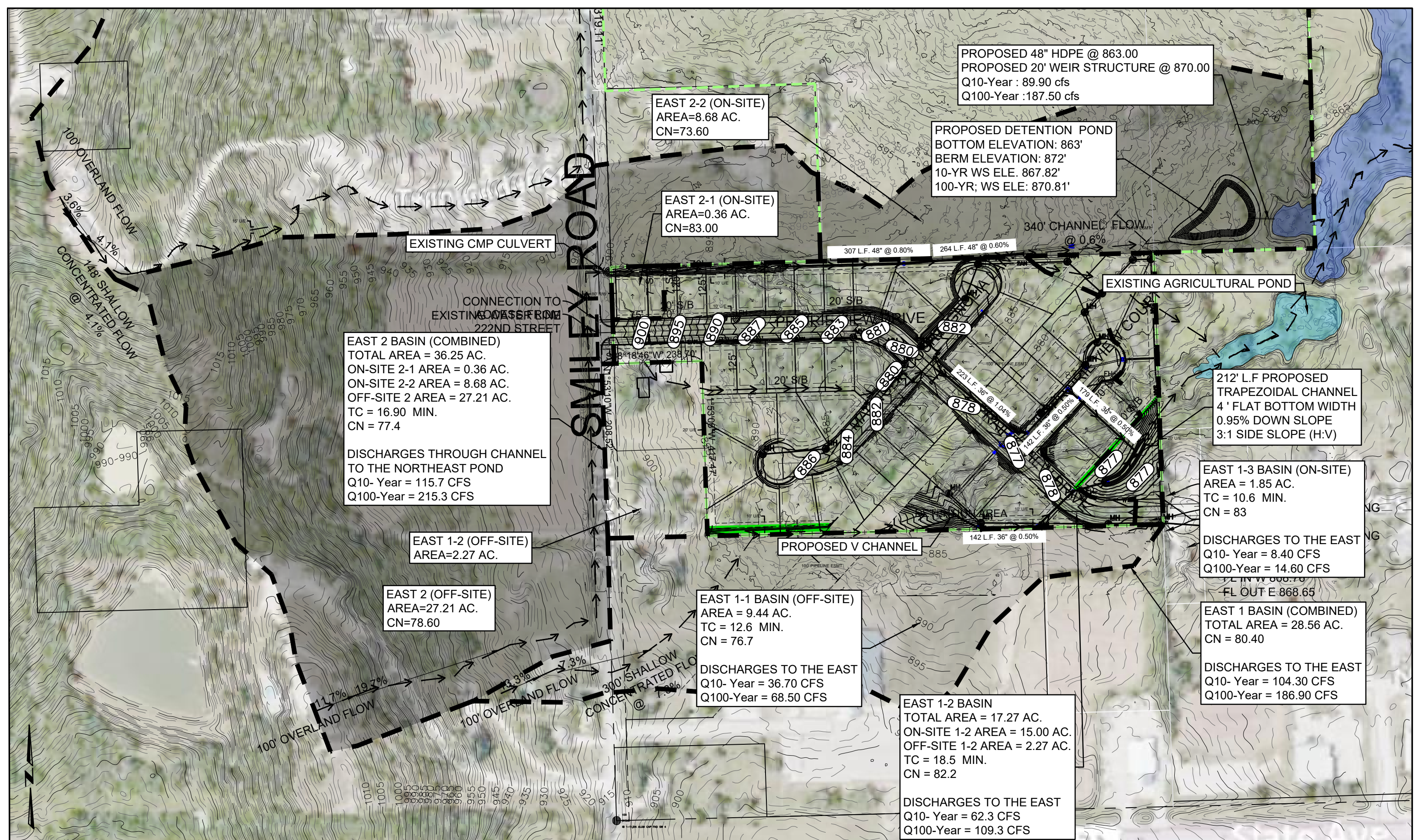


SCALE: 1" = 400'



DEER CREEK ADDITION
DRAINAGE AREA MAP, EXISTING CONDITION
FIGURE 1- NOVEMBER 23 , 2021





PROPOSED 48" HDPE @ 863.00
 PROPOSED 20' WEIR STRUCTURE @ 870.00
 Q10-Year : 89.90 cfs
 Q100-Year : 187.50 cfs

PROPOSED DETENTION POND
 BOTTOM ELEVATION: 863'
 BERM ELEVATION: 872'
 10-YR WS ELE. 867.82'
 100-YR; WS ELE: 870.81'

EAST 2-2 (ON-SITE)
 AREA=8.68 AC.
 CN=73.60

EAST 2-1 (ON-SITE)
 AREA=0.36 AC.
 CN=83.00

EXISTING CMP CULVERT

EXISTING AGRICULTURAL POND

EAST 2 BASIN (COMBINED)
 TOTAL AREA = 36.25 AC.
 ON-SITE 2-1 AREA = 0.36 AC.
 ON-SITE 2-2 AREA = 8.68 AC.
 OFF-SITE 2 AREA = 27.21 AC.
 TC = 16.90 MIN.
 CN = 77.4

DISCHARGES THROUGH CHANNEL
 TO THE NORTHEAST POND
 Q10- Year = 115.7 CFS
 Q100-Year = 215.3 CFS

212' L.F PROPOSED
 TRAPEZOIDAL CHANNEL
 4' FLAT BOTTOM WIDTH
 0.95% DOWN SLOPE
 3:1 SIDE SLOPE (H:V)

EAST 1-3 BASIN (ON-SITE)
 AREA = 1.85 AC.
 TC = 10.6 MIN.
 CN = 83

DISCHARGES TO THE EAST
 Q10- Year = 8.40 CFS
 Q100-Year = 14.60 CFS

EAST 1-2 (OFF-SITE)
 AREA=2.27 AC.

EAST 2 (OFF-SITE)
 AREA=27.21 AC.
 CN=78.60

PROPOSED V CHANNEL

EAST 1-1 BASIN (OFF-SITE)
 AREA = 9.44 AC.
 TC = 12.6 MIN.
 CN = 76.7

DISCHARGES TO THE EAST
 Q10- Year = 36.70 CFS
 Q100-Year = 68.50 CFS

EAST 1 BASIN (COMBINED)
 TOTAL AREA = 28.56 AC.
 CN = 80.40

DISCHARGES TO THE EAST
 Q10- Year = 104.30 CFS
 Q100-Year = 186.90 CFS

EAST 1-2 BASIN
 TOTAL AREA = 17.27 AC.
 ON-SITE 1-2 AREA = 15.00 AC.
 OFF-SITE 1-2 AREA = 2.27 AC.
 TC = 18.5 MIN.
 CN = 82.2

DISCHARGES TO THE EAST
 Q10- Year = 62.3 CFS
 Q100-Year = 109.3 CFS

SCALE: 1" = 200'



**DEER CREEK ADDITION
 DRAINAGE AREA MAP, PROPOSED CONDITION
 FIGURE 2- MARCH 4, 2022**



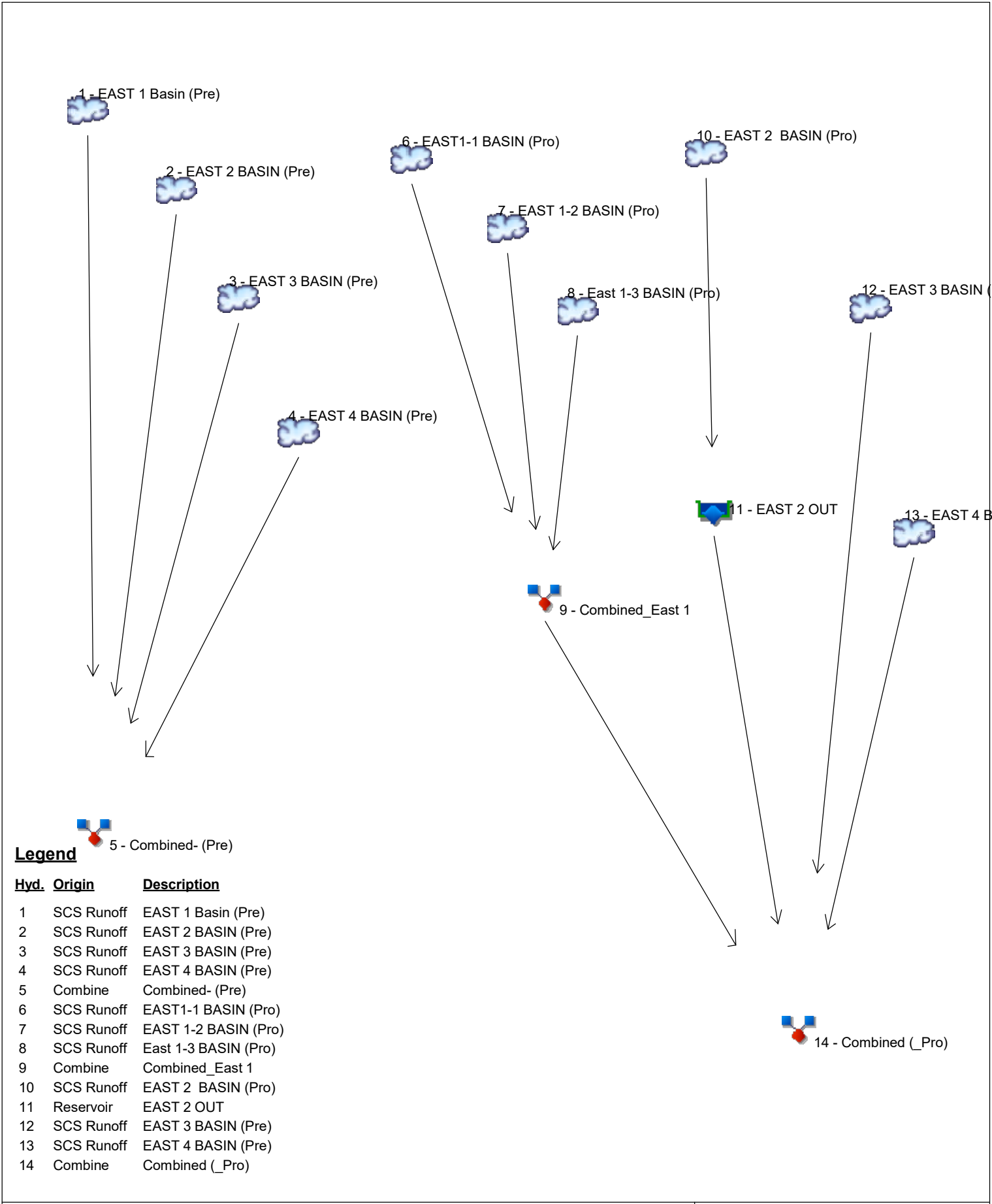
6. APPENDICES

Appendix A	Existing Condition for 10 and 100-year Storm Events
Appendix B	Proposed Condition for 10 and 100-year Storm Events
Appendix C	Detention Pond Analysis for 10 and 100-year Storm Events and Outlets
Appendix D	USDA Soils Map
Appendix E	FEMA Flood Plain


Appendix A: Existing Condition
10 & 100-year
Storm Events

Watershed Model Schematic


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Legend

 5 - Combined- (Pre)

Hyd. Origin	Description
1	SCS Runoff EAST 1 Basin (Pre)
2	SCS Runoff EAST 2 BASIN (Pre)
3	SCS Runoff EAST 3 BASIN (Pre)
4	SCS Runoff EAST 4 BASIN (Pre)
5	Combine Combined- (Pre)
6	SCS Runoff EAST1-1 BASIN (Pro)
7	SCS Runoff EAST 1-2 BASIN (Pro)
8	SCS Runoff East 1-3 BASIN (Pro)
9	Combine Combined_East 1
10	SCS Runoff EAST 2 BASIN (Pro)
11	Reservoir EAST 2 OUT
12	SCS Runoff EAST 3 BASIN (Pre)
13	SCS Runoff EAST 4 BASIN (Pre)
14	Combine Combined (_Pro)

 14 - Combined (_Pro)

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

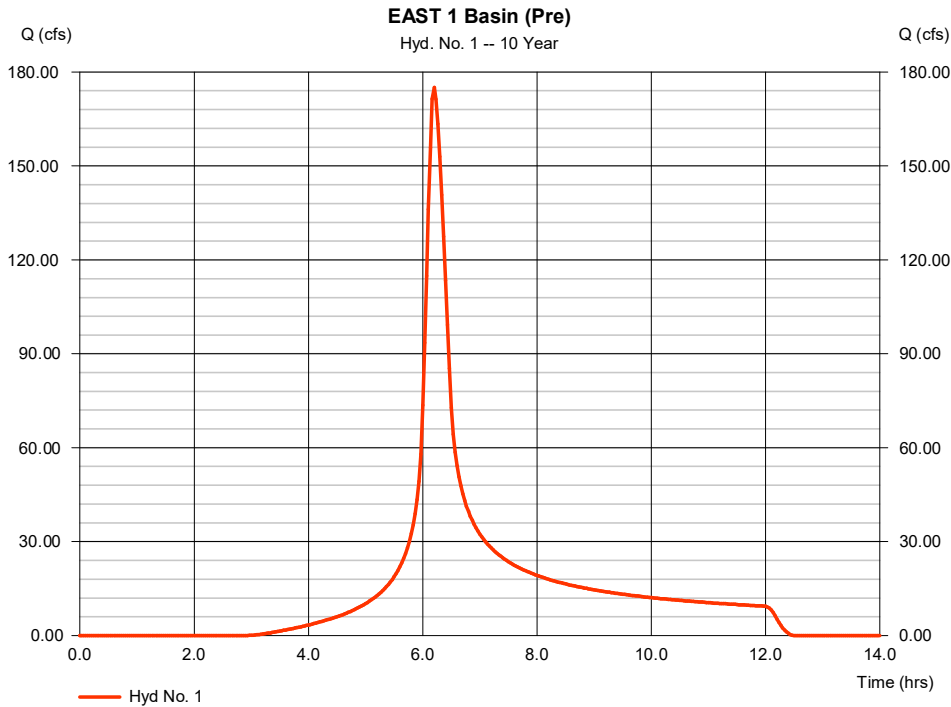
Friday, 03 / 4 / 2022

Hyd. No. 1

EAST 1 Basin (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 175.12 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 709,815 cuft
Drainage area	= 56.910 ac	Curve number	= 76.1*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 19.00 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 56.910



Hydrograph Report

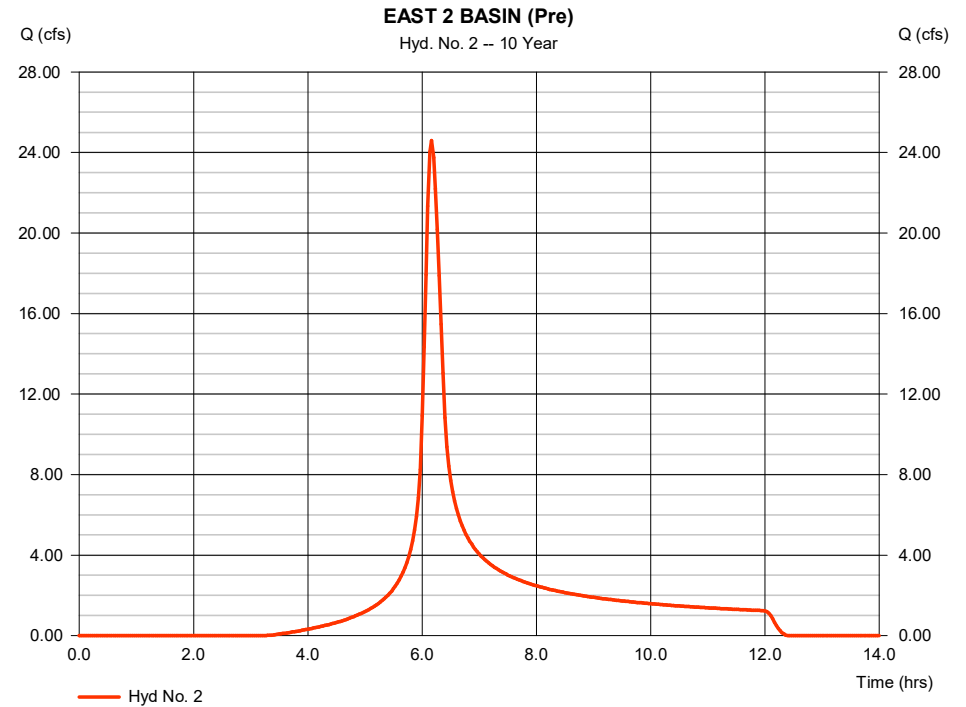
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 2

EAST 2 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 24.60 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.17 hrs
Time interval	= 2 min	Hyd. volume	= 89,732 cuft
Drainage area	= 7.970 ac	Curve number	= 73.5
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.40 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 3

EAST 3 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 212.57 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.27 hrs
Time interval	= 2 min	Hyd. volume	= 995,596 cuft
Drainage area	= 81.560 ac	Curve number	= 75.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 25.30 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

Hydrograph Report

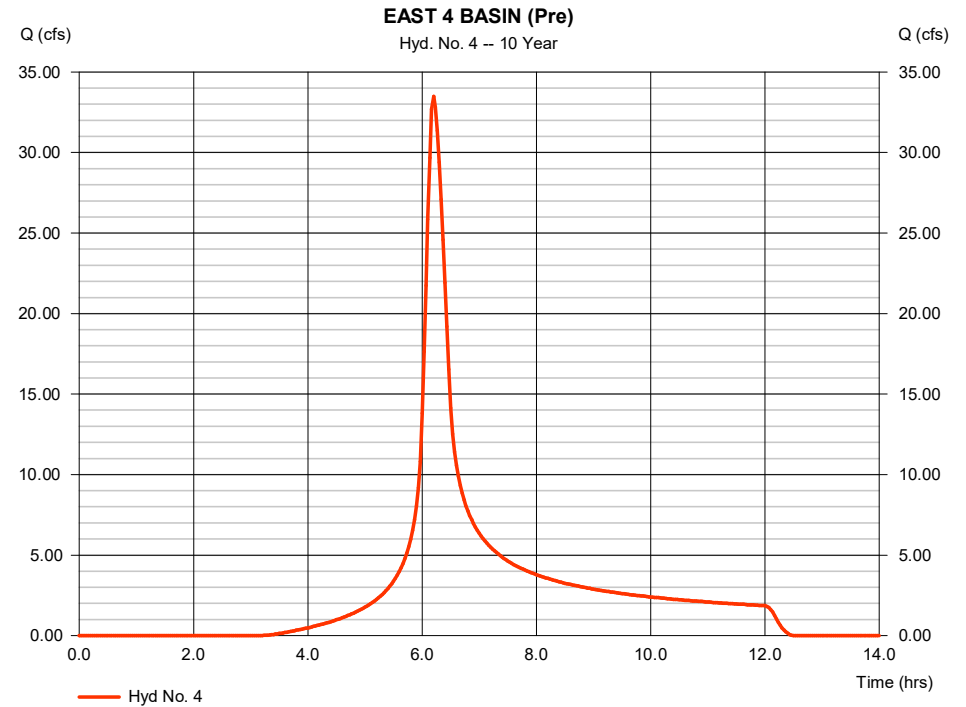
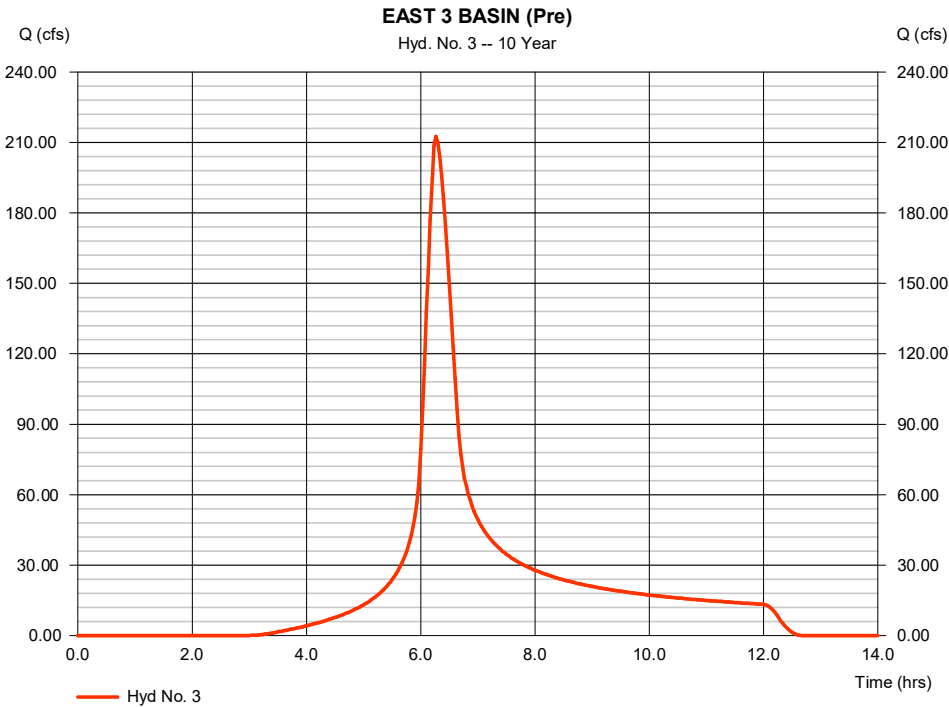
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Friday, 03 / 4 / 2022

Hyd. No. 4

EAST 4 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 33.48 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 135,878 cuft
Drainage area	= 11.590 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.70 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 5

Combined- (Pre)

Hydrograph type	= Combine	Peak discharge	= 434.84 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.23 hrs
Time interval	= 2 min	Hyd. volume	= 1,931,020 cuft
Inflow hyds.	= 1, 2, 3, 4	Contrib. drain. area	= 158.030 ac

