



PRELIMINARY STORMWATER MANAGEMENT REPORT

Kansas Sky Solar Project

Douglas County, Kansas

NOVEMBER 2023

PREPARED FOR:



PREPARED BY:

Westwood

Preliminary Stormwater Management Report

Kansas Sky Solar Project

Douglas County, Kansas

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Introduction

The purpose of this report is to summarize the proposed stormwater management for the Kansas Sky Solar Project (“the project”). This report was prepared to meet stormwater management requirements per Douglas County and is intended for submittal to these agencies for permitting review and approval.

The project site is proposed within a 1,113 acre property boundary and will encompass approximately 810 acres. The project is located approximately 3 miles north of the city of Lawrence in Douglas County, Kansas. The site’s current use is agricultural row crops.

The area below the proposed solar panels is assumed to be pervious due to the area between and beneath the panels being vegetated. The proposed use of the site will be a solar facility consisting of 786 acres of meadow grasses and about 24 acres of the new impervious surface including gravel access roads, inverters, substation, O&M, and other associated solar infrastructure.

Minimal grading will be proposed on site and existing drainage patterns will be maintained. Stormwater management practices including detention basins are proposed on site to meet the requirements of the county. Other stormwater measures are proposed to route water through the site including drainage crossings and swales.

Data Sources

TABLE 1: DATA SOURCES

Task	Format	Source	Use
Elevation	XML	SAM LLC	Onsite Model Elevations
Elevation	1-meter TIF	USGS TNM	Offsite Model Elevations
Elevation	TIF	Westwood Professional Services	Onsite Proposed Model Elevations
Landcover	Shapefile	USDA 2021 Crop Data Layer	Existing Landcover
Curve Numbers	Shapefile	Douglas County	Existing Curve Numbers & Soil Types
Precipitation	PDF File	NOAA Atlas 14	Design Storms
Site Boundary	KMZ	Savion	Define Model Extents
2014 Aerial Photography	ArcGIS Map Service	USDA FSA	Reference

Site Conditions

Site Location

The project site is proposed within a 1,113 acre property boundary and will encompass approximately 810 acres. The project is located approximately 3 miles north of the city of Lawrence in Douglas County, Kansas. See Exhibit 1 for a map of the project location.

Topography Description

The existing topographic information used in this analysis was obtained from a combination of the survey prepared by SAM dated 10/19/2022 and USGS National Elevation Set 1-meter elevation data obtained from the USGS The National Map. Survey elevations were used for onsite elevations whereas the 1-meter data was used to determine offsite contributing watersheds. The site is generally flat with slopes around 1%-5%.

Drainage Patterns

Onsite runoff is split into 18 drainage areas based on discharge locations and flowpaths. A number of existing channels, including irrigation ditches, run through the site and eventually discharge to the Kansas River to the southwest. Drainage areas are shown in Exhibits 5 & 6.

The site has 6 ultimate discharge locations; all of which flow to existing channels that exit the site and eventually drain to the Kansas River. Discharge locations are shown in Exhibits 5 & 6.

Soils

Soils data was obtained from the curve number shapefile provided by Douglas County. The site consists of Hydrologic Soil Group (HSG) B, C, and D soils. Type B soils have moderate runoff potential and infiltration rates. Type C soils have moderate runoff potential and low infiltration rates. Type D soils have high runoff potential and low infiltration rates. Low infiltration rates can cause localized flooding in low areas for extended periods on site. See Exhibit 3 for the soils distribution throughout the site.

Landcover

A review of aerial photographs and the USDA 2021 Crop Data Layer shows that the site is currently used and has historically been used for agricultural row crops. See Exhibit 4 for a map of the landcover throughout the site.

Requirements

State and County requirements have been reviewed for the project. All requirements determined to be relevant to the project are summarized below.

Construction Stormwater Requirements

Information on the construction stormwater management for the project will be included as a separate study.

Stormwater Management Requirements

The following requirements need to be met for the project.

TABLE 2: STORMWATER MANAGEMENT REQUIREMENTS

Agency	Location of Requirements	Requirement	Recommendation
Douglas County	https://www.douglascountyks.org/sites/default/files/2023-09/ch12%20ZONING%20REGULATIONS%20merge%2009.11.23.pdf	Decrease runoff quantity from existing to proposed conditions	Pre-Post analysis for the 2-, 10-, & 100-year, 24-hour storm events

Drainage Improvements

Proposed drainage improvements will be sized as the project progresses.

Methodology

Existing and proposed conditions are modeled in HydroCAD software. HydroCAD is a widely accepted hydrologic and hydraulic modeling package based on TR-20 unit hydrograph equations. It models stormwater runoff discharge rates and velocities from ponds, culverts, outlet control structures, and stream reaches.

Hydrology

Curve Number Methodology, based on the NRCS-TR 55 method, was used in the modeling for predicting direct runoff. Curve numbers were assigned by reviewing the soil and landcover for each drainage area.

Times of concentration were calculated for each drainage area in HydroCAD using the lag method. The lag method uses the hydraulic length (distance traveled by a drop of water from the most distant part of the subcatchment to the outlet point) and the average land slope (average slope of entire watershed). The overall curve number for the site along with the lag information is used to get the time of concentration for the site.

Atlas 14 precipitation and distribution data for the analysis (Appendix A).

TABLE 3: RAINFALL TABLE

Storm Event	2-year 24-hour	10-year 24-hour	100-year 24-hour
Rainfall (in)	3.54	5.21	8.12

Stormwater Management Approach

A solar project differs greatly from other commercial or residential developments. When constructed, a solar project will include solar panels, at-grade gravel access roads, and other electrical equipment. The panels will be mounted above the ground with a low maintenance perennial meadow grass growing below. Due to the area between and beneath the panels being vegetated, panels are not considered an impervious surface. While solar projects may require grading, the existing terrain is smoothed to accommodate array installation, rather than significant changes to grades or slopes, and the grading is designed to maintain existing drainage patterns. In Douglas County a maximum of 5% of the project area may be graded.

Access roads are installed at grade and allow for runoff to sheet flow through the proposed meadow cover which provides a reduction in runoff.

The proposed substation will be a raised pad and runoff from this area will sheet flow to proposed swales along borders of the raised pad. These swales will route water to the proposed detention basin to the west.

Detention basins are proposed to provide rate control for the proposed site. The basins will have an outlet culvert at the bottom of the basin to allow water to slowly release to meet requirements. The proposed basins will not have any permanent standing water.

Modeling

The site is modeled in existing and proposed conditions in order to complete the water quantity analysis required.

Existing Conditions

The existing site consists of row crops. Existing curve numbers were assigned per the shapefile provided by the county, see Table 4 for a summary of existing conditions. Exhibit 5 shows the existing curve numbers across the site.

TABLE 4: EXISTING CONDITIONS CURVE NUMBERS

CN	Area (ac)
74	12.8
75	91.1
76	29.1
77	25.9
78	0.1
79	8.5
80	3.4
82	256.7
84	2.9
86	379.2
Total	809.7

Proposed Conditions

The use of the site will be a solar facility. The solar modules will be located above grade with meadow grass below the proposed array and a small percentage of impervious areas. Proposed curve numbers were assigned using the soil types provided by the county and the proposed landcover per the NRCS TR-55 methodology (Appendix B). See Table 5 below for a summary of proposed conditions.