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

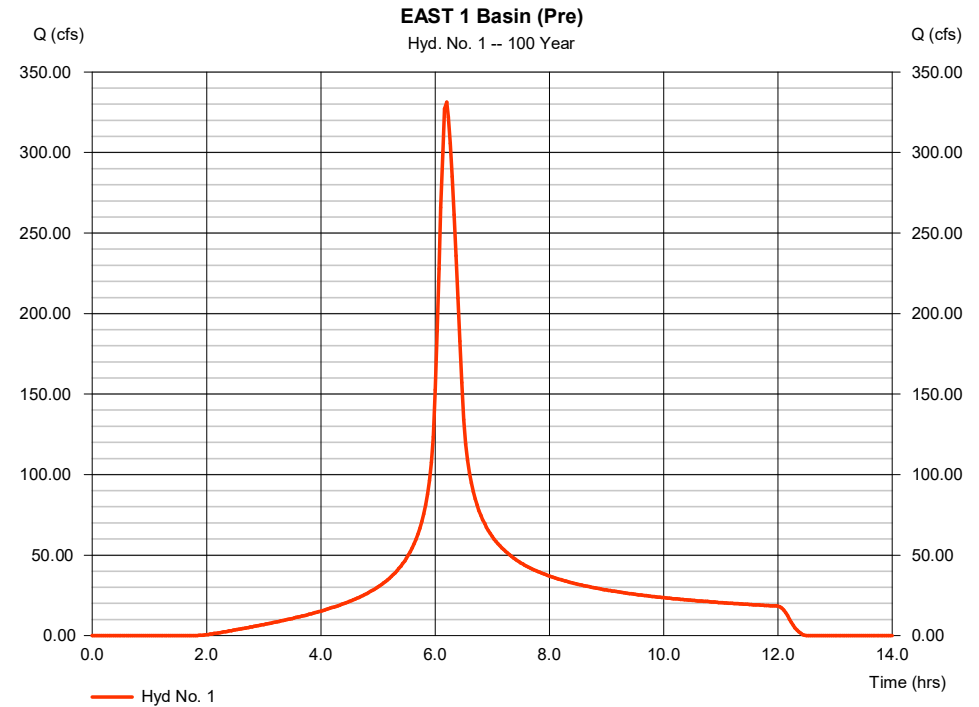
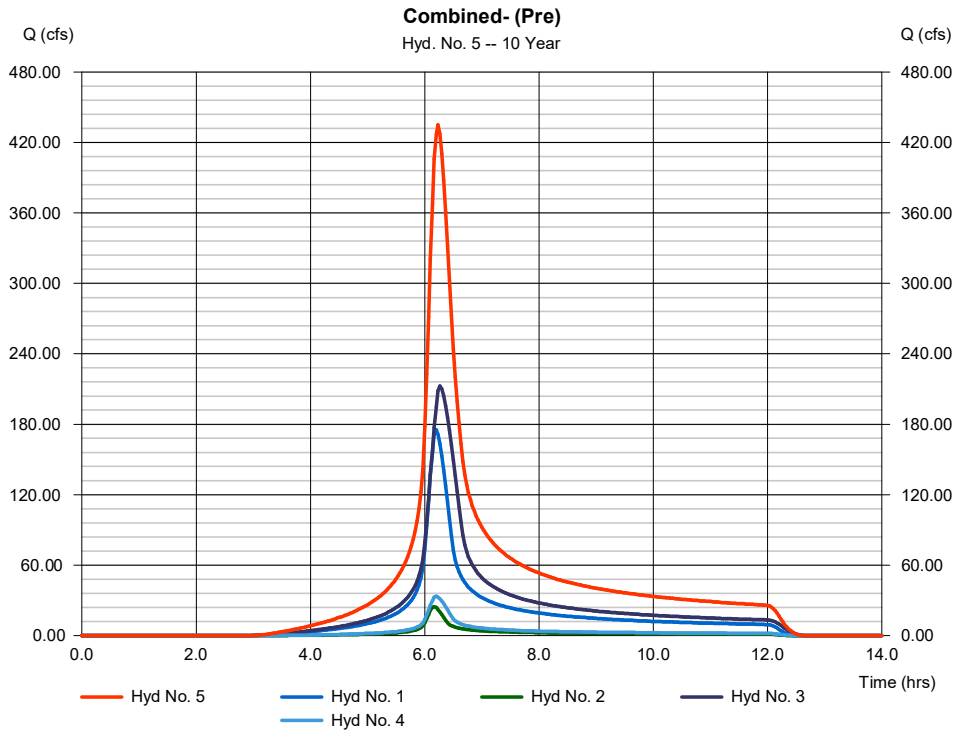
Friday, 03 / 4 / 2022

Hyd. No. 1

EAST 1 Basin (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 331.37 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 1,475,746 cuft
Drainage area	= 56.910 ac	Curve number	= 76.1*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 19.00 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 56.910



Hydrograph Report

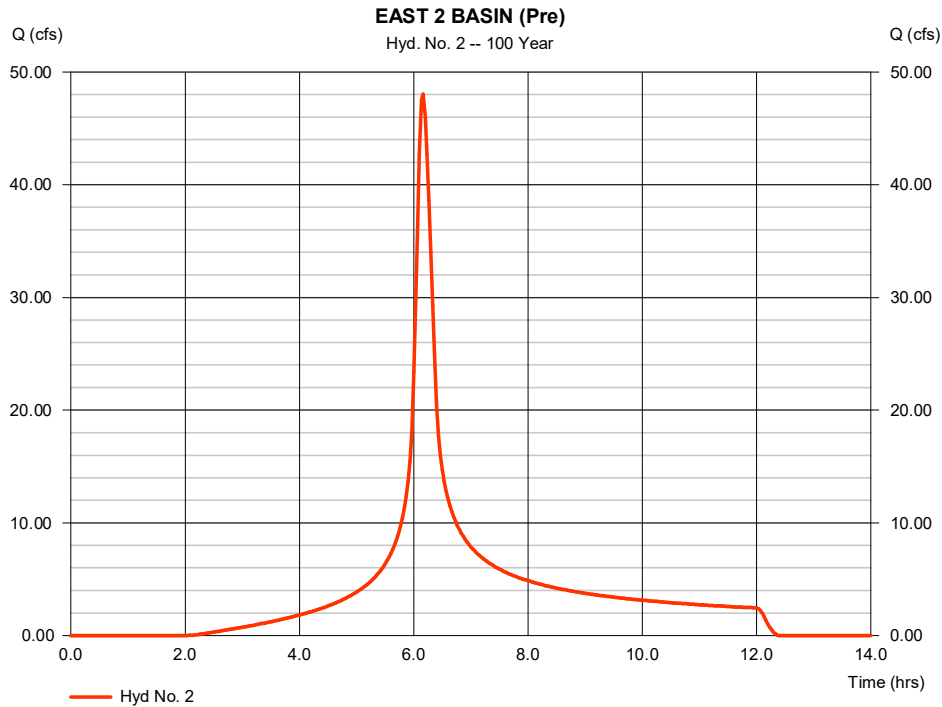
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Friday, 03 / 4 / 2022

Hyd. No. 2

EAST 2 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 48.05 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.17 hrs
Time interval	= 2 min	Hyd. volume	= 191,938 cuft
Drainage area	= 7.970 ac	Curve number	= 73.5
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 14.40 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

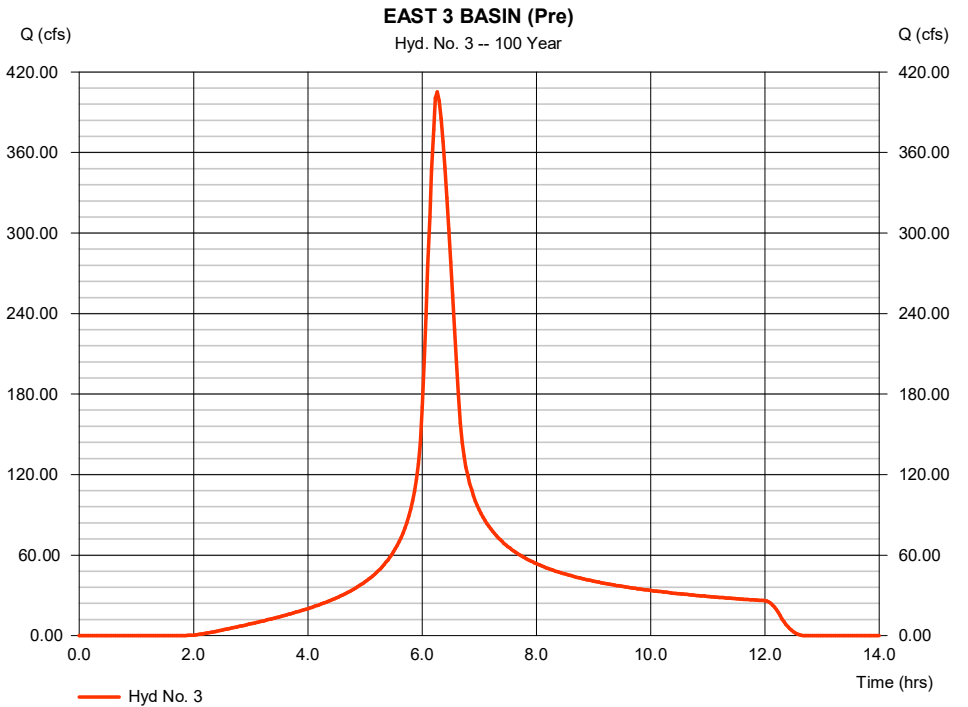
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 3

EAST 3 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 405.28 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.27 hrs
Time interval	= 2 min	Hyd. volume	= 2,074,328 cuft
Drainage area	= 81.560 ac	Curve number	= 75.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 25.30 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

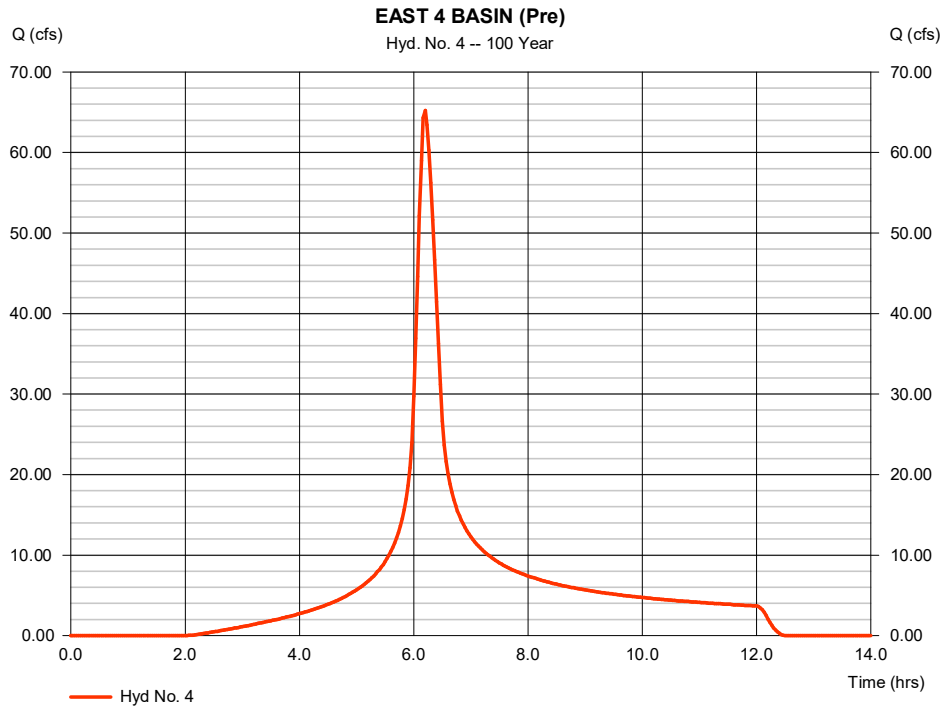
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Friday, 03 / 4 / 2022

Hyd. No. 4

EAST 4 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 65.21 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 289,025 cuft
Drainage area	= 11.590 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.70 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 5

Combined- (Pre)

Hydrograph type	= Combine	Peak discharge	= 828.70 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.23 hrs
Time interval	= 2 min	Hyd. volume	= 4,031,035 cuft
Inflow hyd.	= 1, 2, 3, 4	Contrib. drain. area	= 158.030 ac

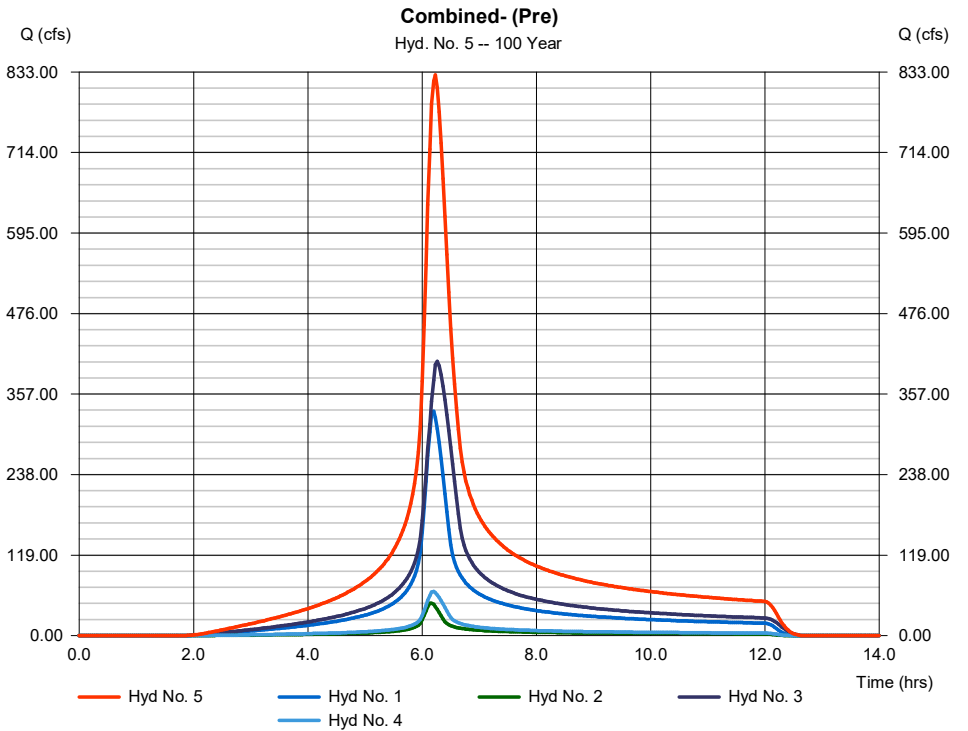


Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas					
(pervious areas only, no vegetation) ^{5/}		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

¹ Average runoff condition, and $I_a = 0.2S$.² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c Runoff curve numbers for other agricultural lands ^{1/}

Cover description	Hydrologic condition	Curve numbers for hydrologic soil group			
		A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. ^{2/}	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. ^{3/}	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 ^{4/}	48	65	73
Woods—grass combination (orchard or tree farm). ^{5/}	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. ^{6/}	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 ^{4/}	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

¹ Average runoff condition, and $I_a = 0.2S$.

² **Poor:** <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: > 75% ground cover and lightly or only occasionally grazed.

³ **Poor:** <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

⁴ Actual curve number is less than 30; use CN = 30 for runoff computations.

⁵ CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

⁶ **Poor:** Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

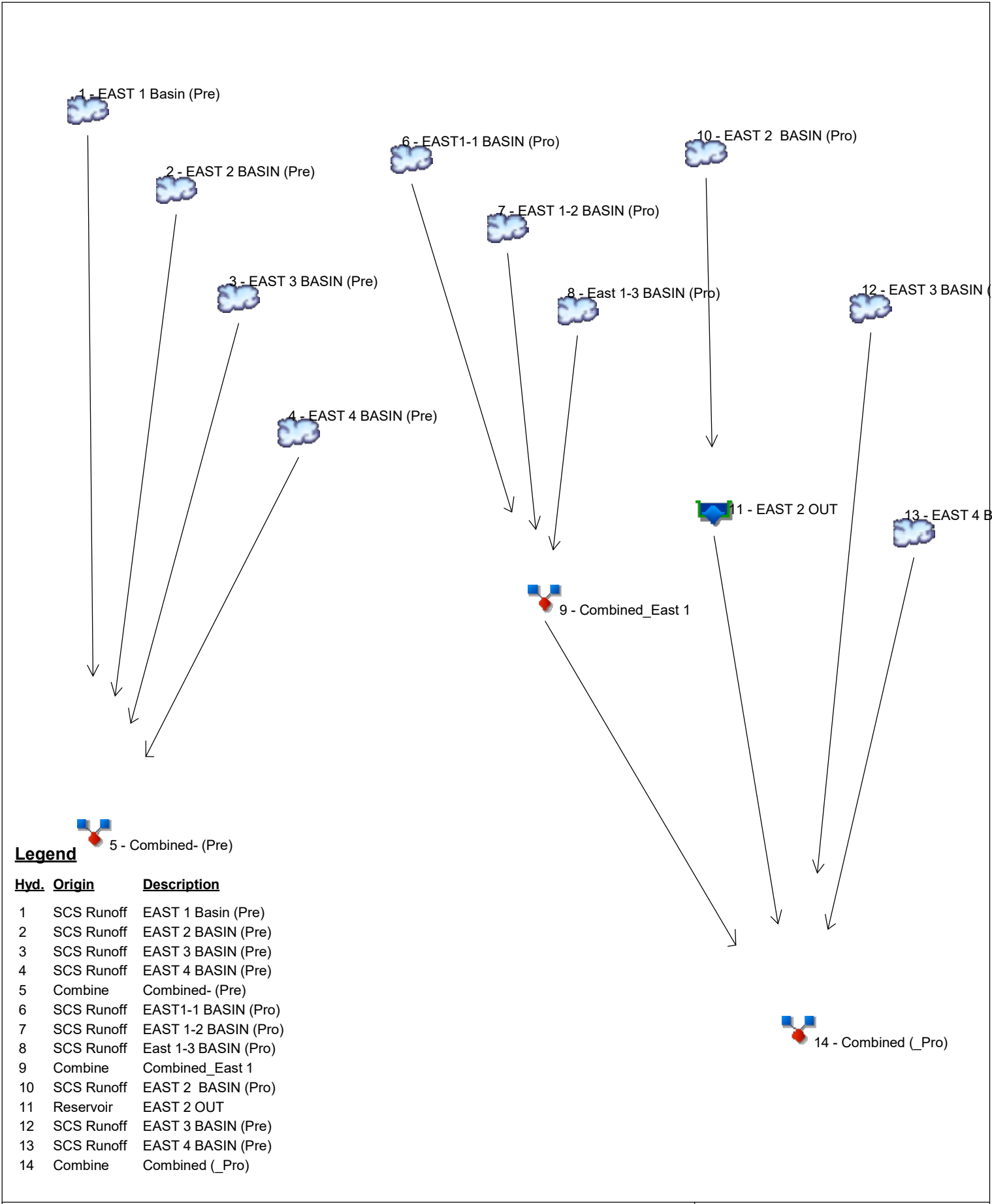
Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

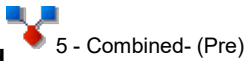
**Appendix B: Proposed Condition
10 & 100-year
Storm Events**

Watershed Model Schematic

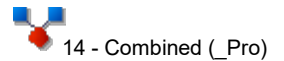
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021



Legend



Hyd. Origin	Description
1	SCS Runoff EAST 1 Basin (Pre)
2	SCS Runoff EAST 2 BASIN (Pre)
3	SCS Runoff EAST 3 BASIN (Pre)
4	SCS Runoff EAST 4 BASIN (Pre)
5	Combine Combined- (Pre)
6	SCS Runoff EAST1-1 BASIN (Pro)
7	SCS Runoff EAST 1-2 BASIN (Pro)
8	SCS Runoff East 1-3 BASIN (Pro)
9	Combine Combined_East 1
10	SCS Runoff EAST 2 BASIN (Pro)
11	Reservoir EAST 2 OUT
12	SCS Runoff EAST 3 BASIN (Pre)
13	SCS Runoff EAST 4 BASIN (Pre)
14	Combine Combined (_Pro)



Hydrograph Report

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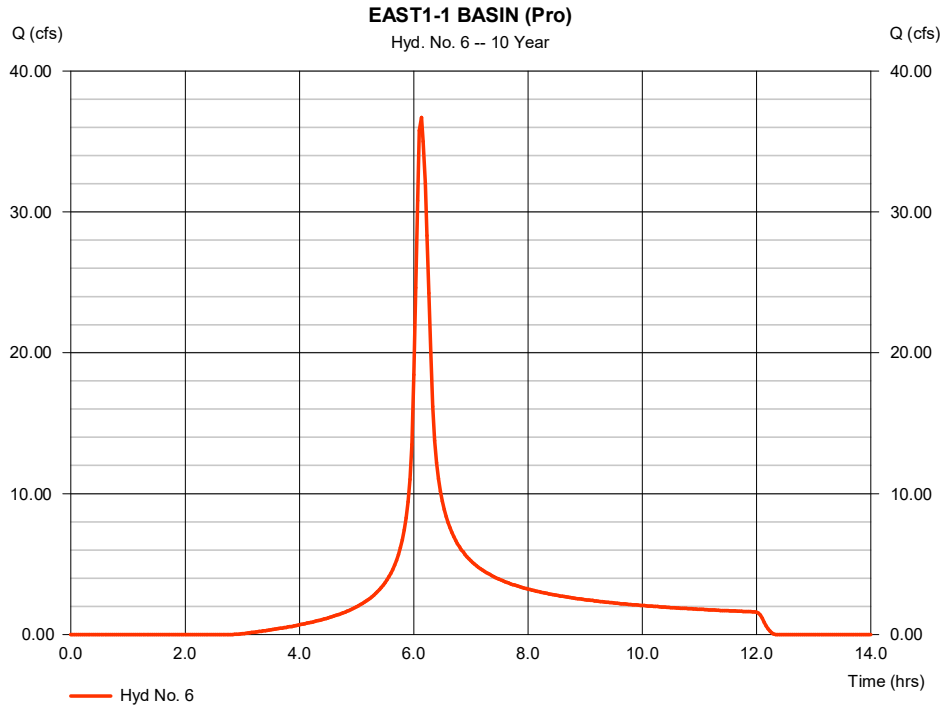
Friday, 03 / 4 / 2022

Hyd. No. 6

EAST1-1 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 36.70 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.13 hrs
Time interval	= 2 min	Hyd. volume	= 123,529 cuft
Drainage area	= 9.440 ac	Curve number	= 76.7*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.60 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 9.440