TABLE 5: PROPOSED CONDITIONS CURVE NUMBERS

Cover	CN	Area (ac)
Roads/Inverters/Substation/O&M	98	23.7
Meadow, HSG B	58	157.5
Meadow, HSG C	71	254.1
Meadow, HSG D	78	374.4
Total		809.7

*Panels are considered meadow cover, see Stormwater Management Approach section for details.

Results

The results of the various analyses are described below.

Water Quantity Analysis

Stormwater quantity calculations for the site were prepared using HydroCAD. The proposed site meets the rate control requirements of the county. Table 6 shows a summary of the runoff rates for the recommended storm events at each site discharge location. Calculations are included in Appendices C & D. Basins were not included in the water quantity analysis due to the model showing a reduction in runoff rates without them.

TABLE 6: RUNOFF RATE SUMMARY

Location	2-year Runoff (cfs)		10-year Runoff (cfs)		100-year Runoff (cfs)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
1	34.69	21.33	62.42	42.06	109.65	79.70
2	172.48	92.59	306.72	190.11	538.78	371.91
3	10.71	2.47	21.47	7.20	41.74	18.29
4	438.08	236.64	817.84	529.65	1,469.91	1,089.10
5	112.41	63.72	197.75	134.26	341.40	266.77
6	82.77	41.33	149.81	88.86	264.97	178.43

Stormwater Management Practices

Basin Calculations

Detention basins are provided downstream of the proposed facilities to reduce runoff rates from the large impervious pad. The basins were sized to provide a storage for the difference in runoff volume between the existing and proposed conditions for the 100-year, 24-hour storm event. See Table 7 below for the required sizing. Calculations can be found in Appendices C & D.

TABLE 7: BASIN STORAGE SUMMARY

Basin ID	Existing Runoff Volume (ac-ft)	Proposed Runoff Volume (ac-ft)	Required Storage Volume (ac-ft)
1 (Substation)	4.48	4.57	0.09
2 (O&M)	0.94	1.05	0.11

Conclusion

The proposed site was designed to meet the requirements of Douglas County. The proposed site consists of proposed detention basins in order to maintain existing drainage patterns and reduce runoff rates. Drainage crossings and swales will be sized as the project progresses. The proposed vegetative cover below the array and detention basin at the substation reduce runoff rates for the final conditions.

References Cited

National Engineering Handbook, Part 630 Hydrology. Chapter 9 Hydrologic Soil-Cover Complexes. USDA. NRCS. 210-VI-NEH, July 2004

USDA Geospatial Data Gateway, 1-meter NED, Elevation data, Accessed April 2023, <https://datagateway.nrcs.usda.gov/>

Web soil survey. Retrieved April 2023, from <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

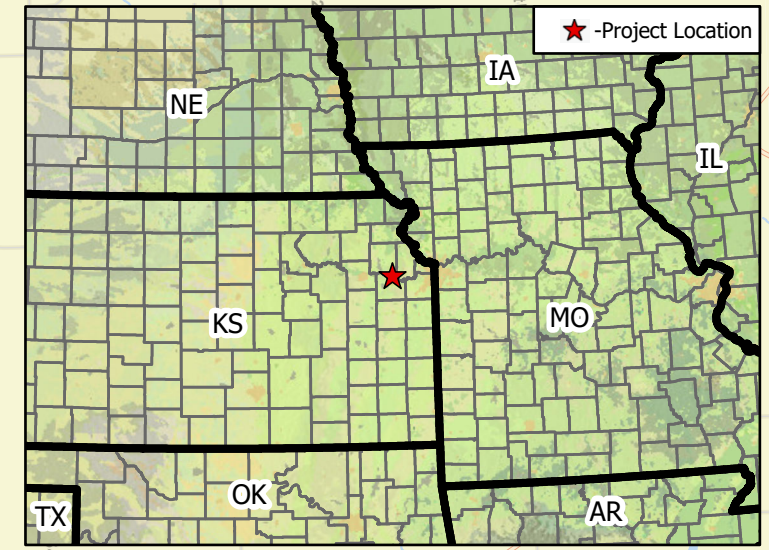
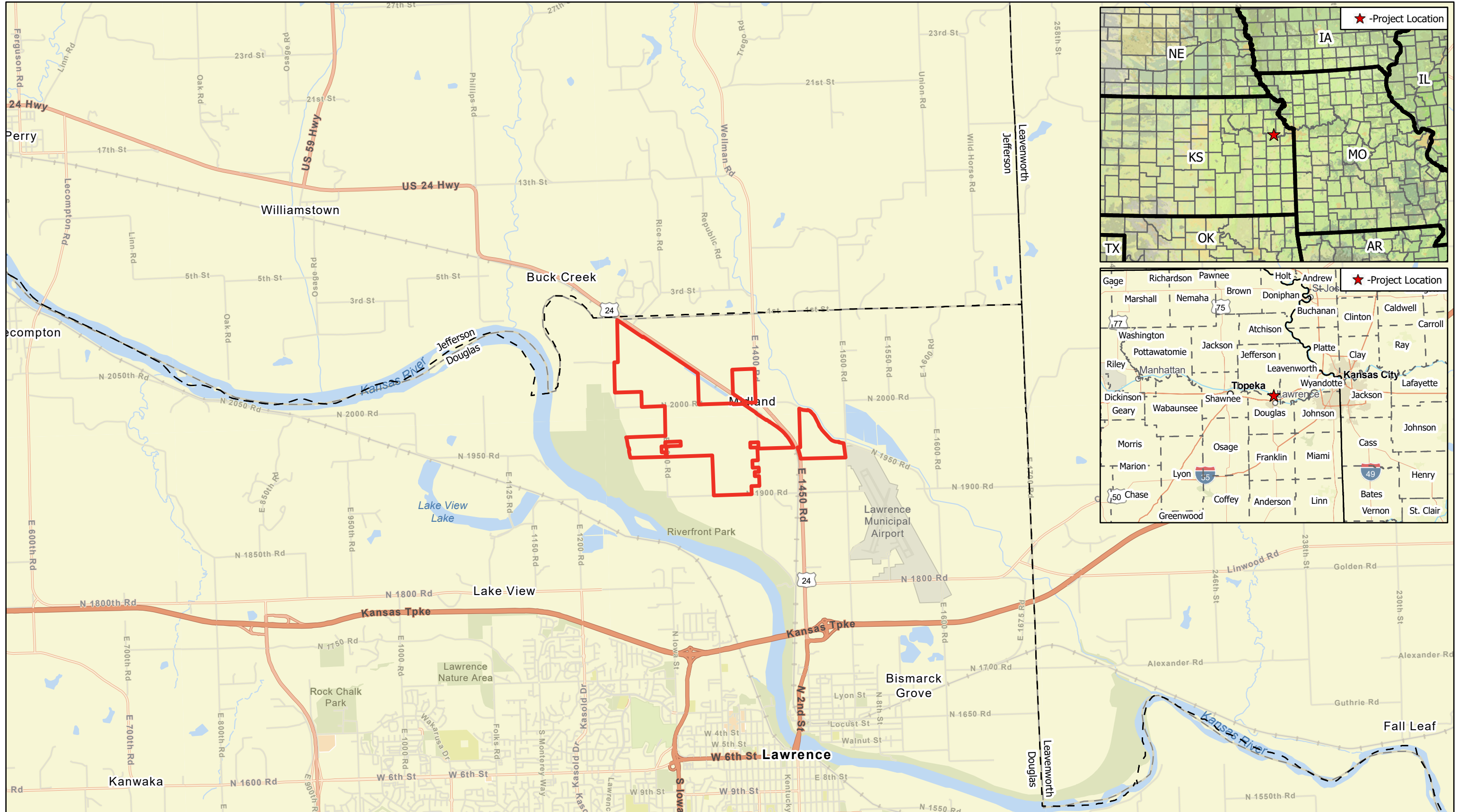
NOAA, & Service, N. W. AHPS Precipitation analysis. Retrieved April 2023, from <http://water.weather.gov/precip/download.php>

USGS. USGS water resources: About USGS water resources. Retrieved April 2023, from <https://water.usgs.gov/GIS/huc.html>

USDA 2021 Crop Data Layer, Landcover data, retrieved April 2023, from https://www.nass.usda.gov/Research_and_Science/Cropland/SARS1a.php

The background of the page is a dark red topographic map with intricate contour lines. A dashed red line runs vertically through the center, starting from a solid red dot at the bottom and ending with a red 'X' near the top. The word "Exhibits" is printed in white serif font on the left side of the map.