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

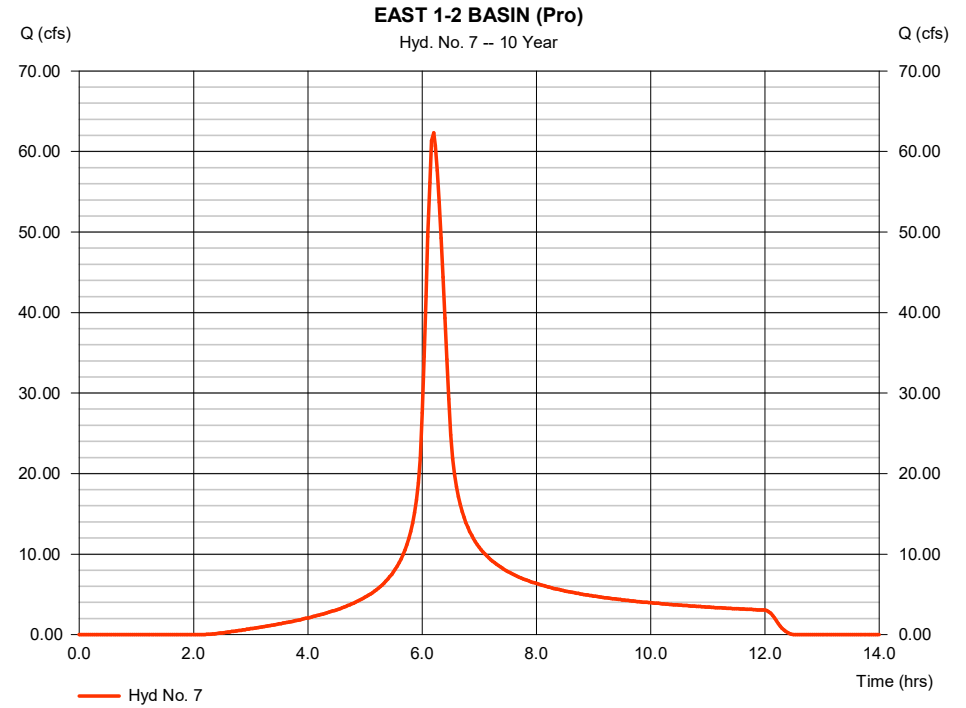
Friday, 03 / 4 / 2022

Hyd. No. 7

EAST 1-2 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 62.32 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 254,331 cuft
Drainage area	= 17.270 ac	Curve number	= 82.2*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.50 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 17.270



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

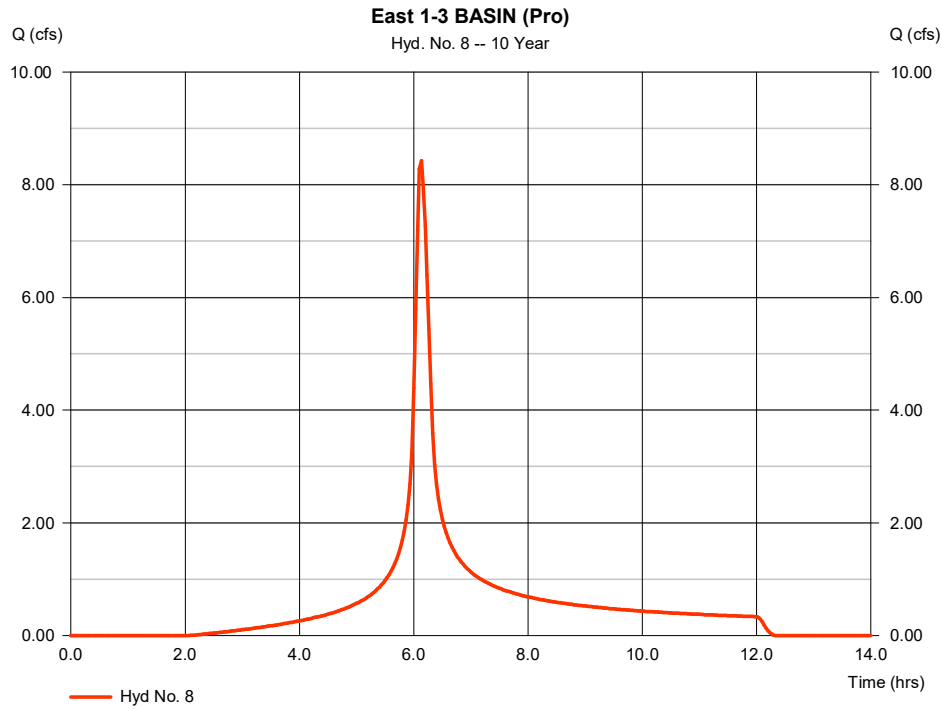
Friday, 03 / 4 / 2022

Hyd. No. 8

East 1-3 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 8.428 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.13 hrs
Time interval	= 2 min	Hyd. volume	= 28,676 cuft
Drainage area	= 1.850 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.60 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 1.850



Hydrograph Report

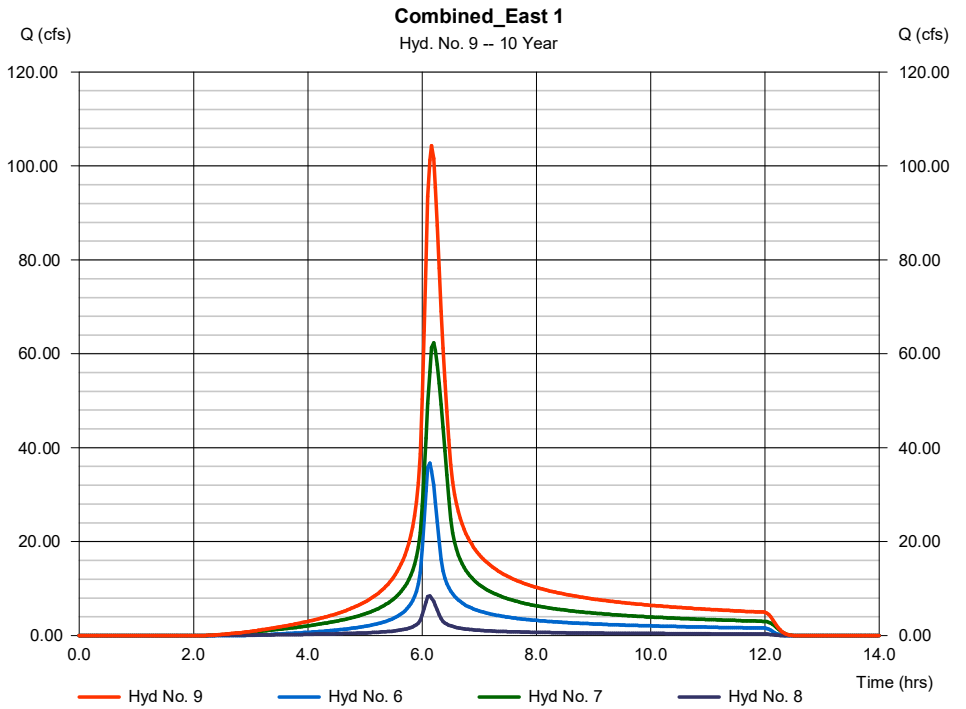
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Friday, 03 / 4 / 2022

Hyd. No. 9

Combined_East 1

Hydrograph type	= Combine	Peak discharge	= 104.32 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.17 hrs
Time interval	= 2 min	Hyd. volume	= 406,536 cuft
Inflow hyds.	= 6, 7, 8	Contrib. drain. area	= 28.560 ac



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

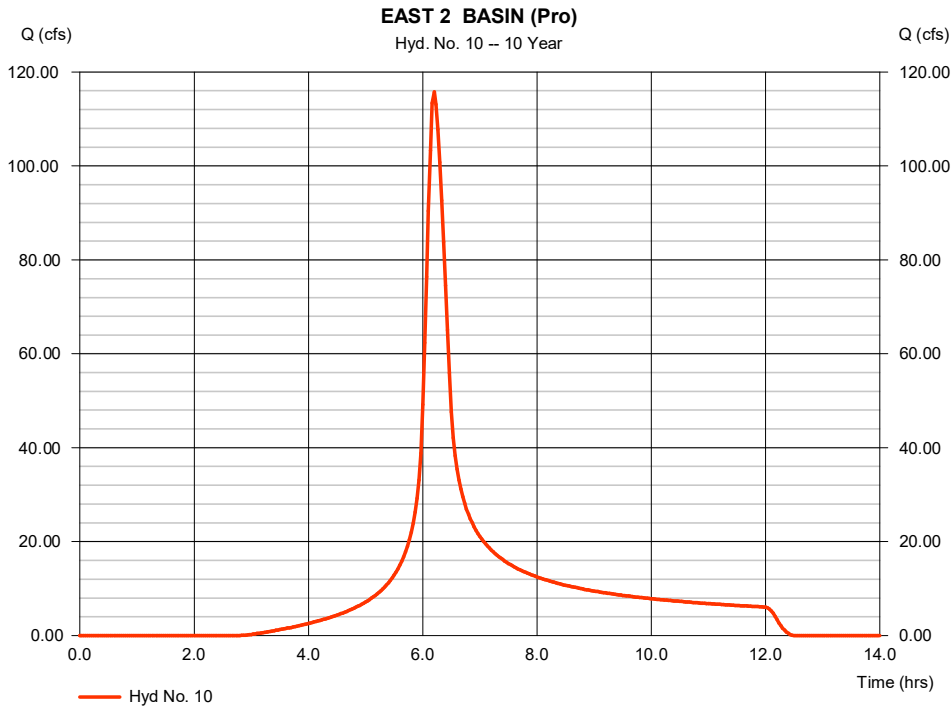
Friday, 03 / 4 / 2022

Hyd. No. 10

EAST 2 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 115.74 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 469,190 cuft
Drainage area	= 36.250 ac	Curve number	= 77.4*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 16.90 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 36.250



Hydrograph Report

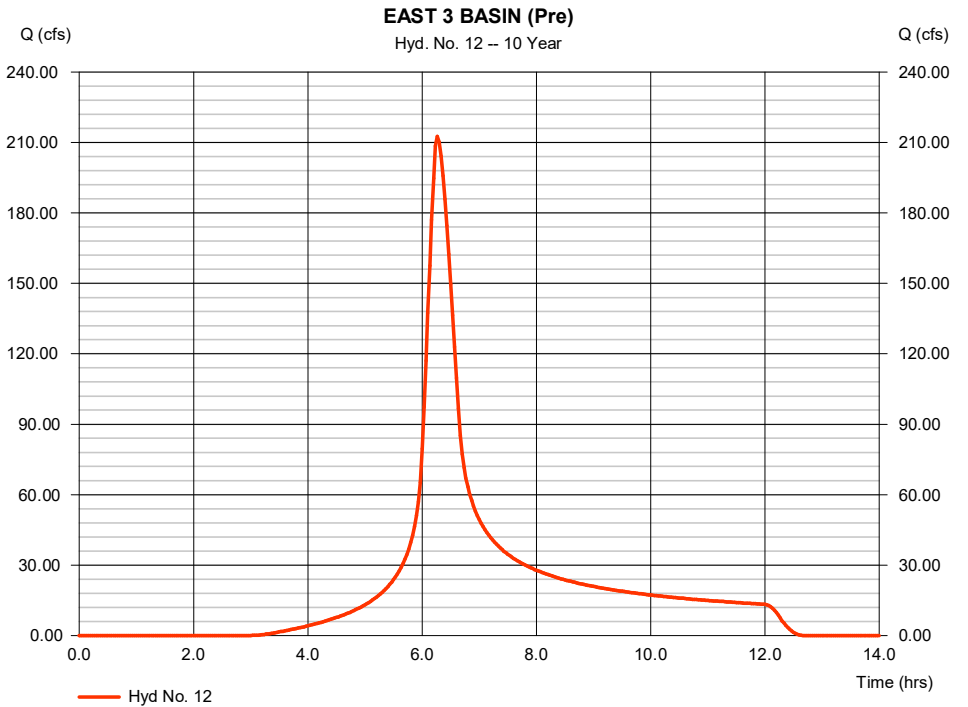
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 12

EAST 3 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 212.57 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.27 hrs
Time interval	= 2 min	Hyd. volume	= 995,596 cuft
Drainage area	= 81.560 ac	Curve number	= 75.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 25.30 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

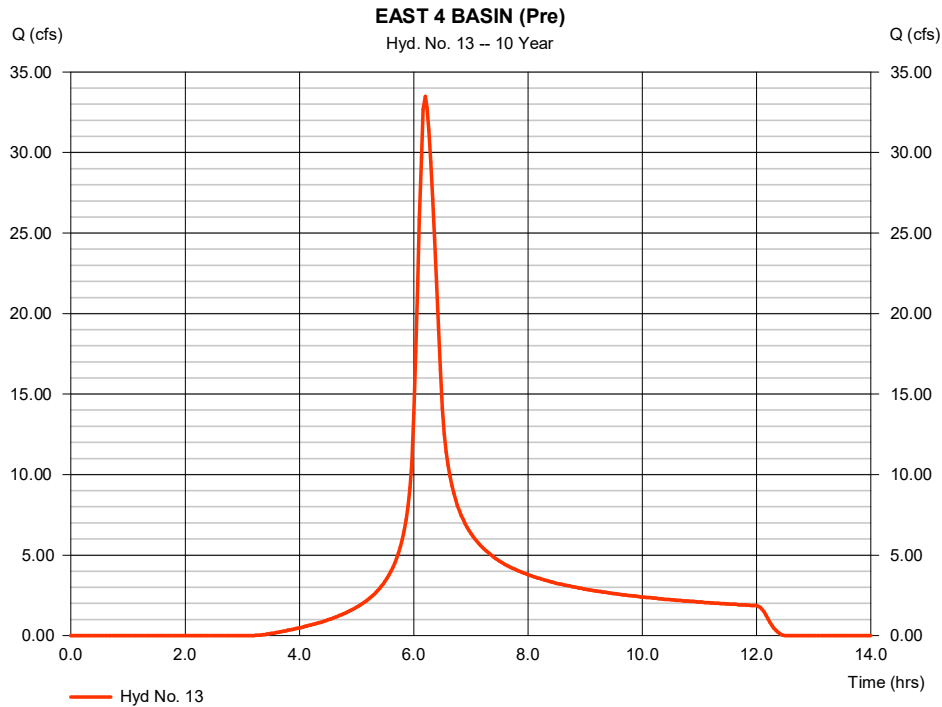
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 13

EAST 4 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 33.48 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 135,878 cuft
Drainage area	= 11.590 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.70 min
Total precip.	= 6.05 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

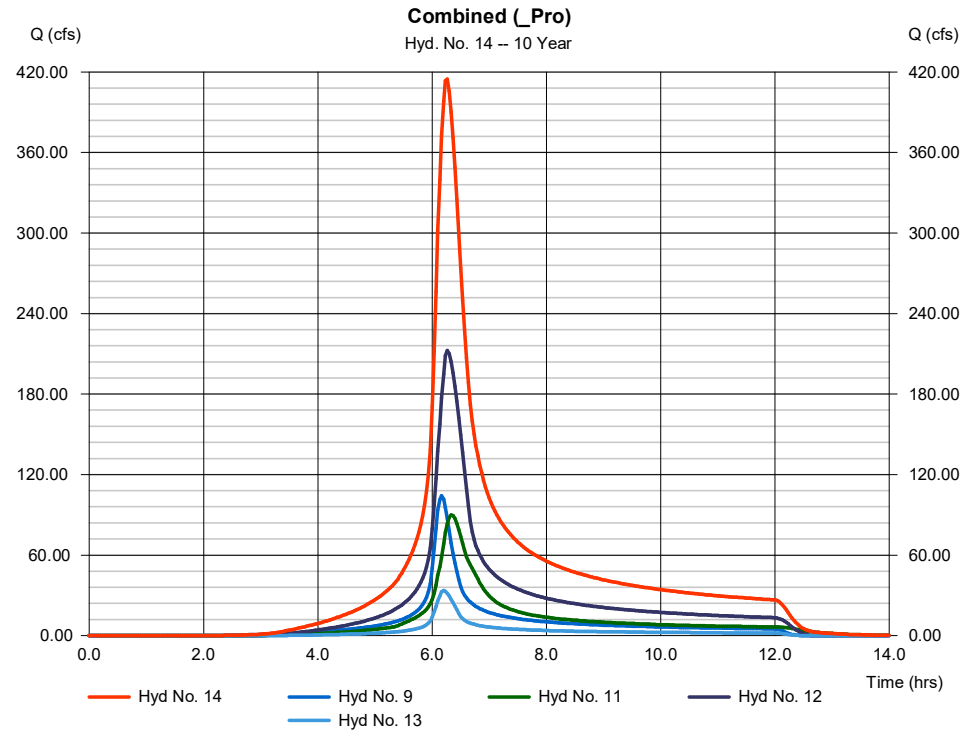
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 14

Combined (_Pro)

Hydrograph type	= Combine	Peak discharge	= 414.57 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.27 hrs
Time interval	= 2 min	Hyd. volume	= 2,007,197 cuft
Inflow hyds.	= 9, 11, 12, 13	Contrib. drain. area	= 93.150 ac



Hydrograph Report

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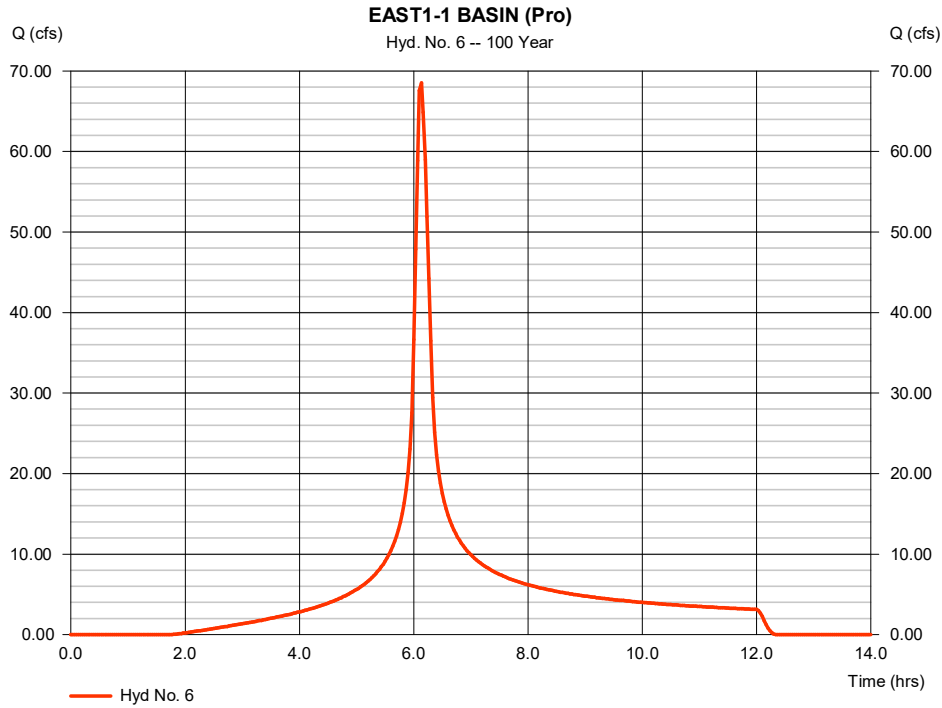
Friday, 03 / 4 / 2022

Hyd. No. 6

EAST1-1 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 68.52 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.13 hrs
Time interval	= 2 min	Hyd. volume	= 255,193 cuft
Drainage area	= 9.440 ac	Curve number	= 76.7*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.60 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 9.440



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

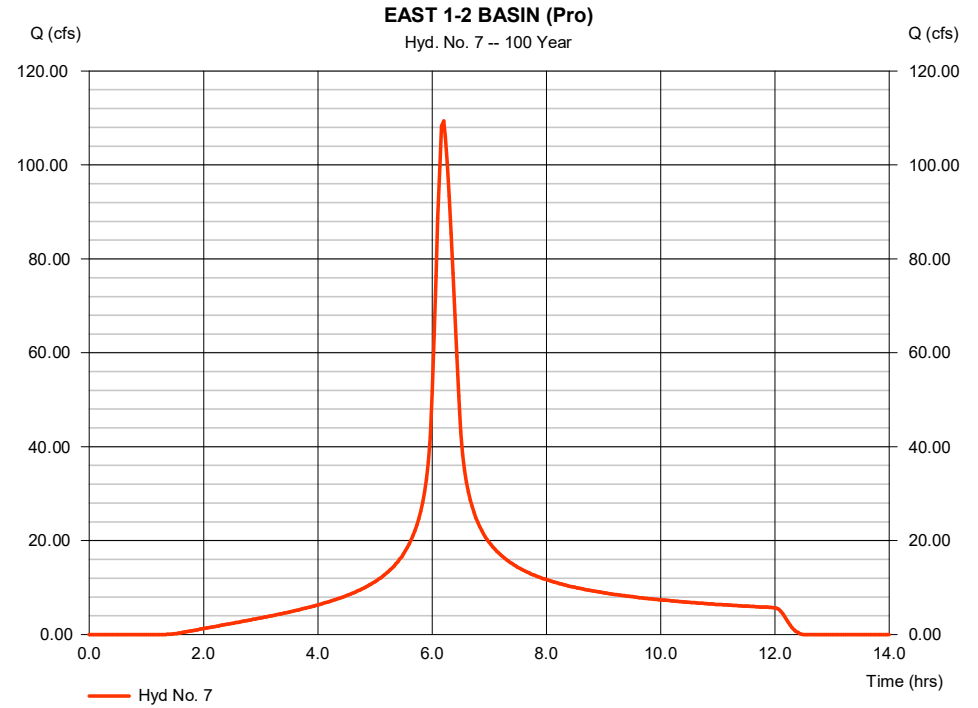
Friday, 03 / 4 / 2022

Hyd. No. 7

EAST 1-2 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 109.34 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 497,066 cuft
Drainage area	= 17.270 ac	Curve number	= 82.2*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 18.50 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 17.270