Exhibits



Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

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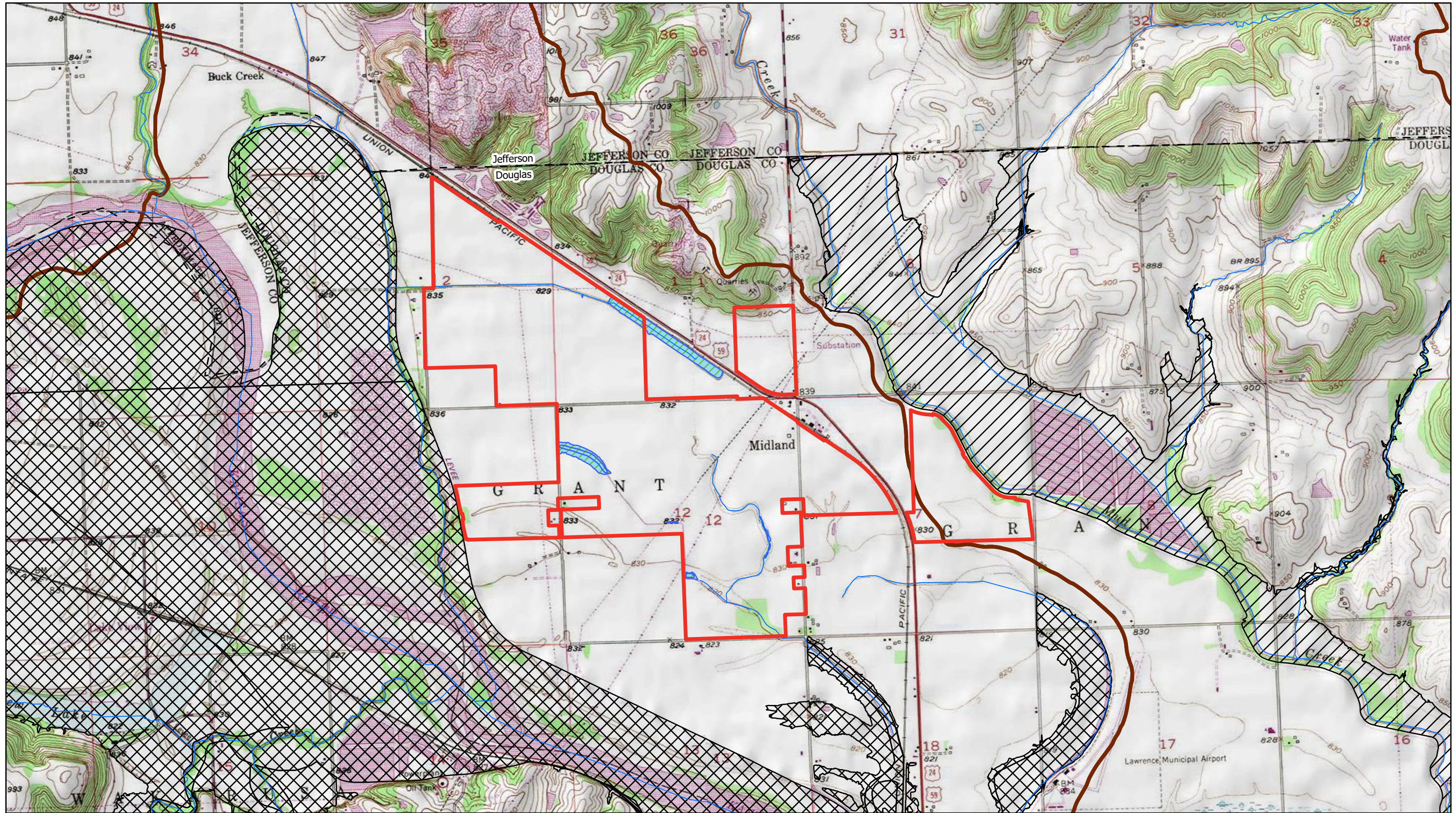
- Project Area
- County Boundary

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01-Location_Map - Location Map | 10/31/2023 10:25 AM | splars



Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

Legend

- Project Area
- HUC-12 Boundary
- County Boundary
- FEMA Zone A
- FEMA Zone AE
- Delineated Wetlands
- NHD Flowlines

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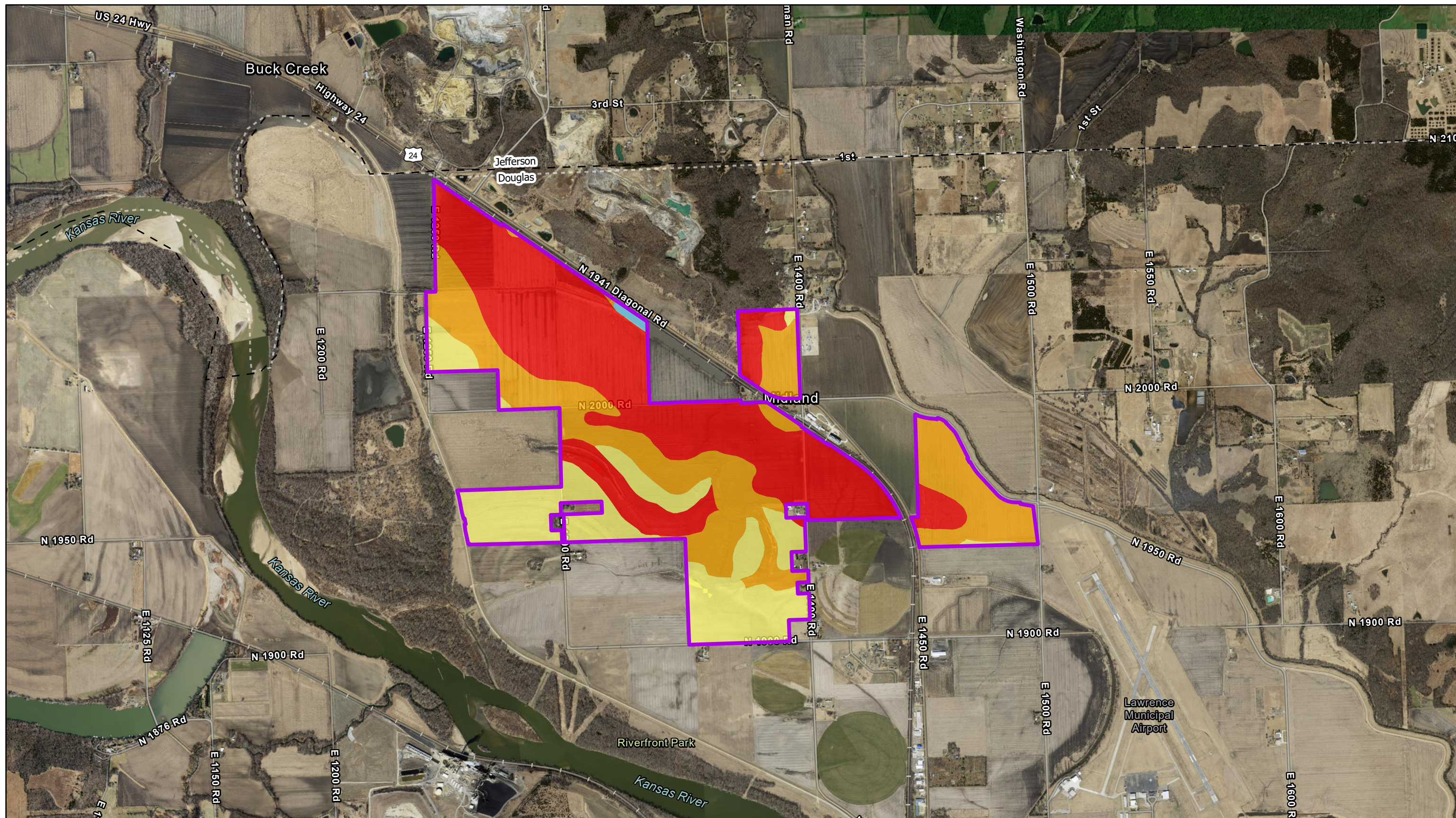
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Exhibit 2: Base Hydrologic Map