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

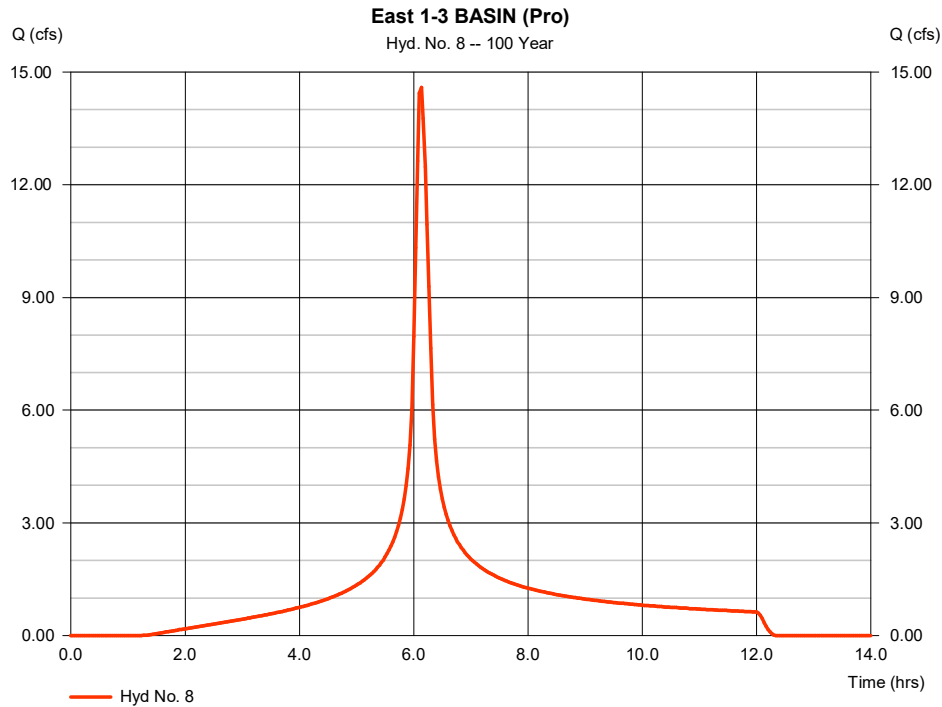
Friday, 03 / 4 / 2022

Hyd. No. 8

East 1-3 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 14.59 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.13 hrs
Time interval	= 2 min	Hyd. volume	= 55,616 cuft
Drainage area	= 1.850 ac	Curve number	= 83*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.60 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 1.850



Hydrograph Report

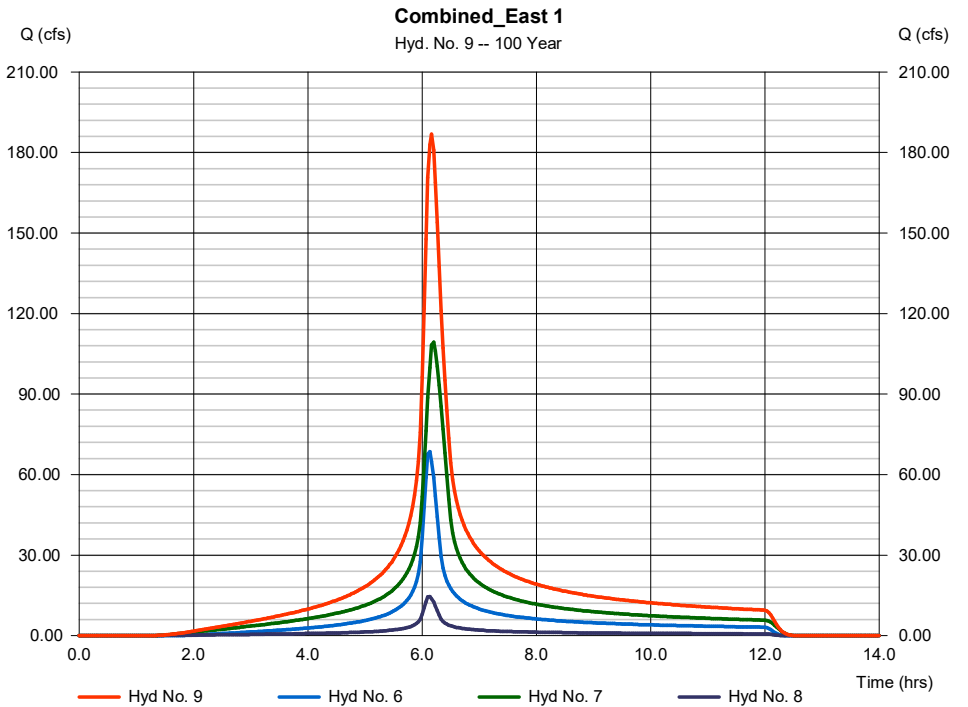
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 9

Combined_East 1

Hydrograph type	= Combine	Peak discharge	= 186.88 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.17 hrs
Time interval	= 2 min	Hyd. volume	= 807,876 cuft
Inflow hyds.	= 6, 7, 8	Contrib. drain. area	= 28.560 ac



Hydrograph Report

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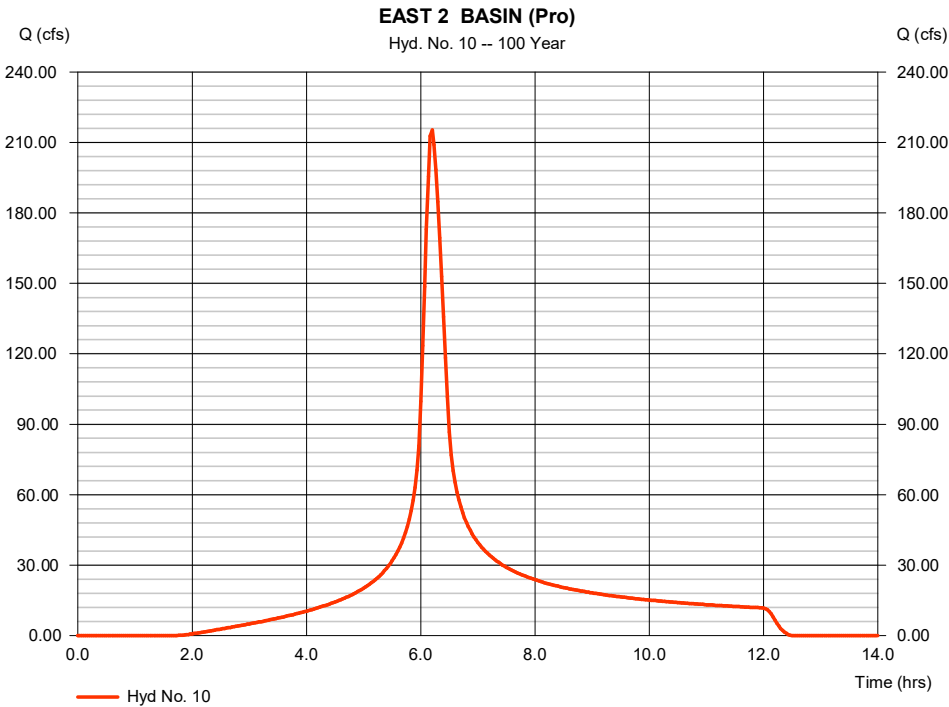
Friday, 03 / 4 / 2022

Hyd. No. 10

EAST 2 BASIN (Pro)

Hydrograph type	= SCS Runoff	Peak discharge	= 215.29 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 962,195 cuft
Drainage area	= 36.250 ac	Curve number	= 77.4*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 16.90 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484

* Composite (Area/CN) = [(17.890 x 72) + (0.940 x 98) + (8.650 x 79) + (9.900 x 79) + (1.200 x 79) + (17.700 x 74)] / 36.250



Hydrograph Report

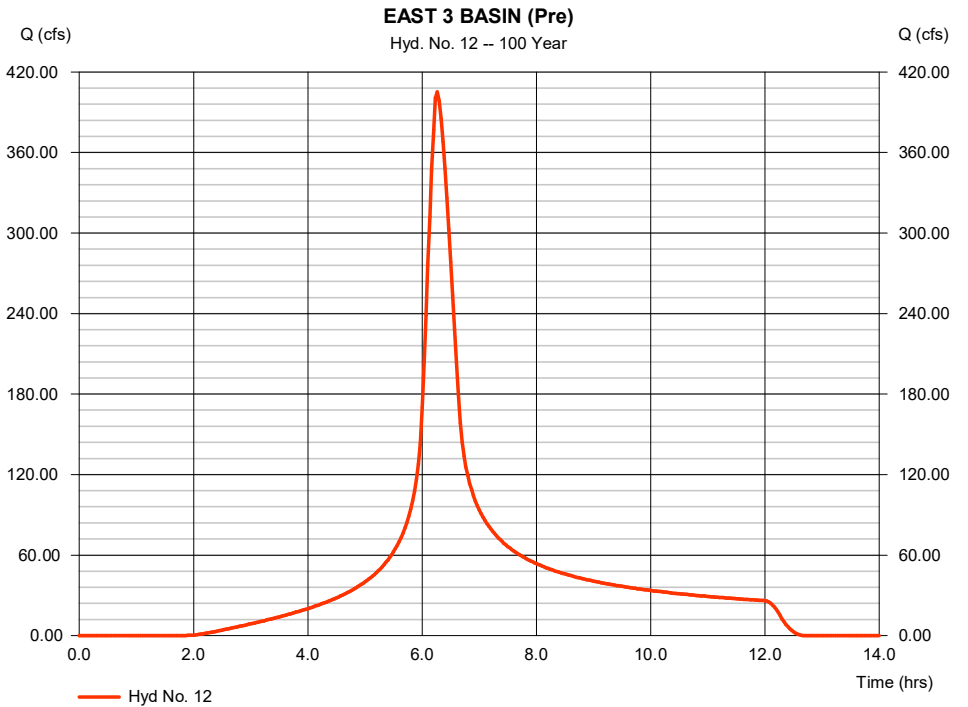
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 12

EAST 3 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 405.28 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.27 hrs
Time interval	= 2 min	Hyd. volume	= 2,074,328 cuft
Drainage area	= 81.560 ac	Curve number	= 75.9
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 25.30 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

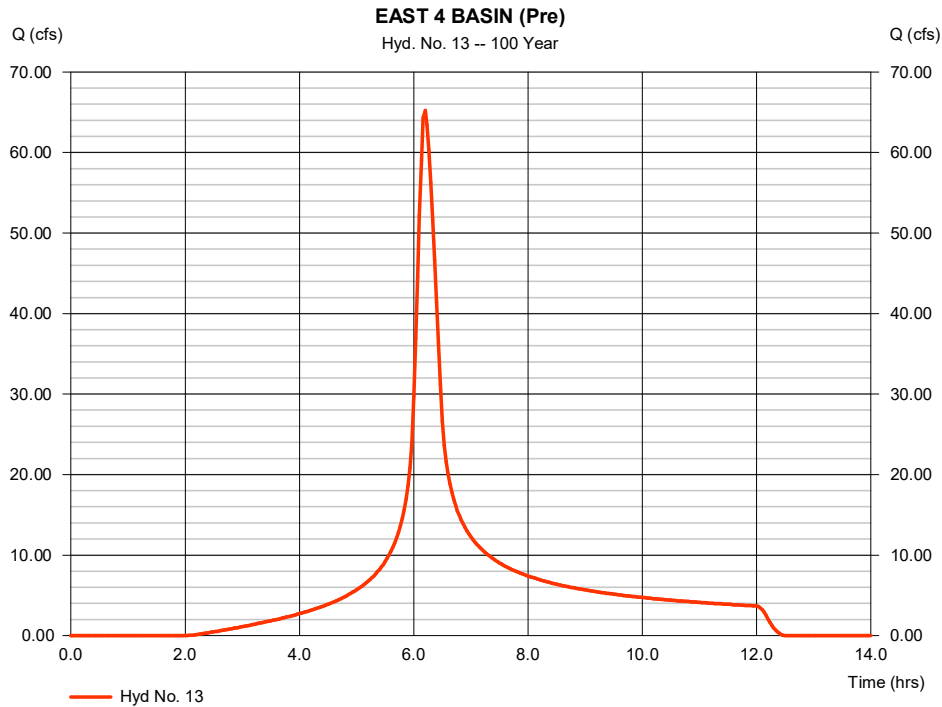
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Friday, 03 / 4 / 2022

Hyd. No. 13

EAST 4 BASIN (Pre)

Hydrograph type	= SCS Runoff	Peak discharge	= 65.21 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.20 hrs
Time interval	= 2 min	Hyd. volume	= 289,025 cuft
Drainage area	= 11.590 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 17.70 min
Total precip.	= 10.13 in	Distribution	= Synthetic
Storm duration	= 12.00 hrs	Shape factor	= 484



Hydrograph Report

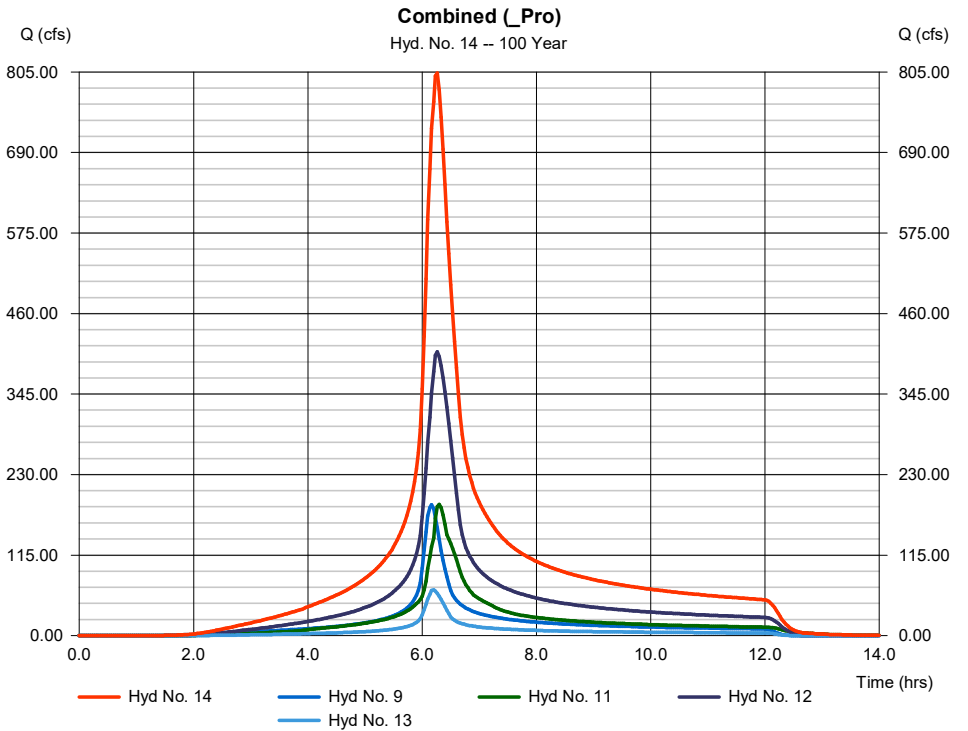
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Friday, 03 / 4 / 2022

Hyd. No. 14

Combined (_Pro)

Hydrograph type	= Combine	Peak discharge	= 803.41 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.27 hrs
Time interval	= 2 min	Hyd. volume	= 4,133,424 cuft
Inflow hyds.	= 9, 11, 12, 13	Contrib. drain. area	= 93.150 ac



Appendix C: Detention Pond Analysis

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

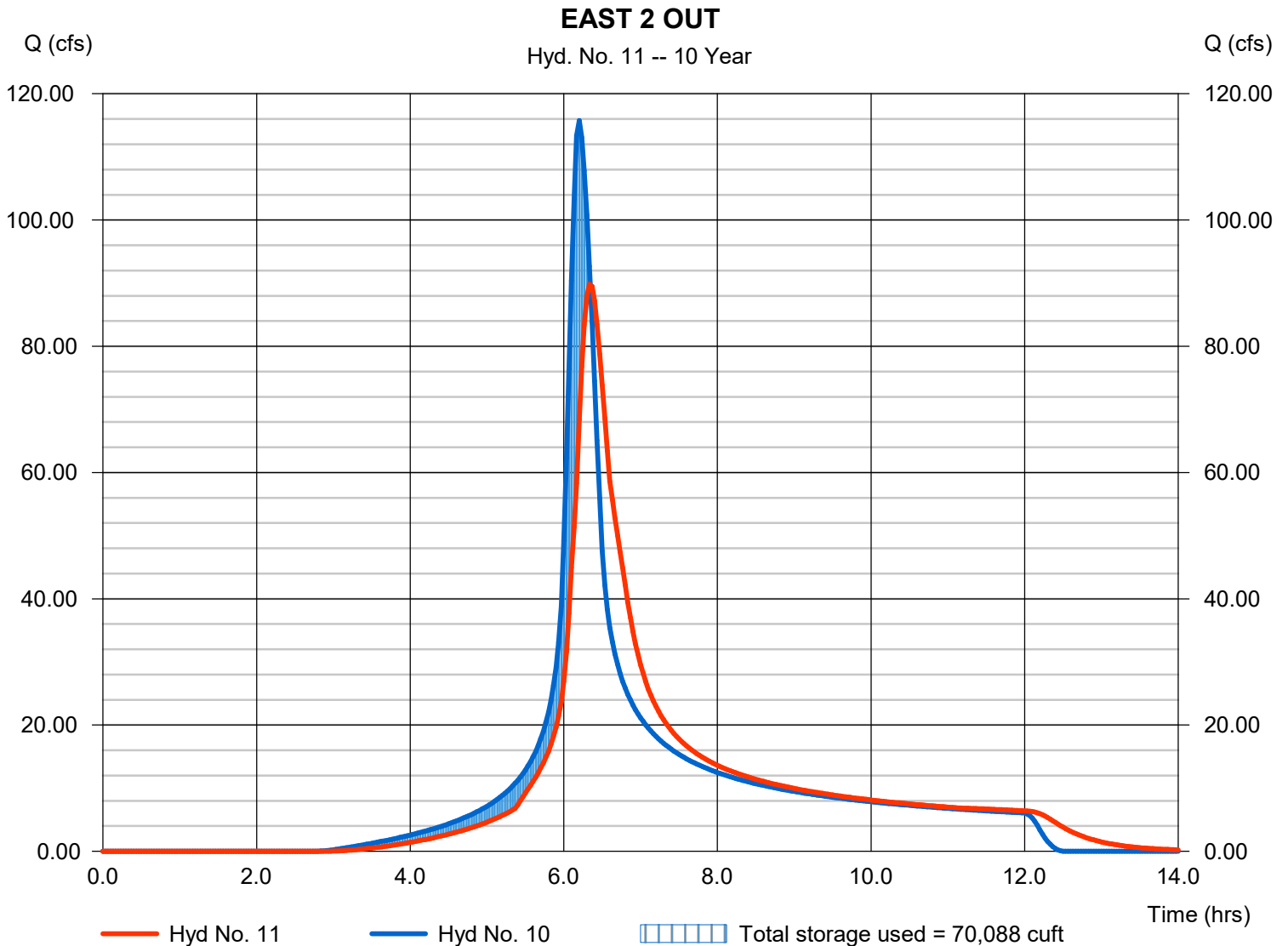
Friday, 03 / 4 / 2022

Hyd. No. 11

EAST 2 OUT

Hydrograph type	= Reservoir	Peak discharge	= 89.86 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.33 hrs
Time interval	= 2 min	Hyd. volume	= 469,188 cuft
Inflow hyd. No.	= 10 - EAST 2 BASIN (Pro)	Max. Elevation	= 867.82 ft
Reservoir name	= DETENTION POND	Max. Storage	= 70,088 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

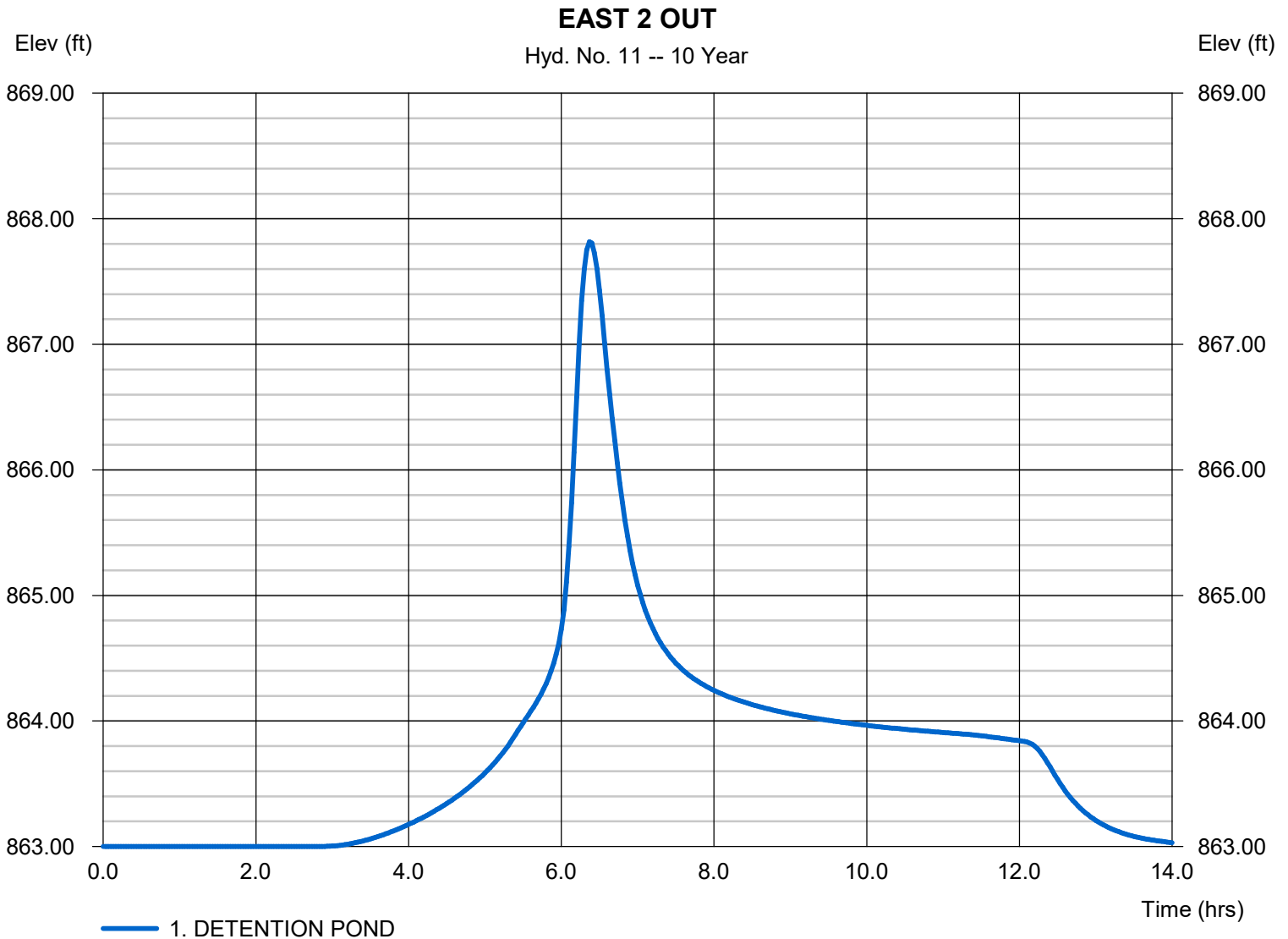
Friday, 03 / 4 / 2022

Hyd. No. 11

EAST 2 OUT

Hydrograph type	= Reservoir	Peak discharge	= 89.86 cfs
Storm frequency	= 10 yrs	Time to peak	= 6.33 hrs
Time interval	= 2 min	Hyd. volume	= 469,188 cuft
Inflow hyd. No.	= 10 - EAST 2 BASIN (Pro)	Max. Elevation	= 867.82 ft
Reservoir name	= DETENTION POND	Max. Storage	= 70,088 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