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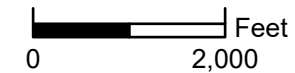


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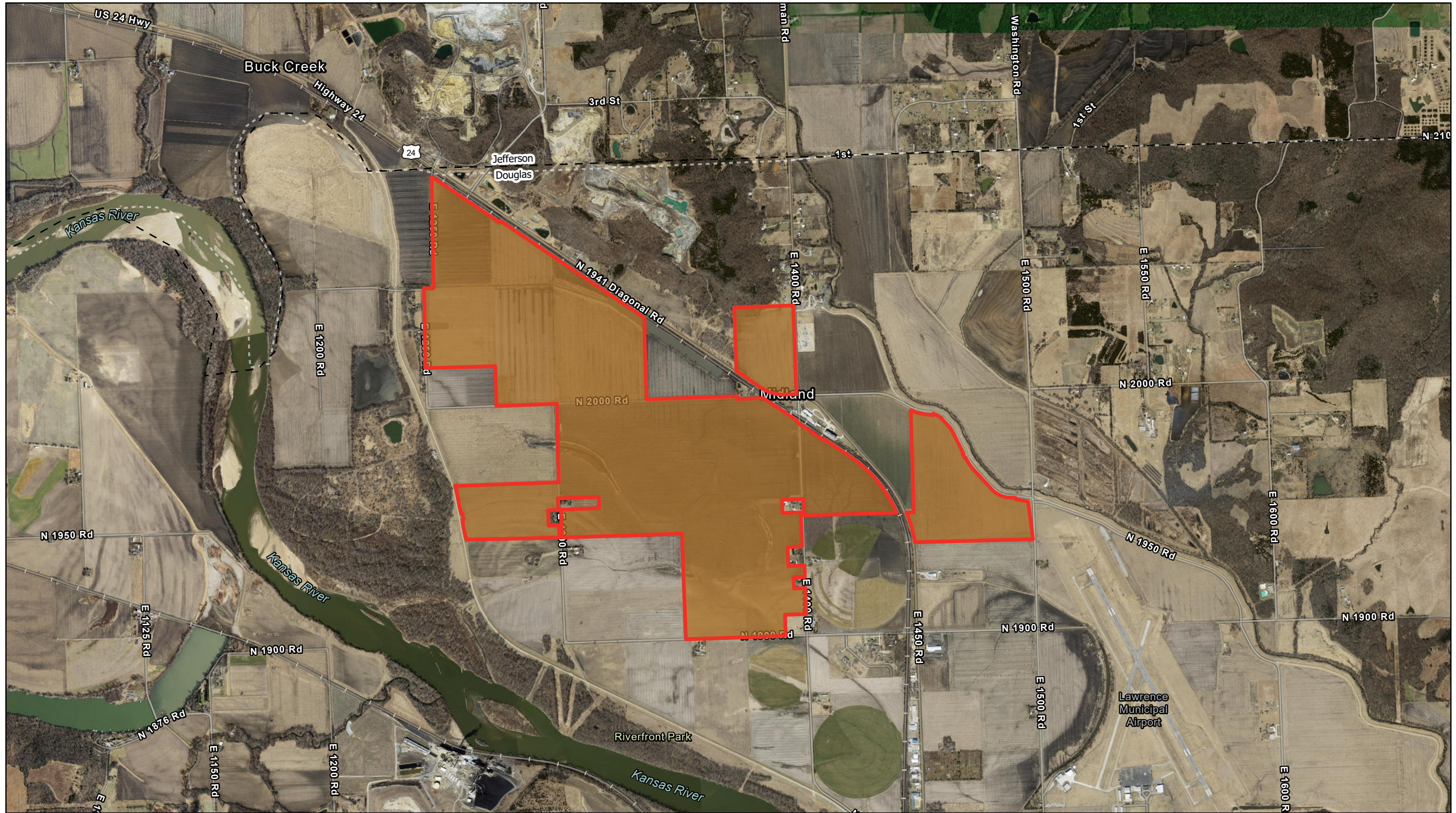
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- Project Area
- County Boundary
- B
- C
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Exhibit 3: Soils Map
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Data Source(s): Westwood (2023); Esri WMS Basemap Imagery (Accessed 2023); USGS (2023); FEMA (2023); USDA (2023)

Legend

- Project Area
- Row Crop
- County Boundary

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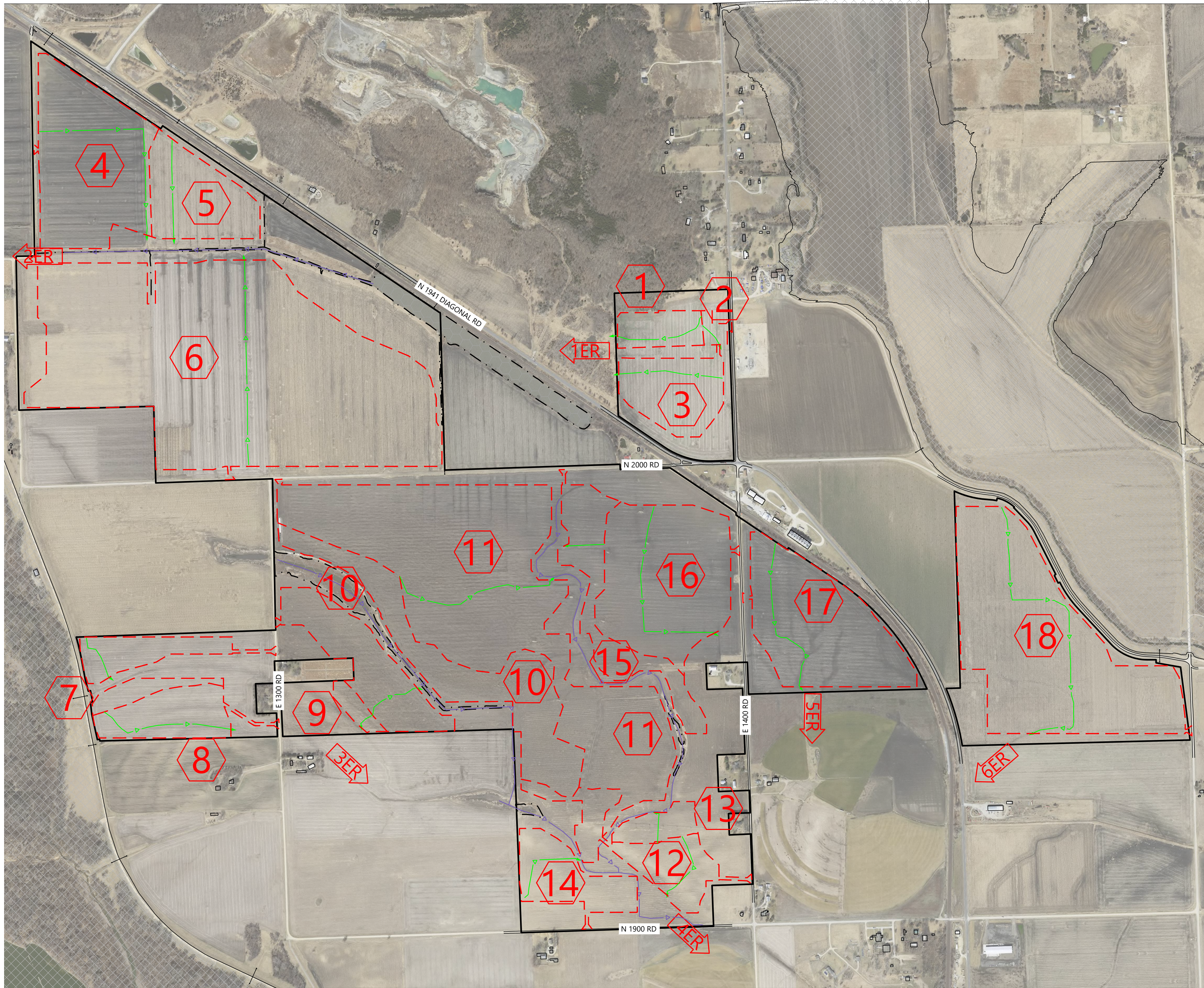
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Exhibit 4: Landcover Map

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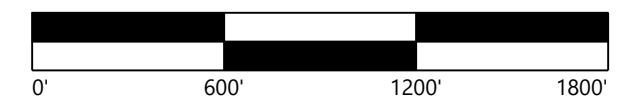
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Overall Existing
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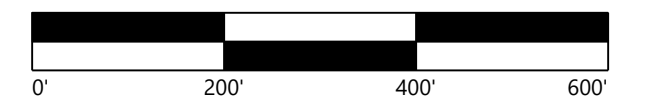
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Existing Drainage Map

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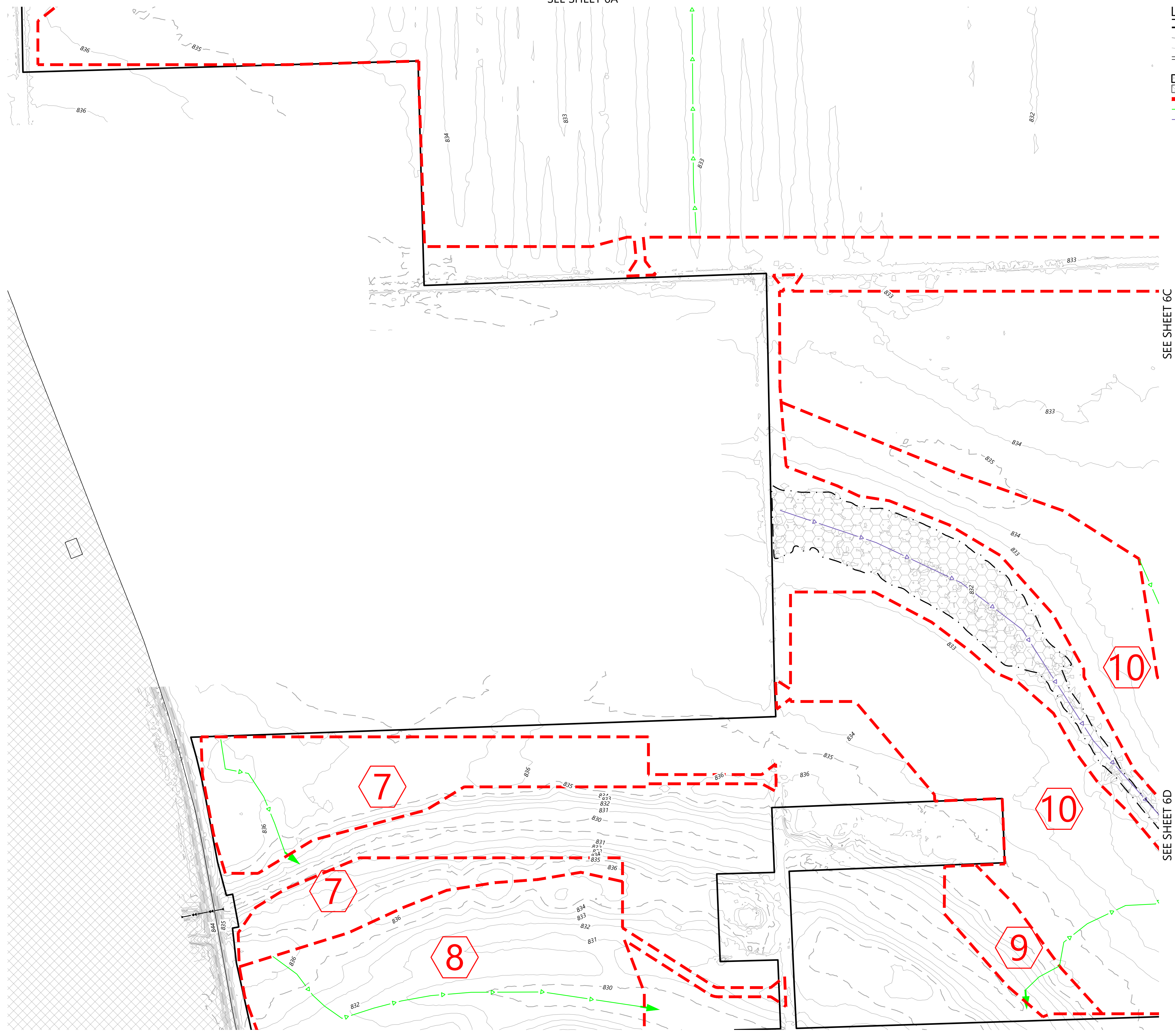