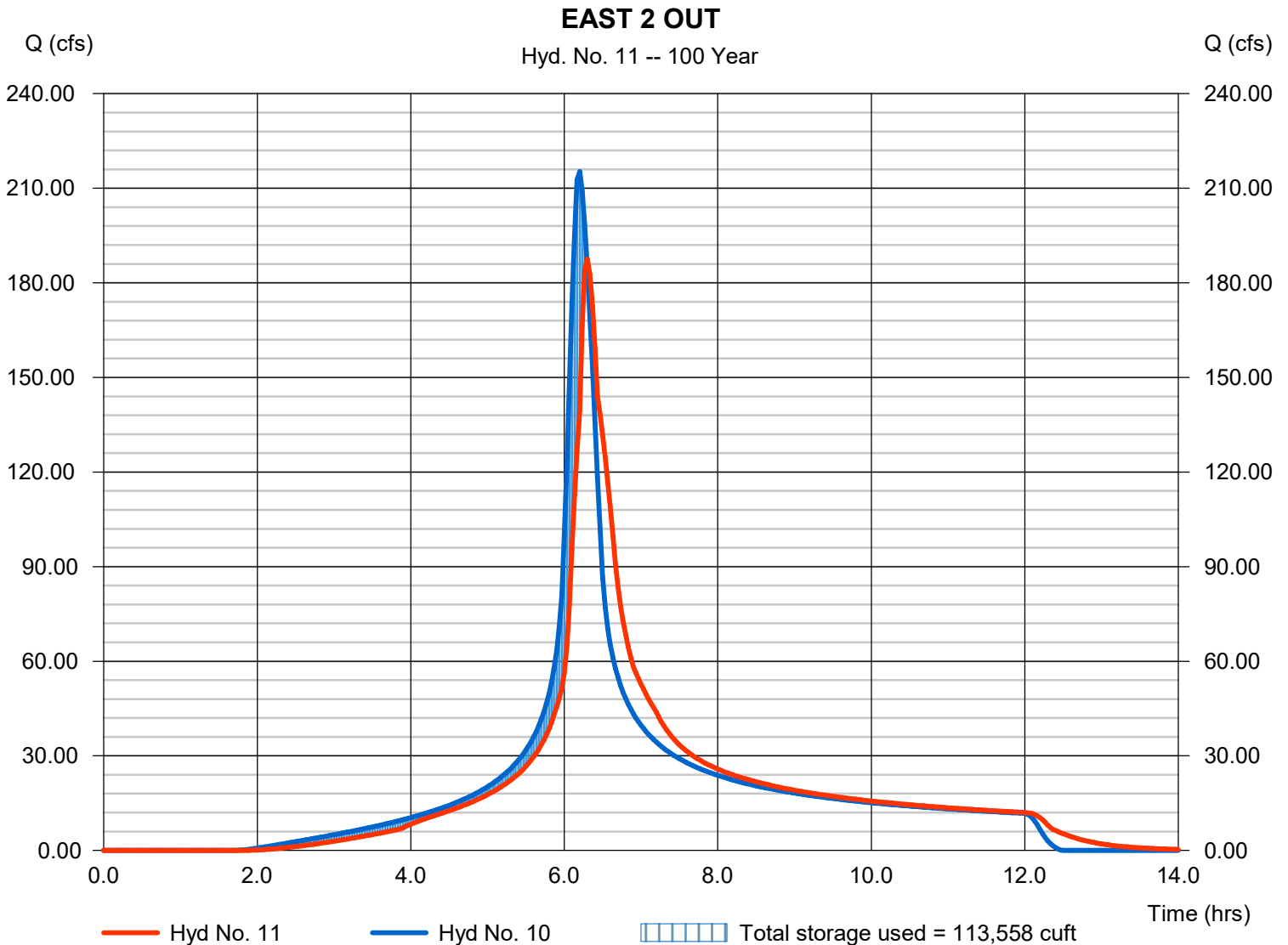
Friday, 03 / 4 / 2022

Hyd. No. 11

EAST 2 OUT

Hydrograph type	= Reservoir	Peak discharge	= 187.54 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.30 hrs
Time interval	= 2 min	Hyd. volume	= 962,193 cuft
Inflow hyd. No.	= 10 - EAST 2 BASIN (Pro)	Max. Elevation	= 870.81 ft
Reservoir name	= DETENTION POND	Max. Storage	= 113,558 cuft

Storage Indication method used.



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

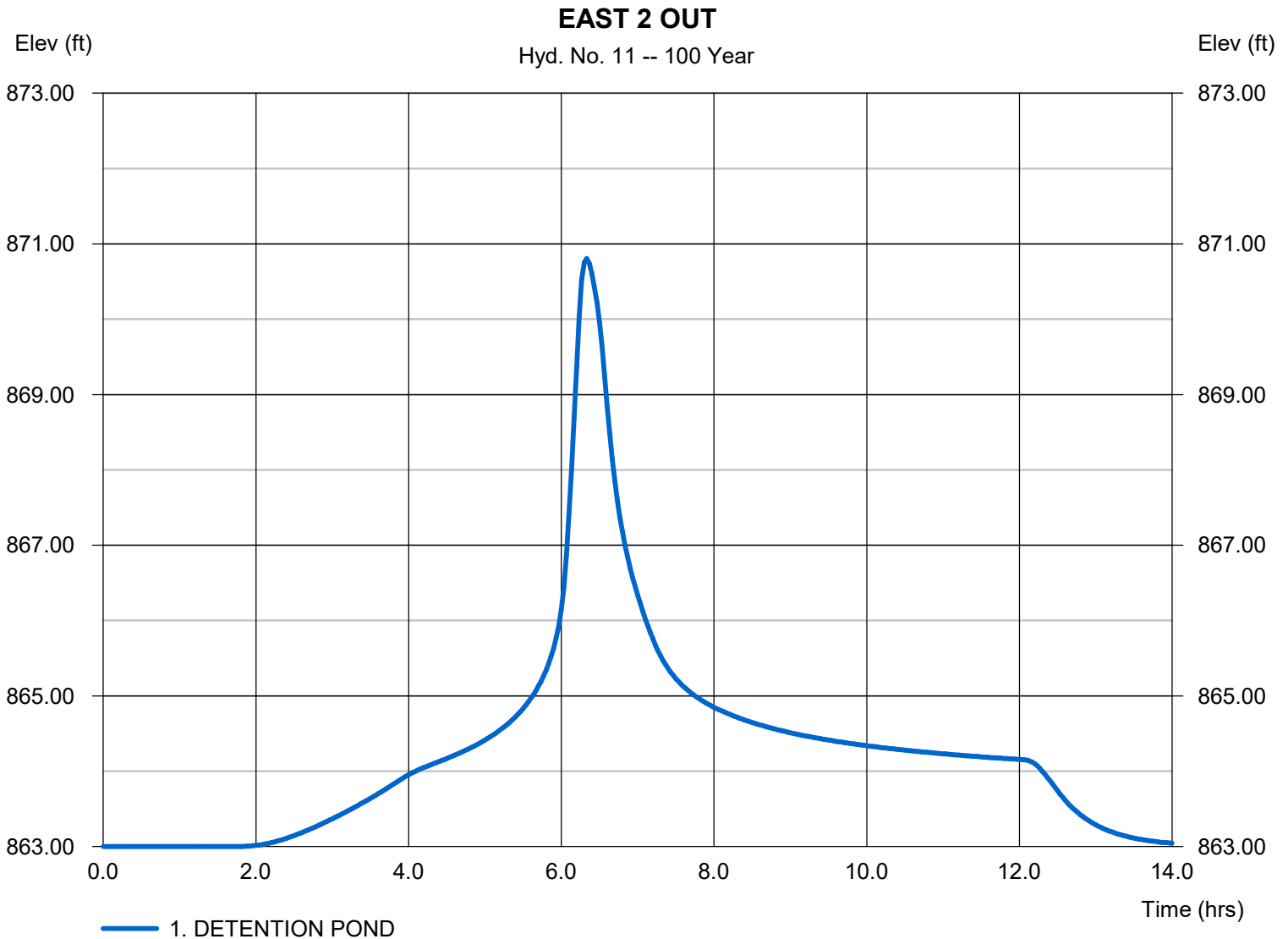
Friday, 03 / 4 / 2022

Hyd. No. 11

EAST 2 OUT

Hydrograph type	= Reservoir	Peak discharge	= 187.54 cfs
Storm frequency	= 100 yrs	Time to peak	= 6.30 hrs
Time interval	= 2 min	Hyd. volume	= 962,193 cuft
Inflow hyd. No.	= 10 - EAST 2 BASIN (Pro)	Max. Elevation	= 870.81 ft
Reservoir name	= DETENTION POND	Max. Storage	= 113,558 cuft

Storage Indication method used.

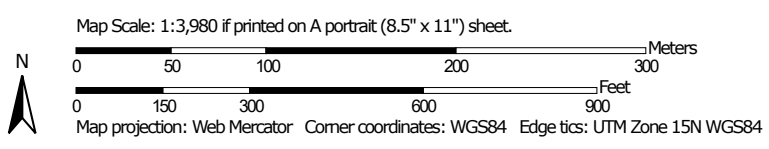


Appendix D: USDA Soil Maps

Hydrologic Soil Group—Leavenworth County, Kansas
(Deer Creek Addition (Phase1))



Soil Map may not be valid at this scale.



Hydrologic Soil Group—Leavenworth County, Kansas
(Deer Creek Addition (Phase1))

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Leavenworth County, Kansas
Survey Area Data: Version 16, Sep 14, 2021

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

Date(s) aerial images were photographed: Jul 16, 2019—Sep 23, 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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7050	Kennebec silt loam, occasionally flooded	C	0.1	0.1%
7061	Muscotah silty clay loam, occasionally flooded	C	1.2	1.6%
7303	Martin silty clay loam, 3 to 7 percent slopes, eroded	C/D	71.2	98.3%
Totals for Area of Interest			72.5	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

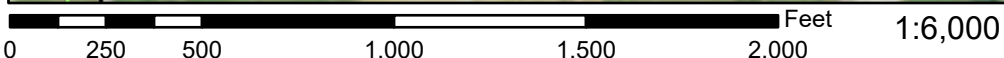
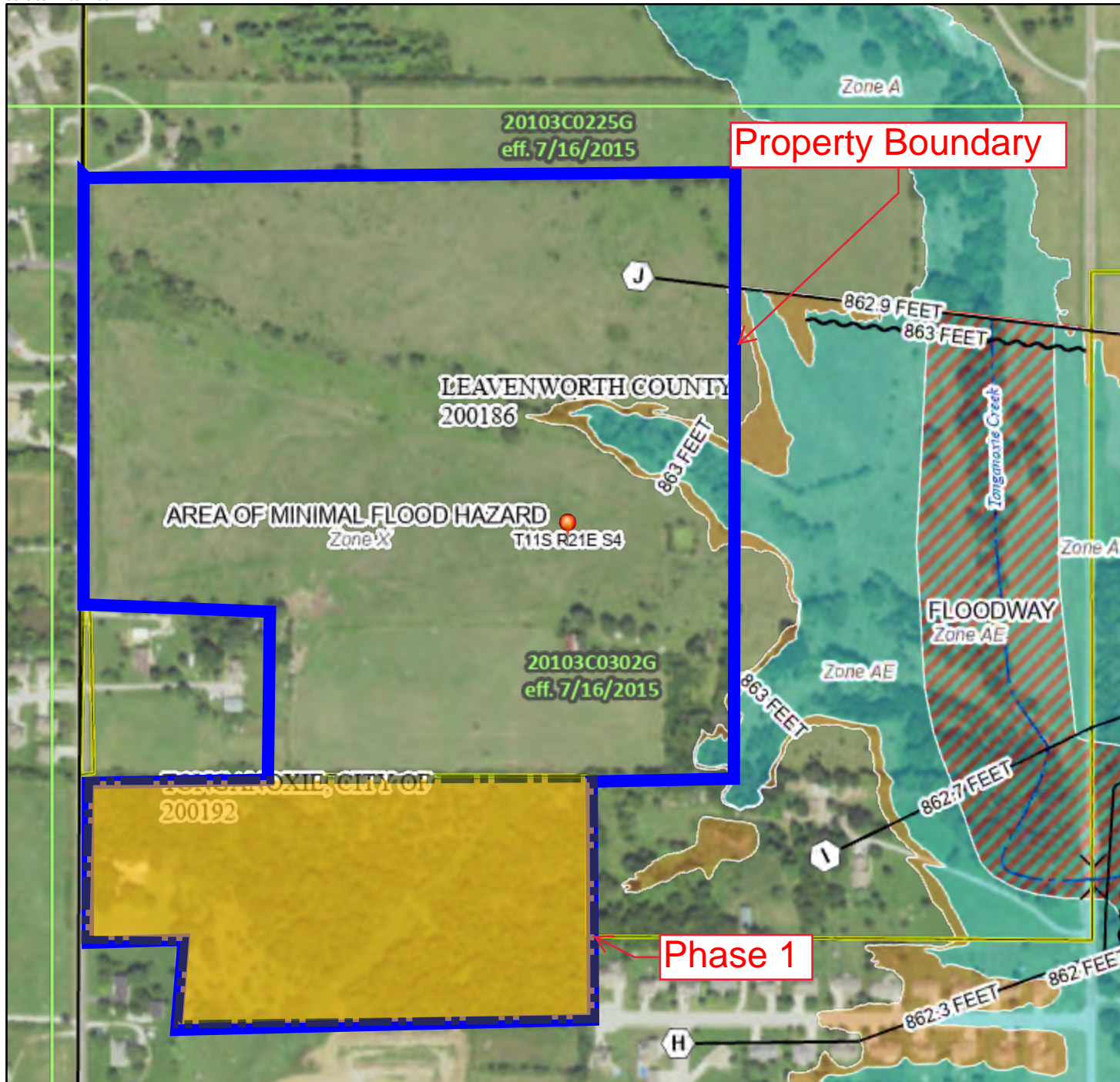
Tie-break Rule: Higher

Appendix E: FEMA Flood Plain

National Flood Hazard Layer FIRMMette



95°5'39"W 39°7'33"N



Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway	

OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes. Zone X
	Area with Flood Risk due to Levee Zone D

OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
	Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall

OTHER FEATURES	20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
	17.5
	Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature

MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/17/2021 at 4:55 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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





Revised Traffic Impact Data for Deer Creek Addition 1

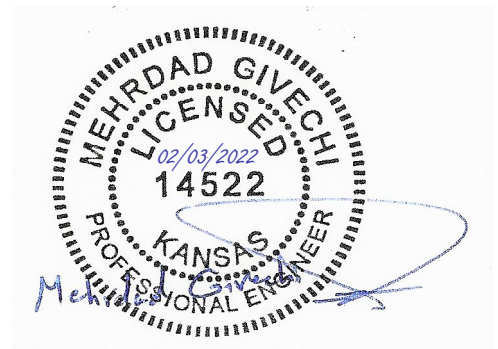
(Smiley Road, 0.3 miles north of US-24/40)
Tonganoxie, Kansas

Prepared
for
Landplan Engineering, PA

Prepared
By



Serving Communities Through Excellence
Missouri | Kansas | Michigan | California



Mehrdad Givechi, P.E., PTOE

February 2022

The information presented in this document is compiled to provide basic traffic impact data for the proposed *Deer Creek Addition No. 1* residential development located on the east side of Smiley Road (a.k.a. 222nd Street) approximately 1/3 mile north of US-24/40 Highway within the city limits of Tonganoxie, Kansas (See **Figure 1 of the Appendix**).

1. **Proposed Development Plan** – The project site is bounded by Smiley Road and a couple of residential dwellings on the west; undeveloped parcels of land on the north, east and south; and a residential subdivision on the southeast corner. The site is currently undeveloped. Under the proposed development plan, the site will be developed as a residential subdivision (*Deer Creek Addition No. 1*) consisting of 45 single family detached dwelling units.
2. **Zoning** - The existing and proposed zoning for this site is *Single Family Residential*.
3. **Roadway Classifications** -
According to the *KDOT's online Mapping Platform (KanPlan)*, US-24/40 is designated as
 - “Minor Arterial” on the *KDOT's Functional Classification Map*.
 - “C Route – part of the statewide arterial system and is integrated with Routes A and B” on the *KDOT's Route Classification System Map*.
 - Not on the *National Highway System*.
 - “Partial Access Control 2” on the *KDOT's Access Control Map*
 - Planned Corridor/Area.
4. **Proposed Site Access Characteristics** – Access to the project site will be provided at two locations as illustrated on the Site Plan in the **Appendix**:
 - A connection to Smiley Road on the west side via Prairie View Drive. This will be a “T” intersection controlled by stop sign on Prairie View Drive.
 - A connection to N. Main Street via the existing Myers Drive on the southeast corner of the site as a “T” intersection controlled by stop sign on Myers Drive.

5. **Roadway Characteristics** - In vicinity of the project site,

- Smiley Road is a 2-lane roadway with 22 ft. wide asphalt pavement, no shoulders and open ditch drainage system on both sides. Speed limit is posted at 30 mph.
- US-24/40 Highway, east of Smiley Road is a 4-lane divided roadway with two-way center left-turn lane, 62 ft. wide asphalt pavement, 10 ft. wide paved shoulders and open ditch drainage on both sides. West of Smiley Road, the highway transitions into a 4-lane undivided roadway with 48 ft. wide asphalt pavement and curb/gutter sections. Speed limit changes from 40 mph east of Smiley Road to 30 mph a short distance west of Smiley Road.
- The intersection of Smiley Road and US-24/40 highway is a “T” intersection controlled by stop sign on Smiley Road and is located on a horizontal curve along US-24/40.
 - Eastbound approach has a dedicated left-turn lane with storage length of approximately 185 ft. and two through lanes.
 - Westbound approach has two through lanes with the outside lane being a shared through/right lane.
 - Southbound approach has one shared lane.

6. **Sight Distance** - Field investigations and measurements indicate that sight distance is not restricted at the proposed access drive on Smiley Road.

Reasoning (Per KDOT Access Management Policy):

- Smiley Road is a 2-lane roadway on a rolling terrain
- Site access approach grade: $-3\% < g < +3\%$
- Posted speed limit on Smiley Road = 30 mph
- Required ISD for left-turn movement from the site onto Smiley Road = 335 ft.
- Required ISD for right-turn movement from the site access onto Smiley Road = 290 ft.
- Required stopping sight distance (SSD) on Smiley Road = 205 ft.
- Field measured sight distance for left-turn movement from the site = 650 ft. to the north (greater than 335 ft.) therefore, **not restricted**.
- Field measured sight distance for right-turn movement from the site = 1,030 ft. to the south (greater than 290 ft.) therefore, **not restricted**.

7. **Site Generated Traffic** - Trip generation of a proposed land development project is typically estimated using trip generation rates suggested by the latest edition of the Institute of Transportation Engineers, Trip Generation Manual (Currently, the 11th Edition). The ITE land use code 210 (*Single-Family Detached Housing*) is selected to estimate trip numbers for this development.

Results of the analysis, as shown in the **Appendix**, indicate that the development generates less than 100 vph during peak-hours of a typical weekday.

- On average, 36 trip-ends (9 inbound – 27 outbound) during morning peak-hour of the adjacent street network.
- On average, 47 trip-ends (30 inbound – 17 outbound) during afternoon peak-hour of the adjacent street network.
- On average, 39 trip-ends (10 inbound – 29 outbound) during morning peak-hour of the generator.
- On average, 49 trip-ends (31 inbound – 18 outbound) during afternoon peak-hour of the generator.
- On average, 484 new trip-ends during a 24-hour period.