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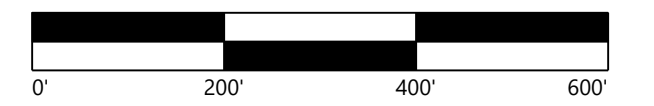
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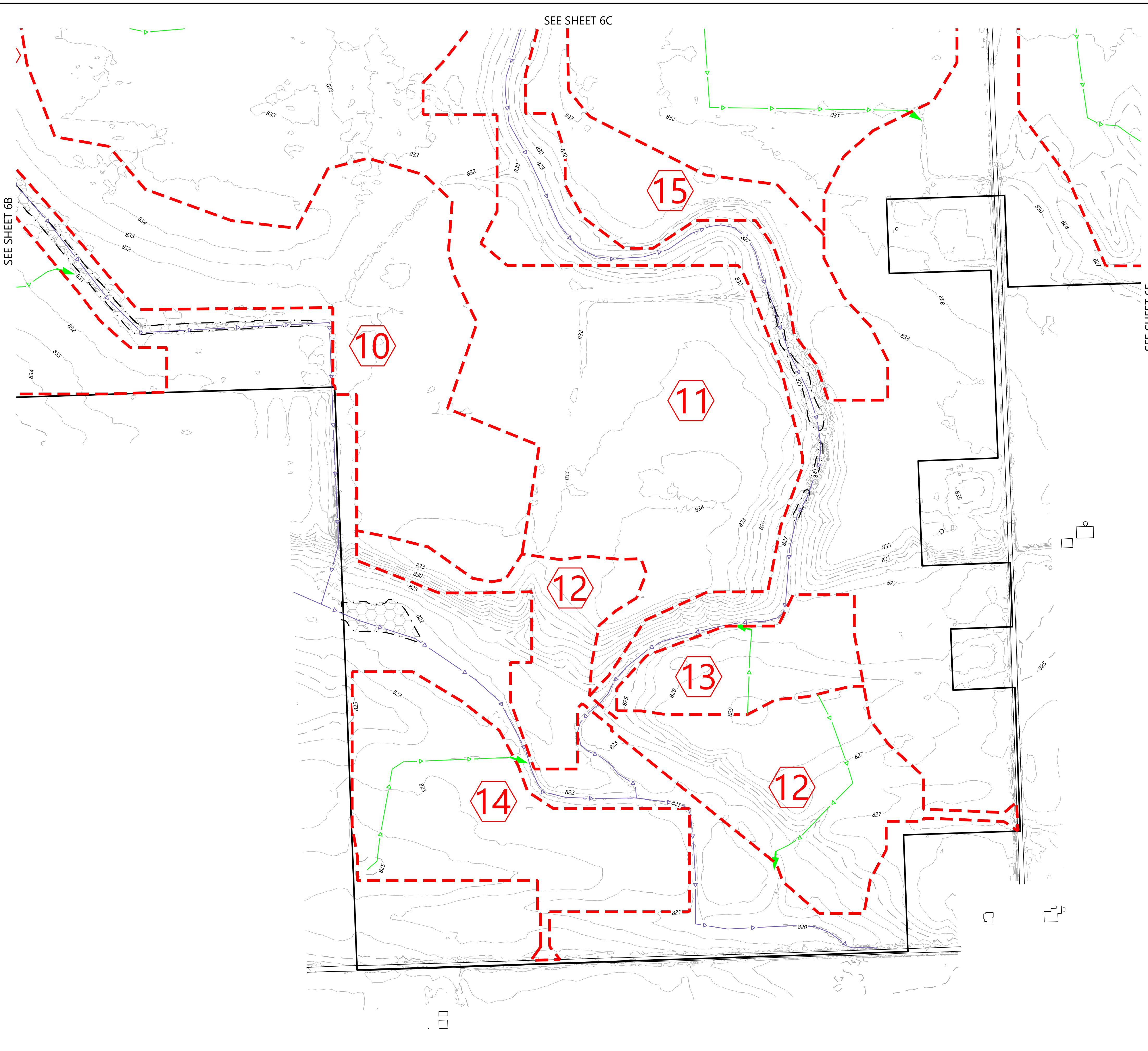
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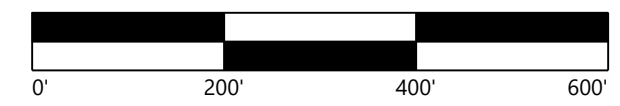
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Existing Drainage Map

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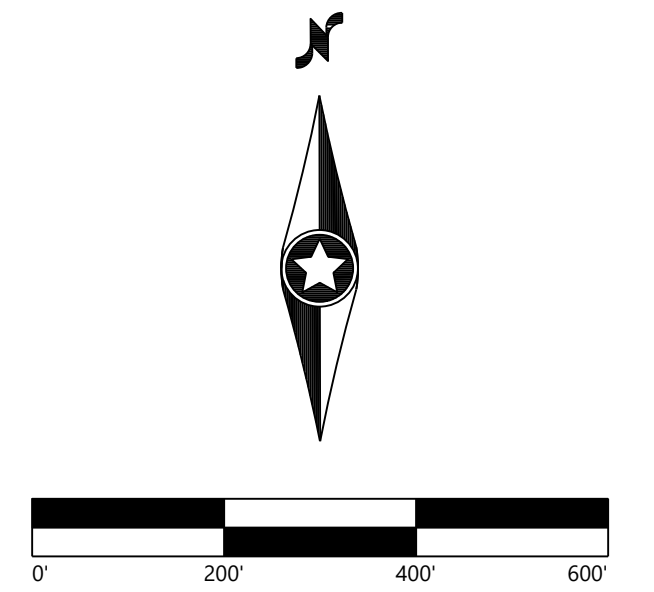
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Existing Drainage Map

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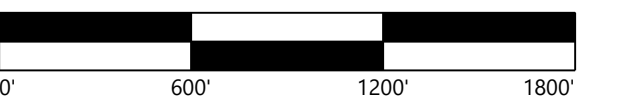
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Overall Proposed Drainage Map