APPENDIX

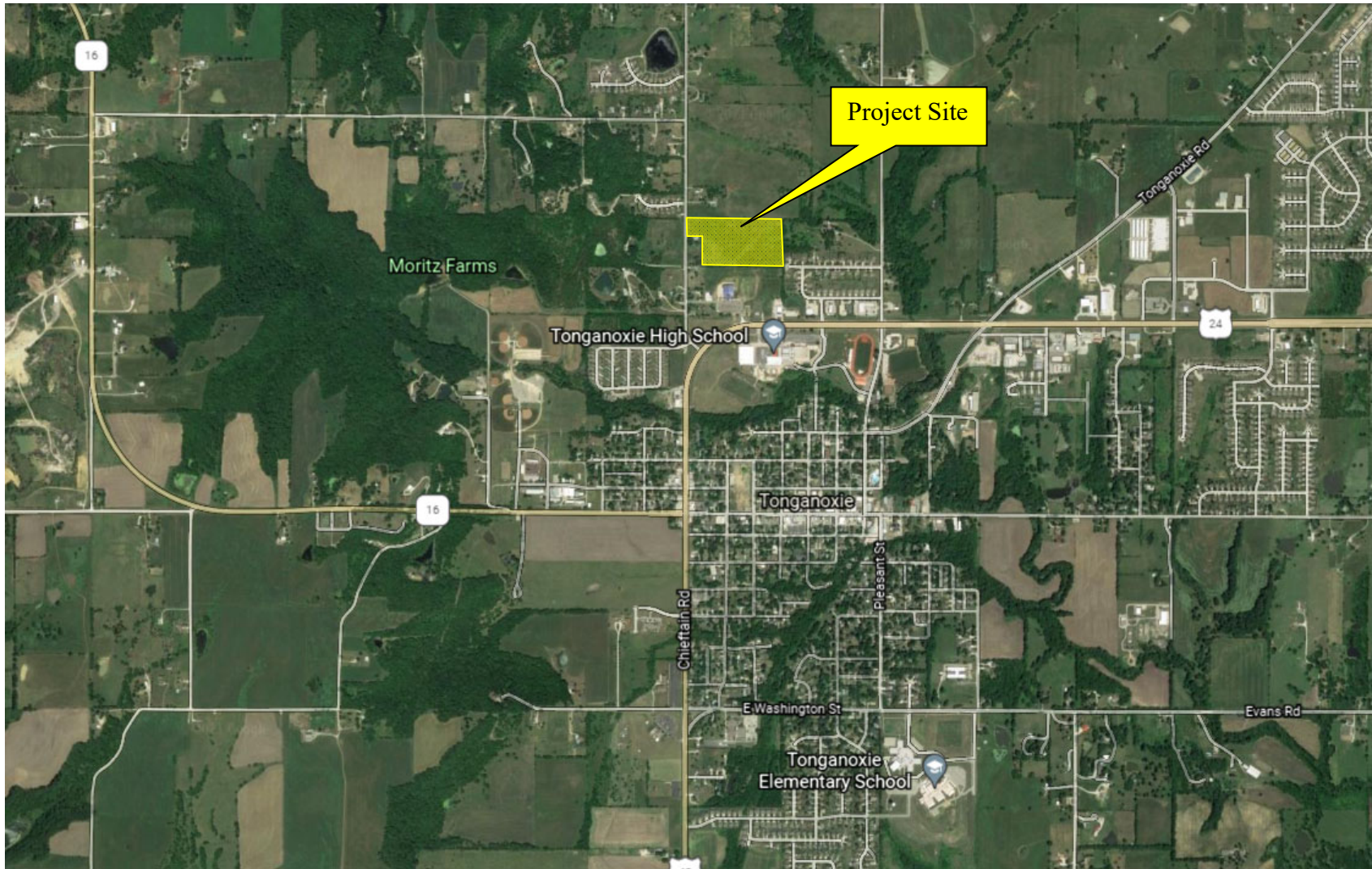
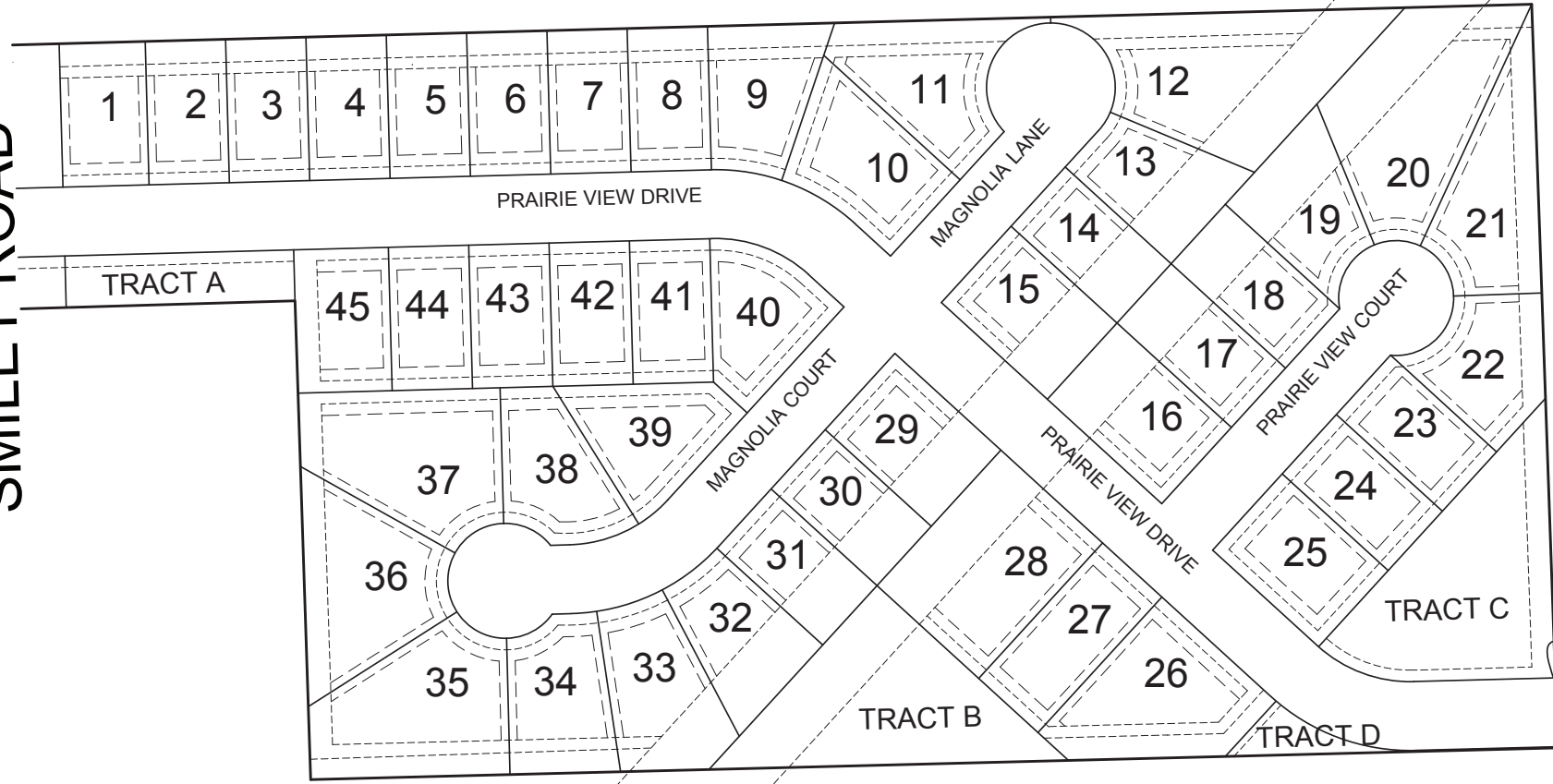


Figure 1 - Location Map

SMILEY ROAD



CONNECTION TO EXISTING MYERS DRIVE



NORTH
SCALE: 1" = 100'



Lawrence, KS • Kansas City, MO • The Woodlands, TX
1310 Wakarusa Drive, Suite 100
Lawrence, Kansas 66049
785.843.7530(p) | 785.843.2410(f)
info@landplan-pa.com | www.landplan-pa.com

Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 192

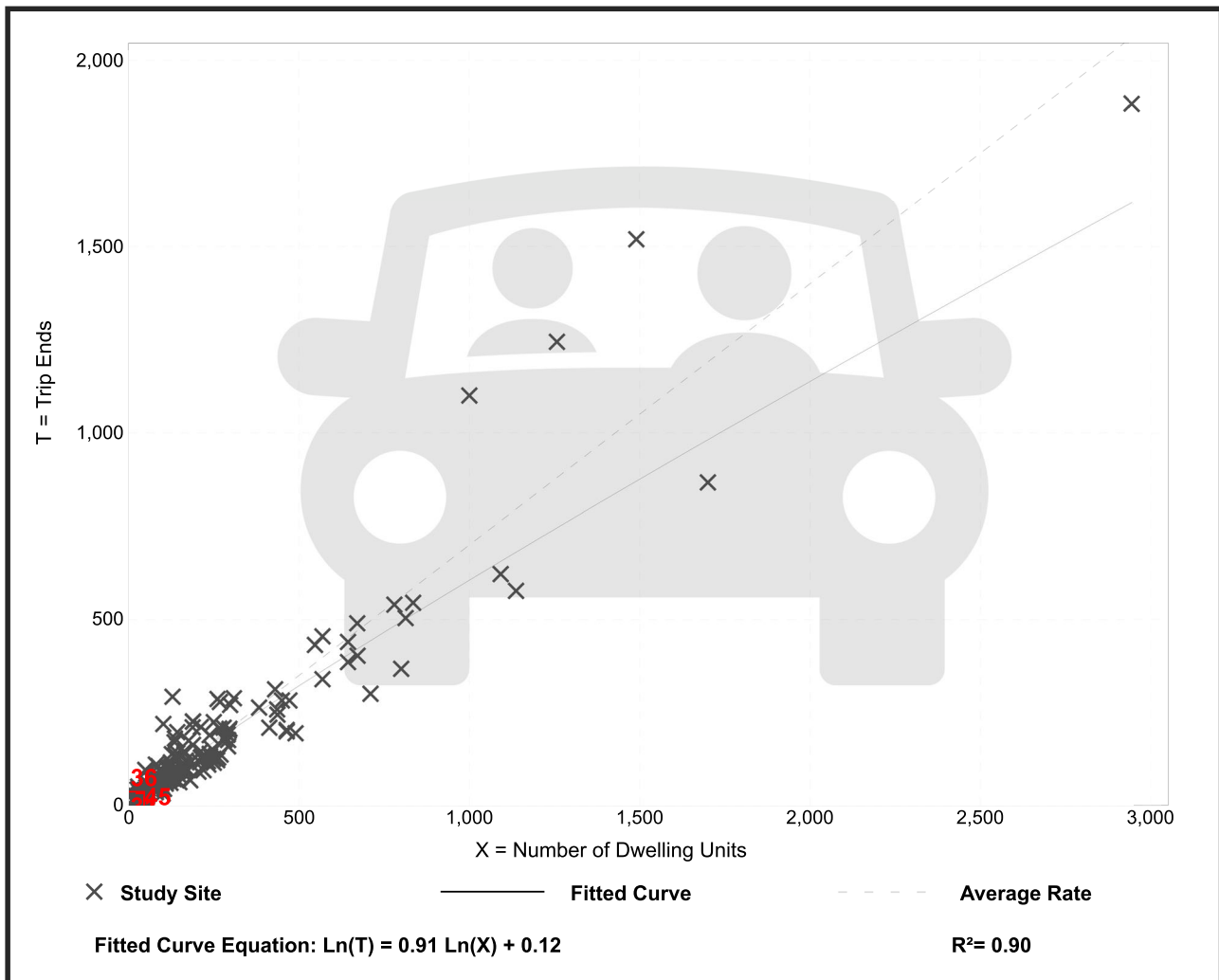
Avg. Num. of Dwelling Units: 226

Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 208

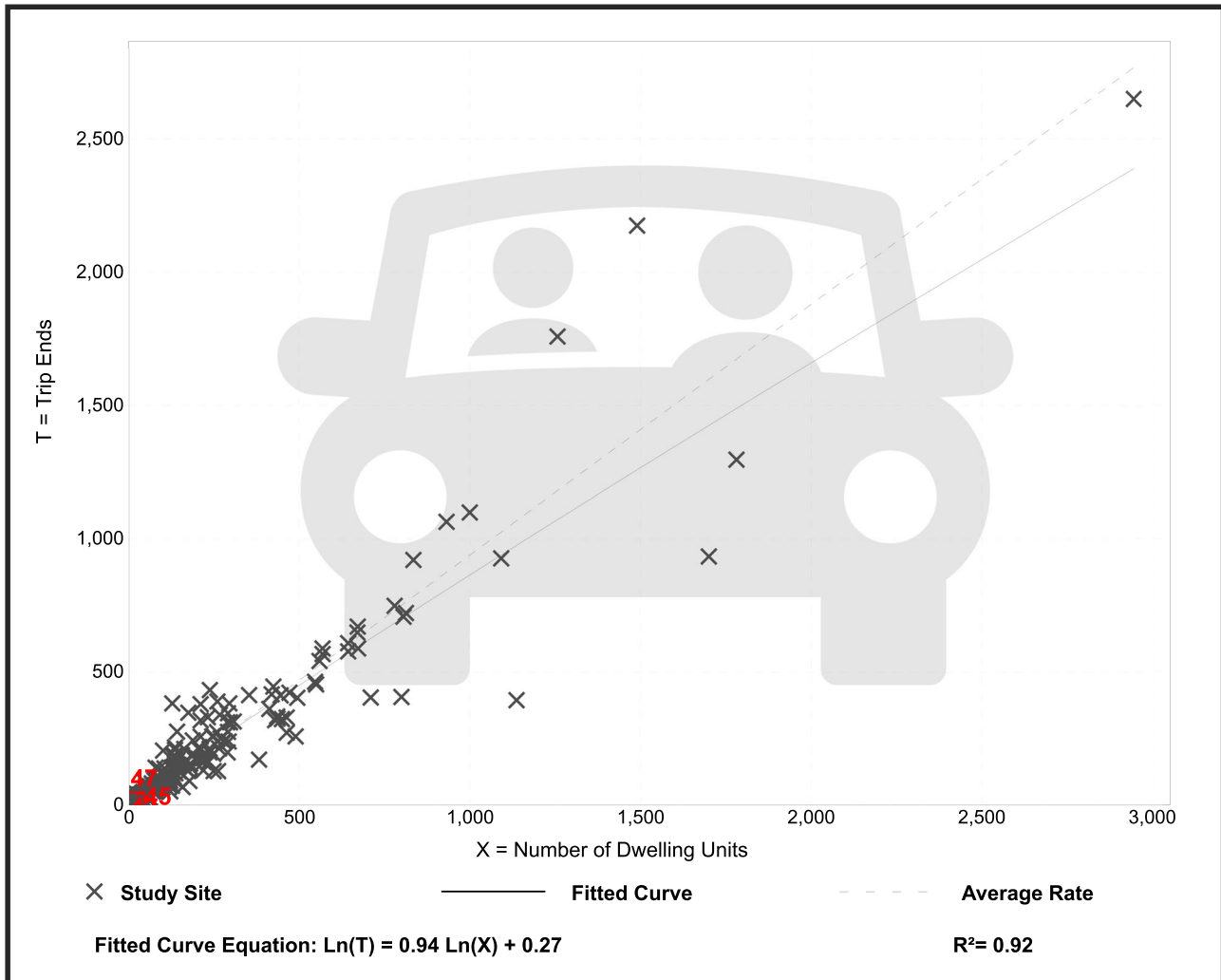
Avg. Num. of Dwelling Units: 248

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing (210)

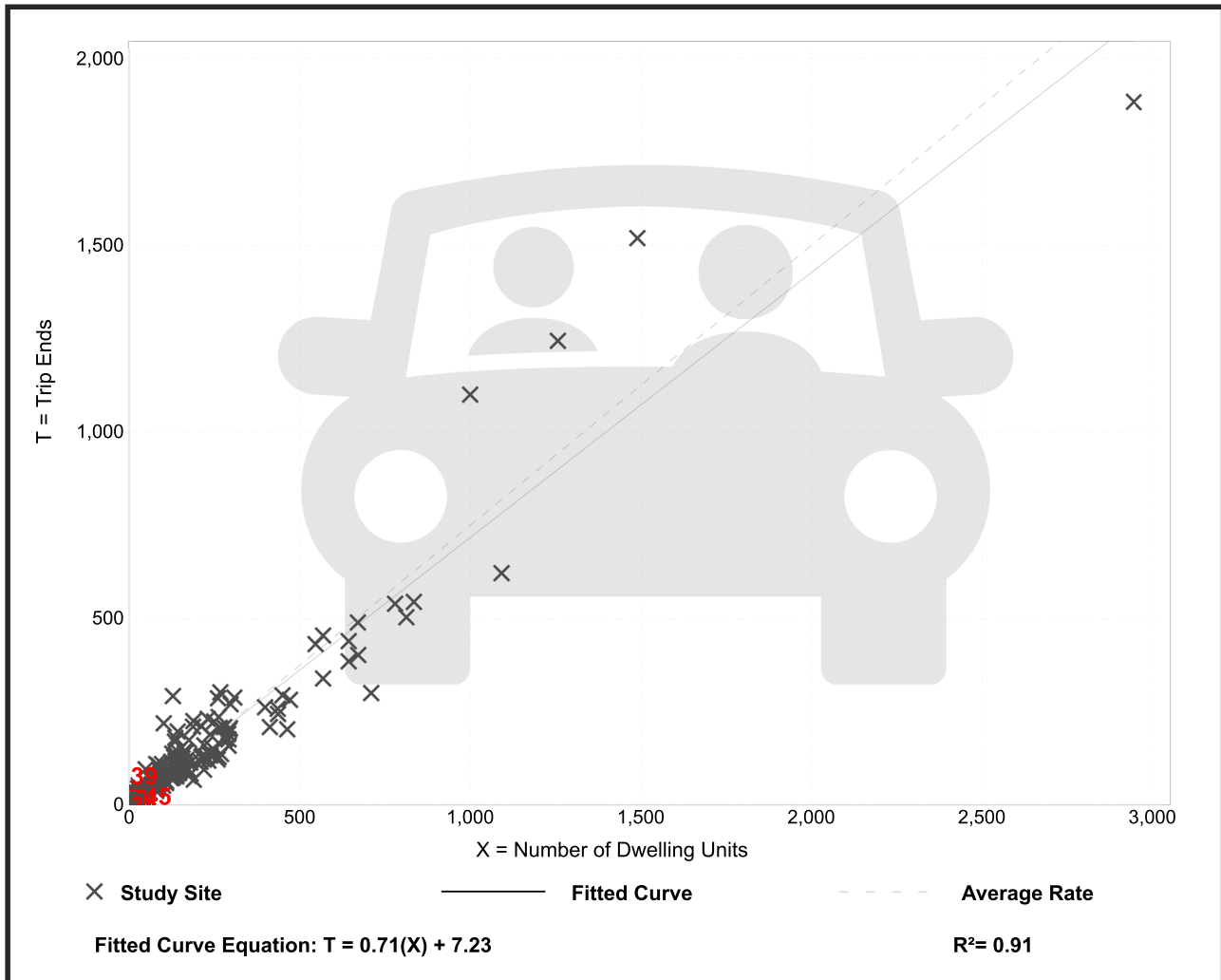
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 169
Avg. Num. of Dwelling Units: 217
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.34 - 2.27	0.25

Data Plot and Equation



Single-Family Detached Housing (210)

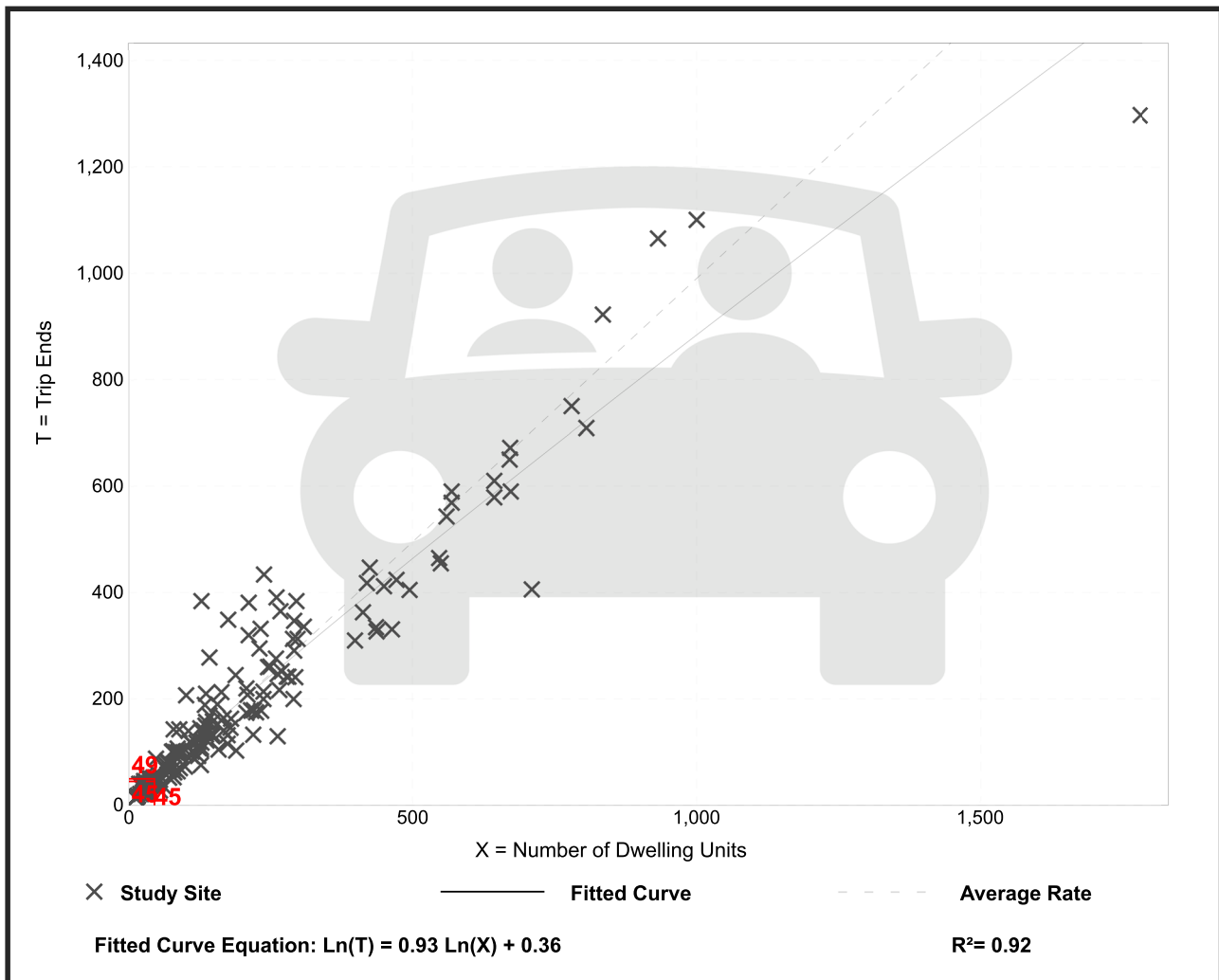
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 178
Avg. Num. of Dwelling Units: 203
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.49 - 2.98	0.28

Data Plot and Equation



Single-Family Detached Housing (210)

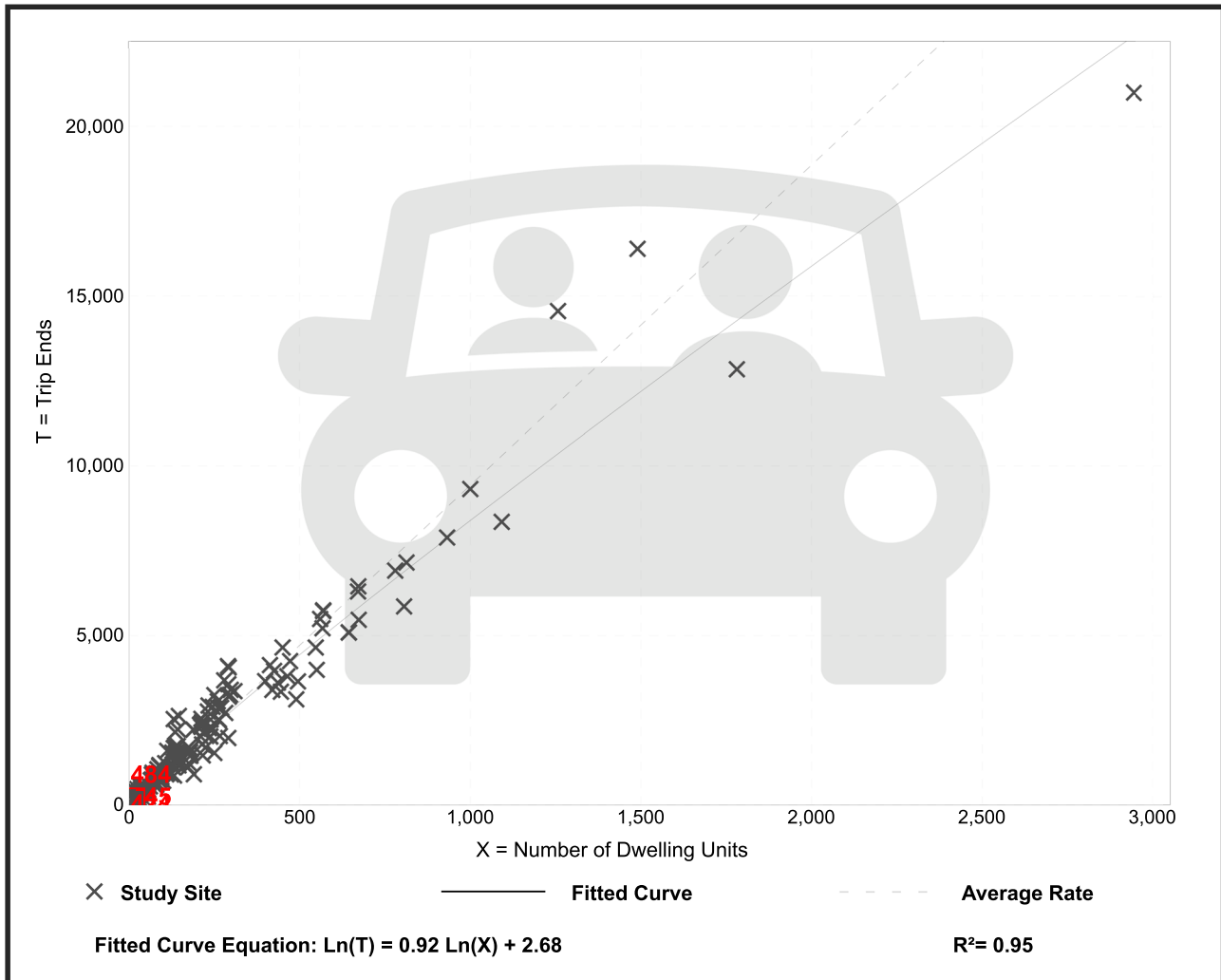
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



MEMO

To: George Brajkovic, City Manager
City of Tonganoxie

Cc: Dan Porter, Asst. City Manager
Kent Heskett, City Superintendent
John Zimbleman, Fire Chief
Chris Brewster, City Planner

From: Brian Kingsley, City Engineer

Date: April 28, 2022

Re: Deer Creek Development
Preliminary Plat, Storm Drainage Report and Traffic Impact Study
Review
21-1001L

The following are the City Engineer and staff review comments related to Engineering issues:

Preliminary Plat (dated 2022-04-23):

- 1) Street connectivity comments will be provided by the City planner and need to be addressed prior to approval.
- 2) Access to and maintenance of tracts related to layout is a concern that should be addressed prior to approval. I recommend that the developer submit a written plan outlining an operation and maintenance plan (including costs/anticipated dues) associated with the proposed tracts being maintained by 45 lots.
- 3) The name of the plat is Deer Creek Addition No. 1 implying that future phases of Deer Creek will be proposed.
 - a. The traffic impact study does not take future phases of Deer Creek Addition into consideration. Comments cannot be provided on future phases of this development at this time.

Recommended Action: Consider approval if comments are addressed to the satisfaction of the planning commission.

Storm Drainage Report (dated 2022-03-07):

- Watershed labels should be consistent between existing and proposed. The East 1 Basin area on the Existing Condition map is labeled as East 2 Basin on the Proposed Condition Map.
- The existing flows to discharge points should not be exceeded after development. Provide existing and proposed flows to each discharge point.
- It appears that water is being rerouted from Existing East 1 Basin (Offsite 1-2) to the East 2 Basin as part of the project. The memo should detail this and explain why this is occurring.
- The memo states that 9.04 acres of the East 2 Basin is on-site but it is not part of the Phase 1 development.
- The memo states that “The proposed storm water management system maintains the general grading and keeps the run-off flowing in the same direction as the predeveloped condition” but this doesn’t appear to be the case.
- Provide the rainfall intensity rates used. They should be substantially different from Atlas 14 rates. If so, use the Atlas 14 rates.
- The project will reduce East 1 Basin flows and increase the East 2 Basin flows. East 1 Basin flows feed an existing pond east of the project. The project should maintain close to existing flows to the pond.
-
- Watershed Maps
 - The boundaries of the watersheds and sub-watersheds are unclear. Provide a map that clearly delineates the location of the watersheds and sub-watershed.
 - Fix text overlaps
 - Existing contour elevations should be labeled
 -
- Curve Numbers
 - The hydrologic soil group for the proposed conditions should be Type D soils.
 - The curve number for East 2 Basin (proposed) on-site area (8.68 ac) should be 83 due to proposed future development of that area.
- Detention Pond
 - The detention basin is located off-site. Provide drainage easement for pond and conveyance to and from the basin.
 - The inputs for the detention pond are incorrect. The stage/storage table should be updated to provide storage areas at 1’ intervals. With a minimum bottom slope of 1% and the flowline out elevation of 863.0, the area at 863 should be 0.
 - Provide a detail of the detention basin and outlet structures.
 - Provide discharge velocity calculations and erosion protection, if needed.

- Provide calculations for an emergency spillway meeting the following requirements:
 - F. **Emergency Spillways:** The emergency spillway may either be combined with the outlet works or be a separate structure or channel meeting the following criteria:
 1. **Elevation:** Emergency spillways shall be designed so that their crest elevation is 0.5 feet or more above the maximum water surface elevation in the detention facility attained by the maximum design storm under the required Strategy for the facility.
 2. **Capacity:** In cases where the impoundment/emergency spillway is not regulated by either State or Federal agencies, the emergency spillway shall be designed to pass the 1% storm with 1 foot of freeboard from the design stage to the top of dam, assuming zero available storage in the basin and zero flow through the primary outlet. This design provides an added level of protection in the event of a clogged primary outlet or a subsequent 1% storm event that occurs before the flood pool from the initial storm event recedes to the principal outlet elevation.

Recommended Action: Resubmit storm water management plan addressing comments.

Traffic Impact Study (dated 2022-02-03):

- General comments:
 - The Traffic Impact Study (TIS) is a basic study. Sight distance is adequate at Smiley Drive for the proposed street connection. The TIS identifies a proposed amount of traffic generated by the development.
 - The proposed layout generally appears to be reasonable and would connect to the Northstar development (Myers Drive) at the east end of the development. Assuming the majority of the residents in this new Deer Creek Addition 1 commuted into/from the KC Metro on a daily basis, a majority of the traffic will likely travel east onto Myers Drive to Main Street and then use Main Street to US-24/40 (and reverse during the evening commute). The primary concerns that may arise from this possible traffic pattern are complaints of increased traffic on Myers Drive and possibly speeds if the Police Department is unable to continuously enforce speed limits. Traffic Calming measures (such as speed humps) could be installed at appropriate locations in Deer Creek Addition and/or on the existing Myers Drive to help mitigate speeding concerns.
 - We would not anticipate transportation capacity issues resulting from Deer Creek Addition 1 based on the number of lots proposed.
 - The traffic impact study does not take future phases of Deer Creek Addition into consideration. Comments cannot be provided on future phases of this development at this time.

Recommended Action: We recommend approval of the traffic impact study noting that future phases of Deer Creek Addition will require amendment to the study.

--END

For questions or comments, please contact:

Brian Kingsley, PE

President

T: 785.727.7261

E: brian.kingsley@bgcons.com



City of Tonganoxie, Kansas

PLANNING STAFF REPORT

Case#: 2022-003P, Preliminary Plat – Deer Creek Addition No. 1

Date of Report: April 29, 2022

Application: Preliminary Plat
Date of Application: 3/25/2022 (received by consultant via e-mail)
Date of Meeting: 5/5/2022

Action: *A preliminary plat requires review and approval by the Planning Commission. If the preliminary plat meets the general layout and preliminary planning and design standards of the subdivision regulations, the Planning Commission shall approve the preliminary plat.*

Applicant Name: Development Strategies, Chad Slavens & Kent Slavens

Property Owner Name: 4628 LLC, Kent Slavens

Subject Property
Address: 00000 Smiley Road, Tonganoxie KS (just north of 525 Smiley Road)
Property Size: 17.27 acres
Zoning: R-SF; undeveloped
Legal Description: SEUFERT'S SUBDIVISION, S04, T11, R21E, ACRES 17.27, PT SW1/4 SW1/4; BEG 30'E NW COR, E1286.66', S647.41', W1077.96', N417.4', W208.71', N230.01' TO POB AKA PT OF SEUFERT'S SUB Plat Book/Page 4 /23 Deed Book/Page 0797/0406 0571/1077

Surrounding Property – Zoning and Use:
West: R-R, Rural and R-SF Single Family (large lot single family residences and single family residences)
North: R-R, Rural and RR-2.5 (Leavenworth County) (large lot single family residences and undeveloped)
East: R-SF; Single Family and RR-2.5 (Leavenworth County) (single family residences and undeveloped)
South: R-R, Rural; R-SF Single Family; GED General Business (large lot single-family houses and church)

Recommendation: Approve preliminary plat subject to conditions;

I. SUMMARY

This application is a preliminary plat to divide 17.27 acres into 45 single-family residential lots between 8,750 square feet and approximately 20,000 square feet, including four tracts of common ownership. The property is off Smiley Road on the east side just north of State Avenue (U.S. 24/40). The plat includes an extension of Myers Drive on the east to Smiley Road on the west, and proposes three cul-de-sacs extending off of this street. The property is on the north edge of the city limits, with unincorporated Leavenworth County on the north and east boundaries of this property. It is zoned R-SF, Residential Single Family, under the City of Tonganoxie's Zoning Ordinance.

II. ANALYSIS –REVISED PRELIMINARY PLAT

The purpose of a preliminary plat is to show general and conceptual compliance with the City's subdivision design standards prior to completing final engineering and more technical drawings to divide lots and construct improvements. The preliminary plat is a coordinating document to guide the design and build out of development over time and to coordinate projects with other development in surrounding areas.

Plat applications must be reviewed against the following considerations (in bold italic text) as outlined by the City of Tonganoxie Subdivision Regulations, Section 4.1 and 4.2. Planning Commission shall approve the plat if it meets the City's criteria for the following required improvements:

a. Street Systems - provision for the continuation of existing streets, connections to adjoin areas, and adequate internal streets; internal circulation; and proposed streets extended to the boundaries.

The plat proposes an extension of Myers Drive, which is stubbed at the southeast edge of this property, through the property to Smiley Road. No other connections to surrounding property is included, as three cul-de-sacs are proposed off this connection.

The subdivision regulations require street connections at least every 660 feet to the boundary of adjoining tracts. This standard is intended to implement the minimum acceptable connections of local street networks, implement a neighborhood block structure, and avoid overloading traffic onto a few major streets in the city. This standard would require this property to have at least 6 connections to adjoining property, and there are only 2 proposed. Connections to the south may not be reasonable due to the location a large institutional use and a large lot residential pattern. With these properties fronting on State Avenue and Smiley Road, redevelopment of these areas that would require connections to a local street network may not be necessary. However, connections to the north and northeast undeveloped property are important to the long-range development patterns in this area.

The subdivision regulations also require a conceptual street network plan to show the relationship of this standard (connections every 660' of perimeter) to long range transportation plans and street networks. The applicant owns the property to the north, but does not own the property to the northeast. While not having common ownership does not over-ride the need for this longer-term street network planning as development occurs (and in fact it increases the importance) all of this property is in unincorporated Leavenworth County and also under the control of rural water districts. The City has no immediate intention of annexing and requesting

detachment to serve this property at this time, and those efforts are entirely subject to the property owners efforts with the County and/or rural water districts. Therefore, staff recommends waiving the requirement for a conceptual street network, but does recommend to stub both cul-de-sacs to the north and northeast boundaries of the property. This can be done with only slight adjustments to the lot patterns, and can be done through platted rights-of-way that allow temporary or interim street configurations similar to those shown on the proposed preliminary plat. The specific type and configuration of the stubs can be coordinated with City staff and the Fire Department.

Additionally, specific street sections of all streets will need to be submitted at the final plat. These street sections should follow the guidance of the most recent Comprehensive Plan updates for neighborhood streets, including street widths, streetscape and street trees, and sidewalks.

b. *Lots – the lot arrangement provides building sites meeting the standards of the city regulations and proposed zoning.*

All lots in the preliminary the potential to provide building sites conforming to City zoning requirements and the R-SF zoning for the property. However, some of the remaining common ownership tracts do raise some concerns with regard to ownership, long-term maintenance, and capitalizing on open space designs that bring value through neighborhood design (see open space comments in II.e. below). Based on those comments, and the street network comments in II.a, some slight reconfiguration of the lots on the final plat may be warranted.

c. *Character of Development – Minimum requirements on the character of development (both within the proposed project and in relation to surrounding property) may be included in the required project.*

The proposed project generally meets the character of property on surrounding sites. The areas is zoned for a mix of rural and single family residential. While a greater mix of housing types in the area is warranted and recommended in the comprehensive plan, when viewed in relationship to just this project and the immediate vicinity, the proposed plat reflects the character of this area.

d. *Utilities and Easements*

The proposed utilities and easements appear acceptable at a planning and conceptual level. Additionally, the property with rear lot lines abutting Tract B and the Southern Star Central Cass Easement may need to demonstrate access to each of these areas. Approval of construction plans according to all City specifications is required for all improvements, and construction plans for streets, storm sewer and sanitary sewer will need to be submitted in coordination with the final plat. Based on a technical review of these plans, adjustments to easements in the final plat may be advised.

Further, the City Engineer report dated April 28, 2022 notes concerns with the stormwater study, and in particularly the significant amount of stormwater flowing through the development onto property to the north. This may have impacts on the pond downstream of the development.

e. *Open Spaces and Community Assets – parks, school sites and other civic assets, other than streets.*

The project does not propose any parks or school sites. However, it does include four tracts of common ownership. Platted tracts of common ownership raise two long-term planning concerns – (1) are they planned, located, and designed to become focal points or functional spaces that bring maximum value to surrounding property through their design (as opposed to “left over” space); and (2) are they likely to be easily maintained long term – both through formal and legal obligations, but also as a practical matter.

Several of the tracts seem to present the condition that they are simply “left over” space, rather than being designed and located to serve specific purposes. At a minimum, the applicant will be required to establish a property owners association that has the financial capacity and administrative structure to maintain all of these spaces. Evidence of these obligations will be required with the final plat. Additionally, some practical considerations with each of the tracts are noted:

- Tract A – this should be designed as a formal “gateway” to the area with enhanced landscape, serving as both a buffer to the property immediately to the south and creating an enhanced entry into the neighborhood.
- Tract B – this tract is designated as a detention area. Further design details will be necessary at the final plat to determine the best configuration. Additionally, there is not clear access to this area. Specific landscape and access designs will be required, and some other reconfiguration that allows this space to serve other aesthetic and recreation purposes should be considered, rather than simply having it as a detention basin at the backs of several properties.
- Tract C – Similar to Tract A, this tract should have some enhanced landscape as a gateway due to its relationship to the streetscape. Additionally, this is a much larger tract and has the potential to serve as a recreation or aesthetic greenspace for the neighborhood.
- Tract D – this is a very small tract. It has the potential to “mirror” whatever is occurring on Tract C and emphasize the “gateway” effect. Otherwise, if a suitable design for this area cannot compliment Tract C and be easily maintained, it may need to be joined with Lot 26 and placed under private ownership and maintenance.

f. Suitability of the Land

The land is undeveloped but has been planned residential property for several years. Although a greater mix of housing types is desired throughout all neighborhoods in the City according to the most recent Comprehensive Plan updates, at this small scale the proposed plat is generally consistent with the City’s long-range plans for this area.

IV. EFFECT OF DECISION

The Planning Commission may approve, conditionally approve/modify or deny a plat application. Any denial or conditional approval/modification must specifically state the reasons for the decision and requirements to meet the Commission’s approval.

The approval of the preliminary plat does not constitute final approval or acceptance of the subdivision by the City Planning Commission or authorization to proceed on construction of the improvements within the subdivision, but shall constitute approval of the general layout. Approval of a preliminary plat is valid for one year, within which time a final plat shall be submitted. Denial of a preliminary plat may be appealed to the City Council

Approval of a final plat authorizes the applicant to proceed with final design and construction of required improvements and after acceptance of any lands dedicated for public purposes by the Council, authorizes recording of the plat with the county. Upon receipt of a certified and recorded final plat by the City and a performance bond or irrevocable letter of credit, the City may authorize installation and construction of required improvements. Upon installation of improvements, the applicant may apply for building permits.

V. RECOMMENDATION

Staff recommends re-approval of the preliminary plat of Stone Creek, including the change to discontinue Oakwood Lane at the north creek boundary, for another 1-year period, with a 1-year extension, subject to the following conditions:

1. Details of the City Engineers report dated April 28, 2022 be addressed. Specifically:
 - a. The traffic study notes that future additions – both on the applicant’s property to the north, but any potential connections on other property to the north and east – are possible and likely, and at that time the traffic study shall be amended
 - b. The stormwater plan be resubmitted according to the comments in the City Engineers report. Issues regarding flow to property to the north, and impacts on downstream ponds shall be addressed prior to submitting a final plat.
2. The Planning Commission concur that due to the situation of property to the north and east (unincorporated, rural water districts, with no immediate city plans to annex), that the conceptual street network plan required by the subdivision regulations (particularly to justify not meeting the default connection standards) is not necessary at this time. However, to account for potential long-range development, both cul-de-sacs to the north and northeast should plat potential stubs to that property. In this case, the requirement for connections to the perimeter at least every 660’ could be waived.
3. The open space and common ownership tracts be considered through further design details to ensure they are valuable assets to the neighborhood, and to ensure their long-term maintenance. At a minimum, final designs and the formal applications for maintenance by a property owners association should be submitted with the final plat.



Chris Brewster
Contract City Planner

SPECIAL USE PERMIT APPLICATION

Filing Fee Required

In Accordance with Section 22-013, of the City of Tonganoxie's Zoning Ordinances, an application is hereby made for a Special Use Permit:

Date application filed: 3-22-22 Permit No.: _____

Applicant: Heather Smith

Address: 707 E 4th City: Tonganoxie State KS Zip 66086

Telephone #: 913-238-1719 (Home) _____ (Work)

913-238-1719 (Cell) smithhot2704@gmail.com (E-mail Address)

Property Owner(s): _____ Phone _____

Address: _____ City: _____ State _____ Zip _____

Name of business proposed: Tongie Tykes LLC

Address of business: 707 E 4th, Tong, KS 66086

Description of business: Childcare Center

Hours of operation: 6-6 Days: Mon Tue Wed Thu Fri Sat Sun

of employee's 10 Family members? _____ Live on site? NO

If business is to be operated by someone other than the applicant or owner, give name and address:

Briefly describe the present use and character of the property: _____

Be New Youth Center on front half of building. Daycare ctr will be on back side of building.

Briefly describe the requested/proposed use of the property _____

The back half of Building will be Daycare Ctr for 49 Children. Fence for play on back Rt side.

Briefly describe what effect the requested use will have on the property and the surrounding area:

It will benefit the town with much needed childcare. At a reasonable, safe environment

Heather Smith

Applicant Signature

Signature

Richard Olson

Property Owner Signature if different from applicant



City of Tonganoxie, Kansas

PLANNING STAFF REPORT

Case#: 2022-002P –Special Use Permit for Day Care

Date of Report: April 28, 2022

Applicant Name: Heather Smith, Tongie Tykes LLC

Property Owner Name: Cornerstone Family Worship of Tonganoxie Inc.

Subject Property Address: 707 E. 4th Street

Legal Description: TONGE-NOXIE, PLAT OF , BLOCK 9 , PT LTS 6-11;BEG SW COR LT 11, N147.1',E104.37',SLY149.48', W77.81' TO POB Plat Book/Page 1B /80 Lot Width: 147.1 Lot Depth: 104.3 Deed Book/Page 0879/0054 0694/1072 0606/0653

Application:

Zoning District: HBD

Type of Approval Desired: Special Use Permit (Day Care)

Date of Application: March 22, 2022

Date of Meeting: May 5, 2022

Surrounding Property – Zoning and Use:

West: HBD (south)

South: HBD (daycare)

East: I-LT (industrial / storage lot)

North: ILT (park)

Staff Recommendation: Approval, subject to conditions.