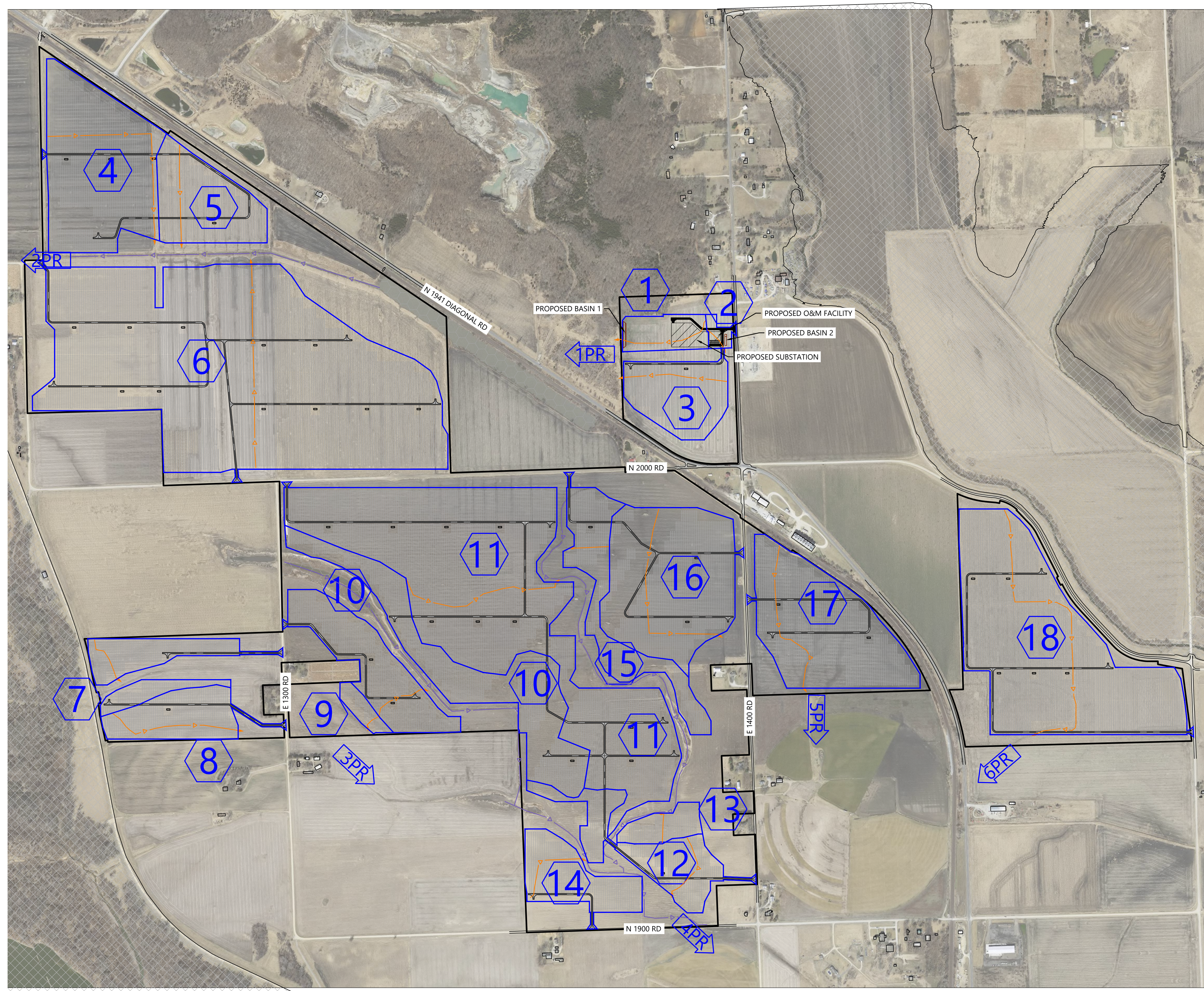
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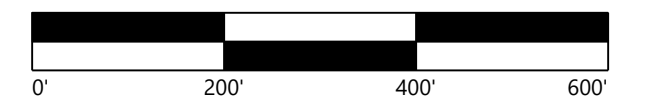
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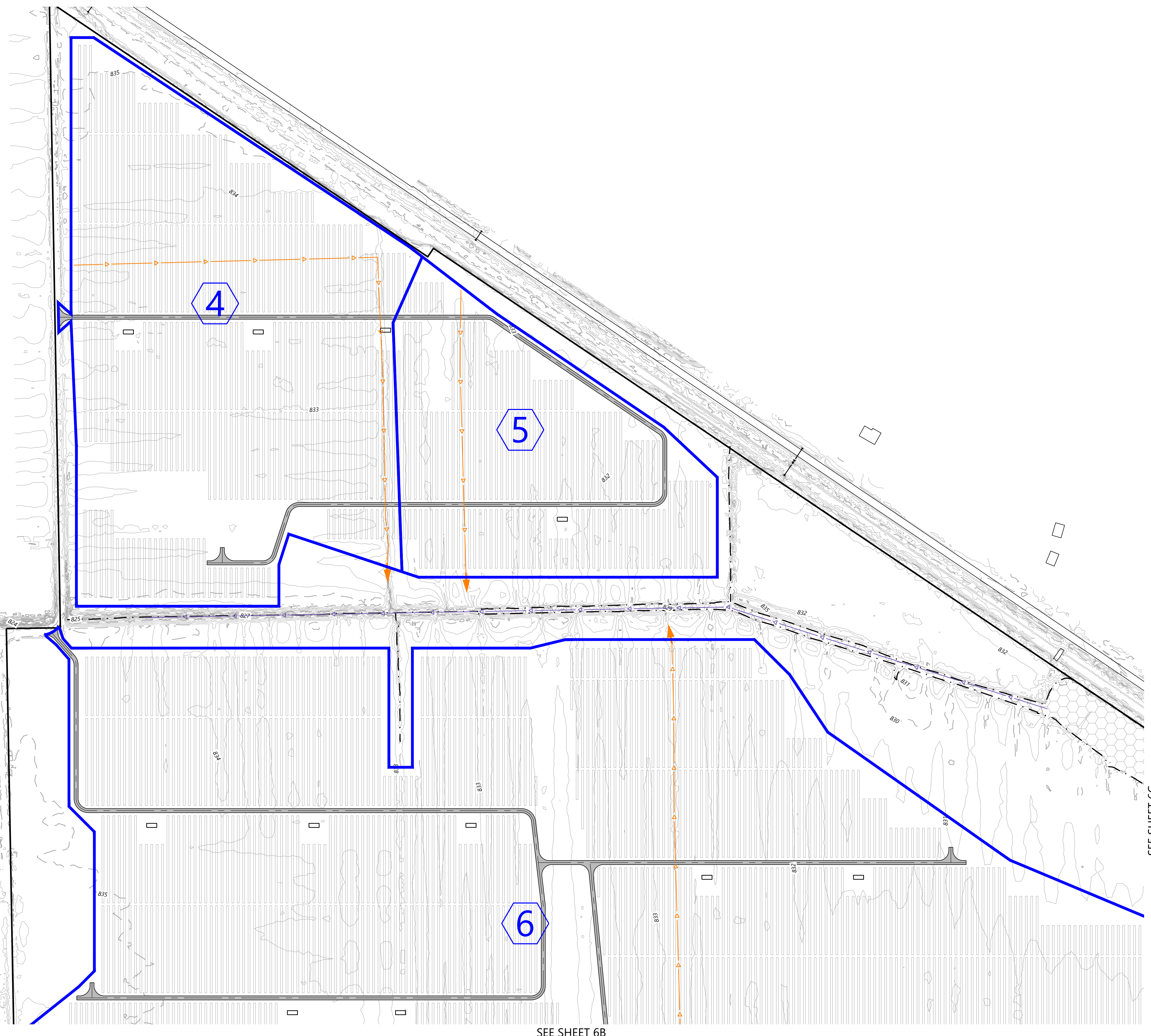
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Douglas County, Kansas