I. SUMMARY:

This application proposes a daycare use in an existing building, as part of a combined repurposing of the building to a youth center and daycare. The daycare will be in the back portion of the building, and utilize the existing access and parking that is on a separate lot (305 S. Main Street) owned and operated by the same property owner as part of this lot. There are not site or building alterations proposed with this application, and the application only includes tenant finish interior improvements.

A community center is an allowed use in the HBD district, and a daycare is an allowed use in the HBD district, but requires a special use permit.

II ANALYSIS – SPECIAL USE PERMIT FOR DAYCARE IN HBD DISTRICT

The application indicates that the proposed daycare will occupy the rear half of the existing building (approximately the back 50 feet), and be divided into 4 rooms between 285 and 480 square feet for various age groups (toddler, preschool, school age, and older school age). The rest of the space includes a common area, restrooms, a small kitchen and an infant room.

The Tonganoxie Zoning Ordinance has the following specific requirements for Licensed Daycares, Group Daycares, **and Child Care Centers**. (These do not supersede any State requirements that may apply.) [22-030.C.]

1. The property must have a minimum lot area of 6,000 square feet and a minimum lot width of 65 feet.

The lot is approximately 13,000 square feet and has 72 feet of frontage on 4th Street. As a corner lot, it also has approximately 150 feet of frontage on South Main Street. The parking area addressed as 305 S. Main Street adds approximately an additional 50 feet of frontage on South Main and an additional 8,800 square feet

2. In any residential zoning, side setbacks must be at least 100% greater than the minimum side setback required in the district except where the interior side yard is attached to another residential unit.

Not applicable, as this property is in the HBD district. Further, the HBD district is intended for small-scale, mixed-use retail, entertainment and services. The historic development patterns have no minimum lot requirement, and no setbacks to promote the compact walkable pattern of downtown.

3. At least 75 square feet of outdoor play space must be provided on the lot for each child using the space at a given time. The total outdoor space shall accommodate not less than one-half of the licensed capacity, or shall include a minimum of 750 square feet, whichever is greater.

The application does not show any play areas, but indicates that the facility will have a capacity of 49 children. At this capacity the zoning ordinance would require 3,675 square feet of outside play area. The site is also immediately adjacent to a City Park (Gallagher Park) that is approximately 14,810 square feet.

4. All open play areas must be completely enclosed with a fence (chain link, wood, or vinyl) at least 4 feet in height and in good repair.

The application does not show any play areas, and provided Gallegher Park is determined to be an acceptable substitute, it is not fenced.

5. The Council may impose additional requirements such as (but not limited to),
- Limitations on the number of children
 - Additional fence requirements or setbacks
 - Hours of Operation
 - Other requirements that may affect the neighborhood or the health and safety of the children being cared for.

The application states that up to 49 children may be accommodated and the hours of operation will be from 6AM to 6PM. State license requirements with respect to the building, employees and other operational features will likely control the number of children. According to the zoning standards (and contingent on a determination of the outside space requirements) the site may accommodate more than proposed in the application. The HBD district is intended to have activity in a wide range of times, so hours of operation are not as great of a concern as in neighborhoods. Therefore, for the purposes of the SUP approvals and limits, staff does not recommend any additional conditions, provided nothing in the SUP would supersede any operational limits required through the State licensure.

Parking requirements are established in Section 20 of the Tonganoxie zoning ordinance and have the following regarding the HBD district and daycares:

“In the Historic Business District (HBD), for the purposes of minimizing disruptive curb cuts and driveways, and to encourage the consolidation of parking space in appropriate locations, accessory off- street parking is not required unless determined necessary by the Planning Commission with approval of a site plan.” [20-111.W];

Daycares (Licensed Daycares), Group Daycares, Child Care Centers , and non-accessory use Preschools.	Net floor area of facility is greater than 2500 square feet.	8 spaces for the first 2,500 square feet, plus 1 space for every additional 5,000 square feet, plus 1 space for each provider on duty at any one time.
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[20-011.X]

The zoning ordinance has a default that all parking spaces must be on site, but allows parking to within 200’ of the site to be included in a Special Use Permit. In addition, planning and urban design policies for unique context of the HBD district promotes maximizing on-street parking along the site and on adjacent blocks as a shared resource so that sites and buildings can continue to be built in the historic, compact and walkable development pattern.

At this rate the proposed 3,200 square foot portion of the building used for daycare would require 9 parking spaces, plus parking for each provider when used as a daycare. The application indicates 10 employees, for a total requirement of 19 spaces.

The existing parking area north of the building is unimproved surface and does not indicate parking spaces. However due to the scale of the area it could accommodate approximately 16 parking spaces. There is no on-street parking permitted on South Main Street, but the front of the building has 3 designated on-street spaces on 4th Street and there is additional on-street parking in the vicinity. [Note: the unimproved nature of the parking is a nonconforming

situation. The ordinance requires conformance with the city requirement to pave parking areas if there are any structural changes or a use of the property is abandoned.]

In general, parking is to be waived in the HBD district to account for the more compact, walkable pattern, and to acknowledge that a mix of productive, vibrant uses in close proximity is the priority rather than ensuring that each site has plentiful (and often redundant) parking. Despite this, the nature of the daycare use will require some drop-off and parking for practical purposes. The site can accommodate close to the required amount of parking were this not in the HBD district (discounting the unimproved aspect of the parking, and discount parking for the other portion of the building as a youth center.) Therefore rather than restrict the use and special use permit review to a parking minimum, planning staff recommends that the Planning Commission make its recommendation based on the practical nature of the drop off scenario, and determine a drop-off and parking consistent with an overall parking and urban design strategy for downtown.

The applicant will need to propose a strategy that addresses the practical parking and drop off needs for this use at this site, and that address the parking and urban design aspects of the downtown context.

The Tonganoxie Zoning Ordinance also has the following general criteria to be considered for all special use permits. [22-011]

- A. The location and size of the proposed use in relation to the site and to adjacent sites and uses of property, and the nature and intensity of operations proposed thereon.

The application is a partial reuse of an existing building within the Historic Business District (HBD). The HBD is intended for "small-scale retail, entertainment, municipal and personal service uses that meet the regular needs of the City," and to promote the original character and integrity of the district. Adjacent uses reflect this mixed-use character.

- B. Accessibility of the property to police, fire, and refuse collection and other municipal services; adequacy of ingress and egress to and within the site; traffic flow and control; and the adequacy of off-street parking and loading areas.

The subject property has good access for public safety and other municipal services along the abutting streets. As analyzed above with the parking requirements, the site can take advantage of the downtown context and corner location, giving options for drop off and pick up from a variety of directions.

- C. Utilities and services, including water, sewer, drainage, gas and electricity, with particular reference to location, availability, capacity and compatibility.

The site is an infill location with access to existing utilities. Connection to utilities will be reviewed through the building permits, and it is anticipated there will be no or nominal impact to utility services in the area by the daycare use.

- D. The location, nature and height of structures, walls, fences, and other improvements; their relation to adjacent property and uses; and the need for buffering or screening.

The application is proposed reuse of an existing building within the Historic Business District, and no new improvements are included in the application

- E. The adequacy of required yard and open space requirements and sign provisions.

The application is proposed reuse of an existing building within the Historic Business District, and it meets the standards of that district. (Note: the day care use does have an additional open space requirement addressed above.)

- F. The general compatibility with adjacent properties, other properties in the district, and the general safety, health and comfort and general welfare of the community and surrounding neighborhood.

Daycare / Child Care Centers are generally compatible in business districts. The Historic Business District is a unique district in the City and specifically is concerned with (a) preserving the small-scale, compact and walkable patterns of downtown; (b) encourage a mix of uses that add vibrancy to the heart of the city; and (c) promoting long-term investments in buildings and uses that serve these goals. The use of this site for a daycare is consistent with these goals, particularly since the proposed building maintains the small-scale, compact pattern of the HBD district.

III. EFFECT OF DECISION

- The Planning Commission decision is a recommendation to Governing Body for Special Use Permits; final approval of the City Council is required. Following the consideration of any additional input from the applicant, City Staff, or the public, and based on the application and testimony at the hearing, the Planning Commission may take one of the following actions.
 - Recommend approval of the application.
 - Recommend approval of the application, subject to conditions;
 - Recommend denial of the application, or
 - Continue the application to another date for further consideration and additional information. If continued to a specific date, time and location, no new notice will be required.
- The City Council considers the application at the next meeting after 14 days.
- If City Council may adopt the Planning Commission's recommendation by a majority; it may modify or override the Planning Commission's recommendation by a 2/3 vote of the membership of the governing body.
- If a valid protest petition is filed with the City of Tonganoxie City Clerk within 14 days from the conclusion of the Planning Commission hearing, the City Council must approve the application by a ¾ majority of the governing body.

IV. RECOMMENDATION.

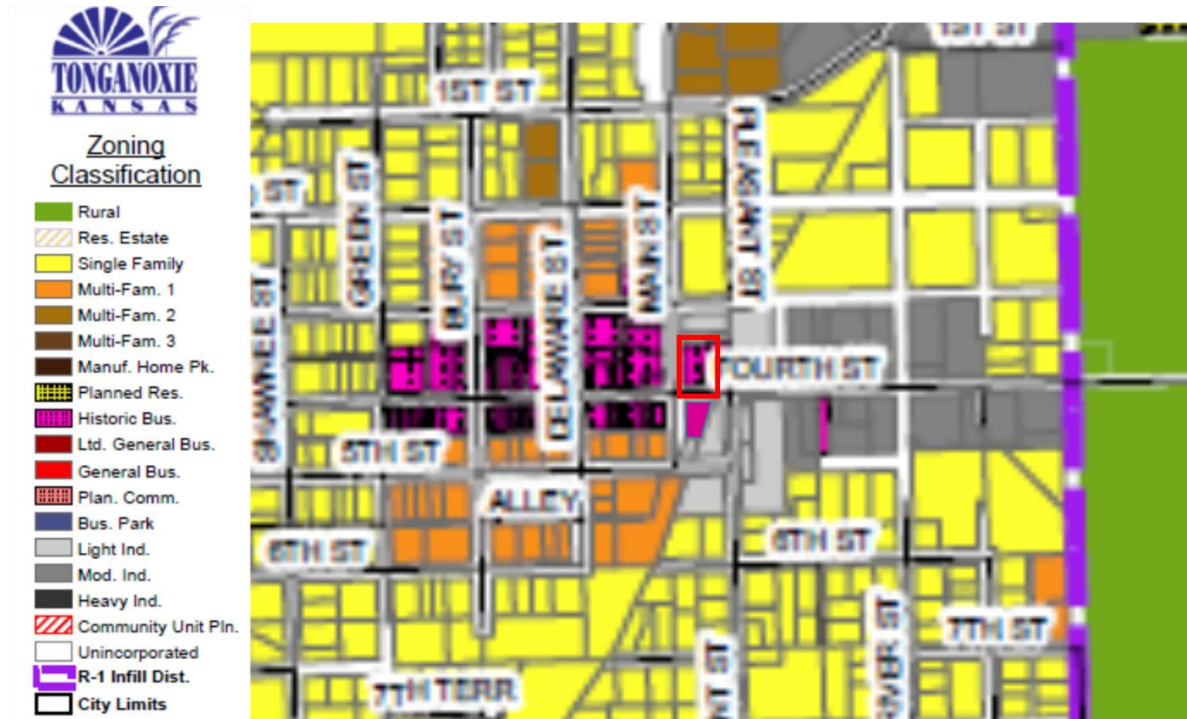
Planning Staff recommends approval of the Special Use Permit subject to the following condition:

1. The applicant propose a specific drop off procedure and the Planning Commission accept that it meets both the practical needs of the daycare use and the parking and urban design strategies for downtown. The applicant should consider and propose a strategy that addresses the following at a minimum:
 - a. The timing and typical vehicle counts a peak times.
 - b. Whether drop off will be all internal to the site, all on-street, or a combination.
 - c. How operational and staffing scenarios can improve drop off.
 - d. Whether remote parking in the vicinity of downtown and/or other modes of parking are expected.

- e. What physical improvements are necessary to the site to accommodate the proposed strategy.
2. The per child open space requirement of the zoning ordinance be waived due to the downtown context and the abutting public park. Note this would not waive any requirement for outside play areas required by KDHE, and the SUP would still remain subject to any requirements for state licensure. In the event that open space is constructed on site, it shall require an amended site plan and meet all City standards for landscape and open space design.
3. The applicant submits final KDHE permit to the City, prior to any business license or certificate of occupancy in the building.
4. The applicant shall obtain a fire inspection on an annual basis concurrently with the annual renewal of a City Business License for the day care center.
5. The operation is limited to up to 49 children, and operating hours between 6AM and 6PM, unless further limited by state license requirements.
6. The permit is valid for a period of two years from the date of approval by the City Council.
7. The building is subject to all building permit and Fire Department inspections necessary for buildings generally, and necessary for daycare facilities and state licenses – specifically exit signs, commercial rated fire extinguishers, compliance of all electrical fixtures or other emergency exit conditions and procedures.



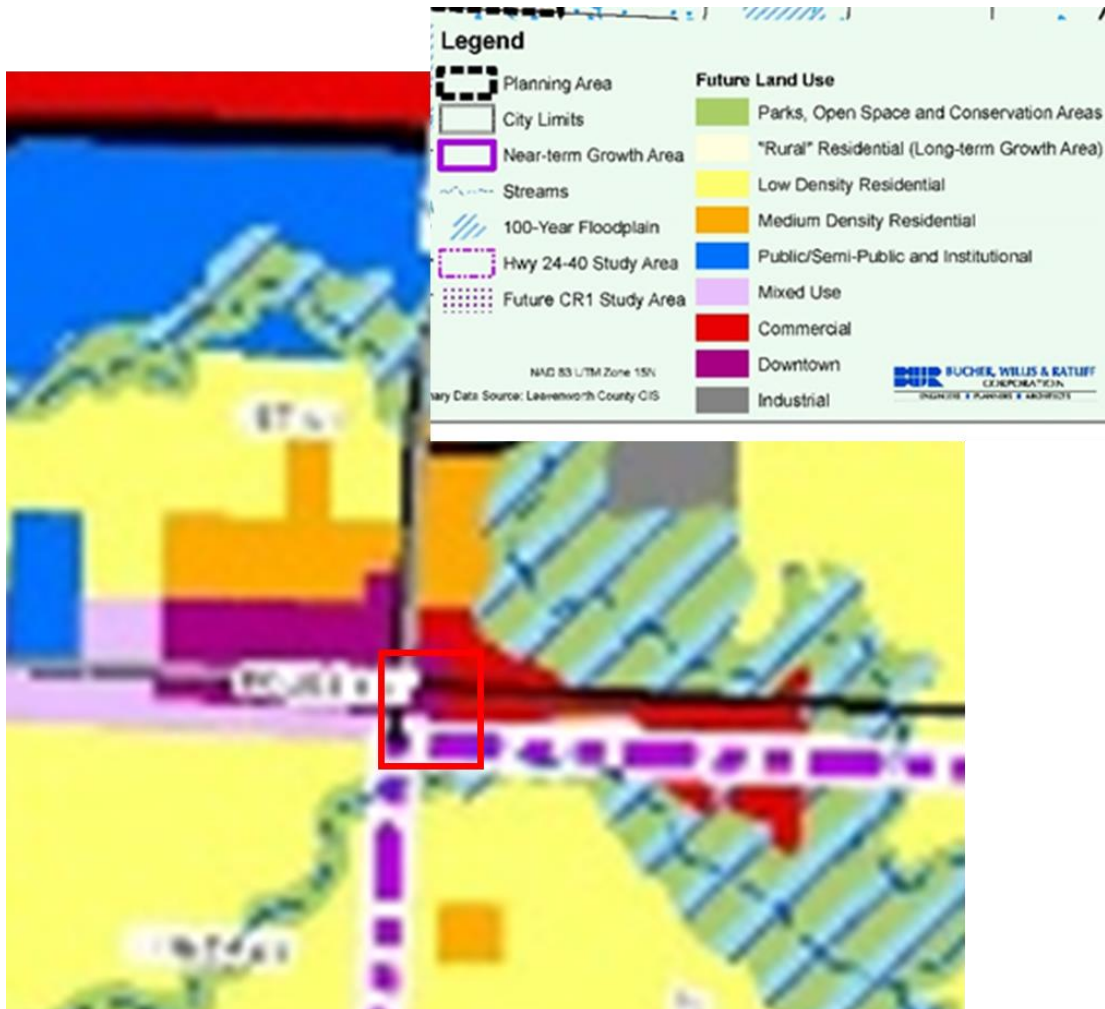
Chris Brewster
Contract City Planner



Current City Zoning



Property



Future Land Use (Tonganoxie Comprehensive Plan 2006)



JANUARY 2022

	Single Family Units [^]	Multi-Family Units [%]	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD		Single Family Units [^]	Multi-Family Units [%]	Total Units	S-F Units YTD	M-F Units YTD	Total Units YTD		
CASS COUNTY							LEAVENWORTH COUNTY								
Archie	0	0	0	0	0	0	Basehor	4	0	4	4	0	4		
Belton	15	0	15	15	0	15	Lansing	0	0	0	0	0	0		
Cass County	0	0	0	0	0	0	Leavenworth County	3	0	3	3	0	3		
Cleveland	0	0	0	0	0	0	Leavenworth	0	0	0	0	0	0		
Drexel	0	0	0	0	0	0	Tonganoxie	2	0	2	2	0	2		
Harrisonville	1	0	1	1	0	1		9	0	9	9	0	9		
Lake Winnebago	5	0	5	5	0	5	WYANDOTTE COUNTY								
Lee's Summit	1	0	1	1	0	1	Bonner Springs	0	0	0	0	0	0		
Peculiar	0	0	0	0	0	0	Edwardsville	0	0	0	0	0	0		
Pleasant Hill	2	0	2	2	0	2	KCK/Wyandotte Co	11	0	11	11	0	11		
Raymore	39	0	39	39	0	39		11	0	11	11	0	11		
Village of Loch Lloyd	0	0	0	0	0	0	MIAMI COUNTY								
	63	0	63	63	0	63	Louisburg	0	0	0	0	0	0		
CLAY COUNTY							Miami County	0	0	0	0	0	0		
Clay County	6	0	6	6	0	6	Osawatometie	0	0	0	0	0	0		
Excelsior Springs	0	0	0	0	0	0	Paola	0	0	0	0	0	0		
Gladstone	0	0	0	0	0	0	Spring Hill	0	0	0	0	0	0		
Kansas City	58	0	58	58	0	58		0	0	0	0	0	0		
Kearney	3	0	3	3	0	3	Totals	440	288	728	440	288	728		
Lawson	0	0	0	0	0	0	Comparison of Single Family								
Liberty	1	0	1	1	0	1	Building Units for Greater Kansas City								
North Kansas City	0	0	0	0	0	0	(Cass, Clay, Jackson, Platte, Johnson, Leavenworth, Miami, Wyandotte Counties)								
Pleasant Valley	0	0	0	0	0	0	Month/Year	2015	2016	2017	2018	2019	2020	2021	2022
Smithville	14	0	14	14	0	14	January	240	274	457	463	234	355	411	440
	82	0	82	82	0	82	February	260	408	477	463	234	475	493	
JACKSON COUNTY							March	393	542	571	549	357	438	560	
Blue Springs	10	0	10	10	0	10	April	437	523	562	564	411	434	637	
Buckner	0	0	0	0	0	0	May	395	503	504	598	391	374	579	
Grain Valley	12	0	12	12	0	12	June	438	578	567	569	387	421	558	
Grandview	0	0	0	0	0	0	July	399	494	512	485	471	493	480	
Greenwood	0	0	0	0	0	0	August	425	536	480	514	429	444	502	
Independence	1	0	1	1	0	1	September	462	424	514	353	396	557	458	
Jackson County	8	0	8	8	0	8	October	459	466	583	485	500	510	690	
Kansas City	7	0	7	7	0	7	November	360	417	502	354	410	404	524	
Lake Lotawana	0	0	0	0	0	0	December	432	352	468	276	434	461	653	
Lee's Summit	56	0	56	56	0	56	Annual Total	4,700	5,517	6,197	5,673	4,654	5,366	6,545	440
Oak Grove	4	0	4	4	0	4	Comparison of Permits By Units Issued Year to Date								
Raytown	0	0	0	0	0	0	2015 - 2022								
Sugar Creek	0	0	0	0	0	0		S-F	M-F	Total					
	98	0	98	98	0	98		Units	Units	Units					
PLATTE COUNTY							2015	240	214	454					
Kansas City	12	0	12	12	0	12	2016	274	85	359					
Parkville	0	0	0	0	0	0	2017	457	10	467					
Platte City	0	0	0	0	0	0	2018	463	0	463					
Platte County	8	0	8	8	0	8	2019	234	407	641					
Riverside	0	0	0	0	0	0	2020	355	67	422					
Weatherby Lake	0	0	0	0	0	0	2021	411	44	455					
Weston	0	0	0	0	0	0	2022	440	288	728					
	20	0	20	20	0	20	^The Single Family number is units and includes both attached and detached units.								
JOHNSON COUNTY							%Multi-Family units are in buildings with 5 or more units.								
De Soto	0	0	0	0	0	0	# Not available at time of report								
Edgerton	0	0	0	0	0	0	Permit information reflects the most recent data at time of publication. In order to ensure								
Fairway	0	0	0	0	0	0	accurate recording of residential building permit statistics, the HBA may revise monthly and								
Gardner	3	288	291	3	288	291	year-to-date figures when updated data is made available. Copyright 2022 Home Builders								
Johnson County	3	0	3	3	0	3	Assoc of Greater Kansas City. All rights reserved.								
Leawood	3	0	3	3	0	3									
Lenexa	27	0	27	27	0	27									
Merriam	0	0	0	0	0	0									
Mission Hills	0	0	0	0	0	0									
Olathe	41	0	41	41	0	41									
Overland Park	36	0	36	36	0	36									
Prairie Village	6	0	6	6	0	6									
Roeland Park	0	0	0	0	0	0									
Shawnee	16	0	16	16	0	16									
Spring Hill	22	0	22	22	0	22									
Westwood	0	0	0	0	0	0									
	157	288	445	157	288	445									