Proposed Drainage Map

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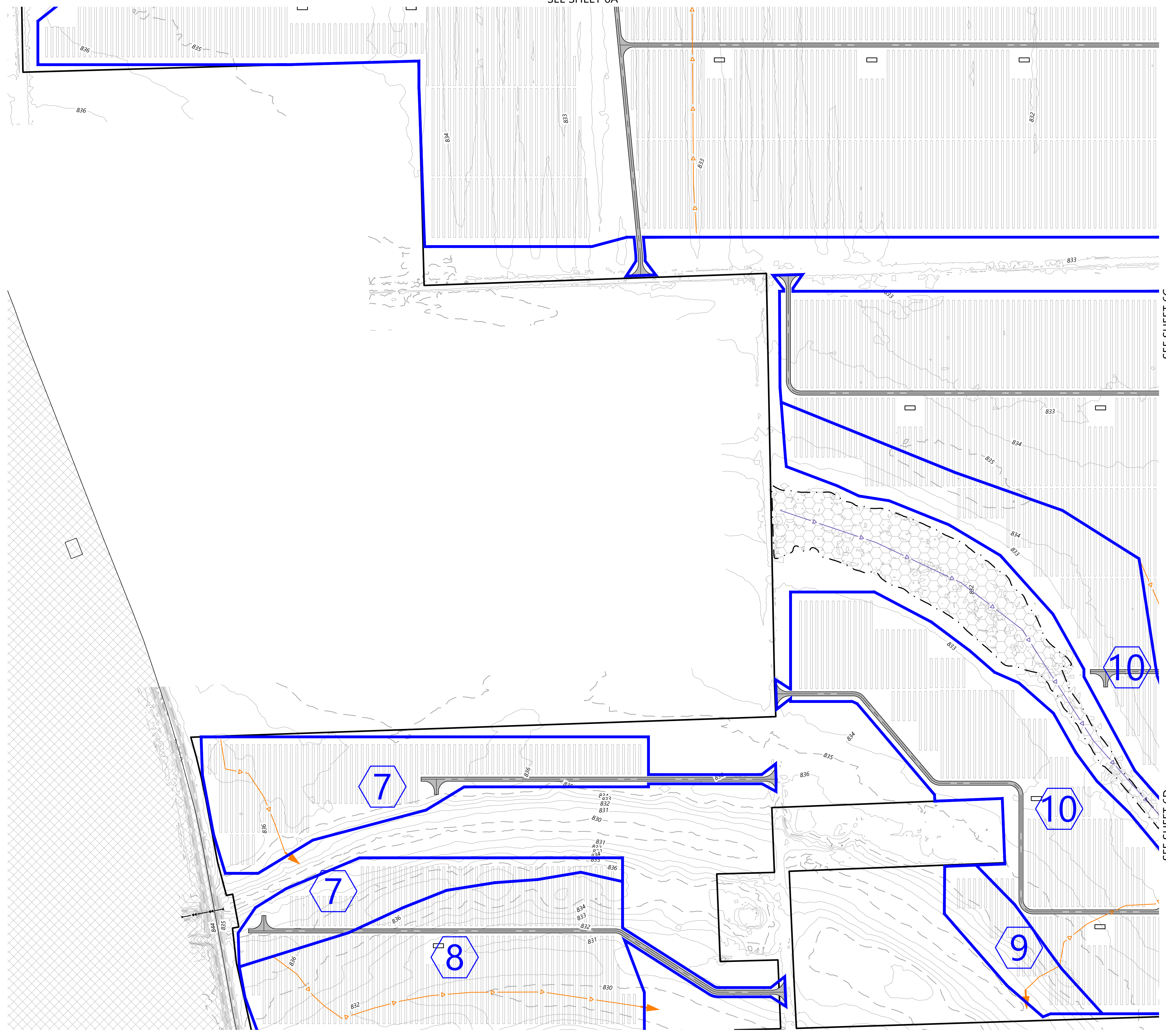


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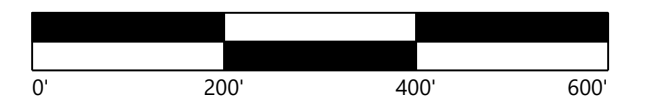
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Proposed Drainage Map

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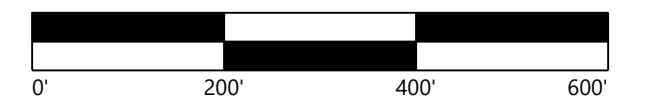
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Douglas County, Kansas

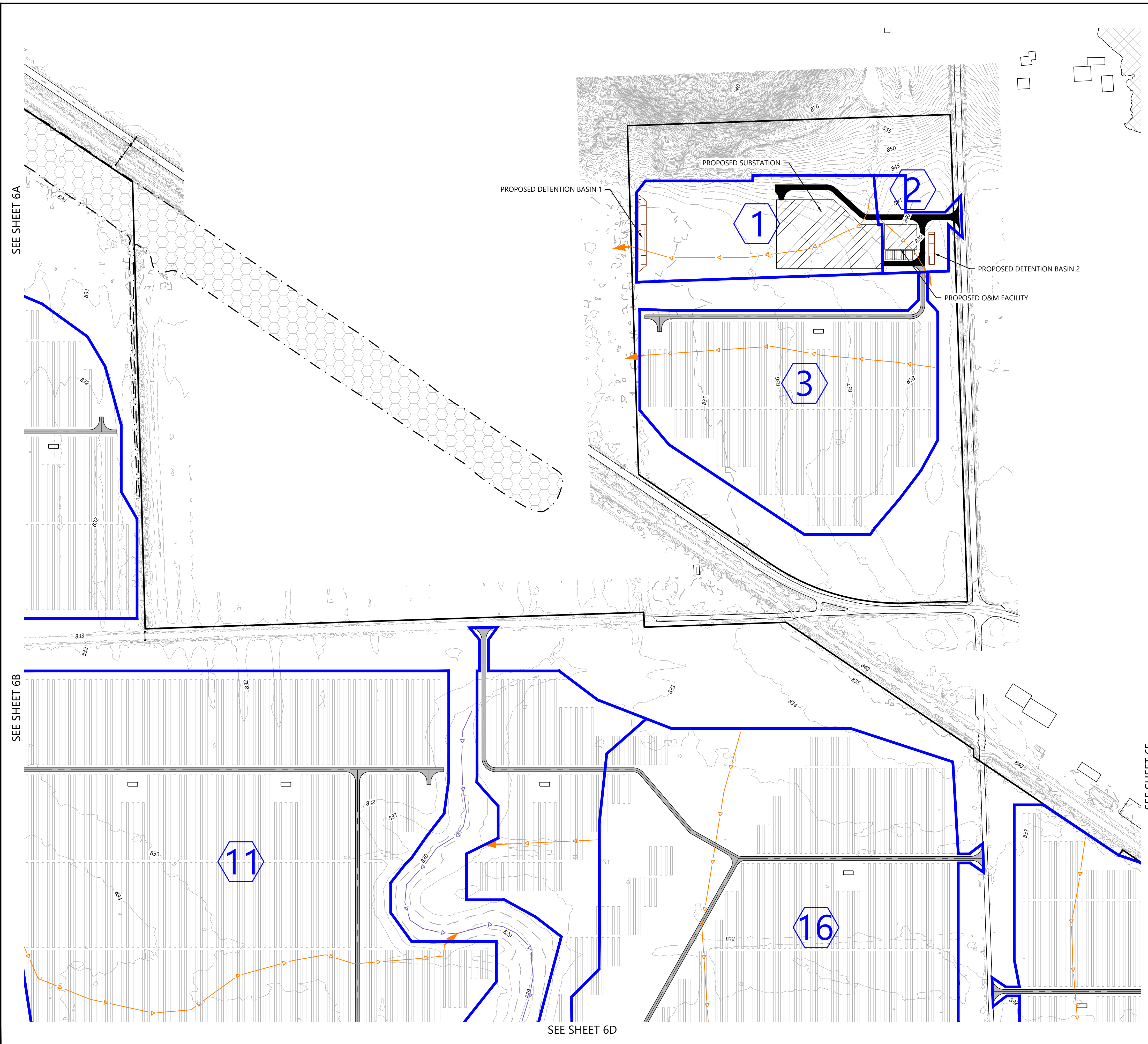
Proposed Drainage Map

DATE: 11/2/2023 REV:

SHEET: 7C

LEGEND:

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- EX. INTERVAL CONTOUR
- EX. PAVED ROAD
- EX. BUILDING
- EX. WETLAND
- FEMA FLOOD HAZARD ZONE
- PROPOSED SOLAR ARRAY
- PROPOSED ACCESS ROAD
- PROPOSED SECURITY FENCE
- PROPOSED ELECTRICAL EQUIPMENT
- PROPOSED FACILITIES
- PROPOSED BASIN
- PROPOSED ONSITE DRAINAGE AREA BOUNDARY
- PROPOSED TIME OF CONCENTRATION LINE
- OFFSITE FLOW PATH
- DISCHARGE LOCATION
- DRAINAGE AREA LABEL



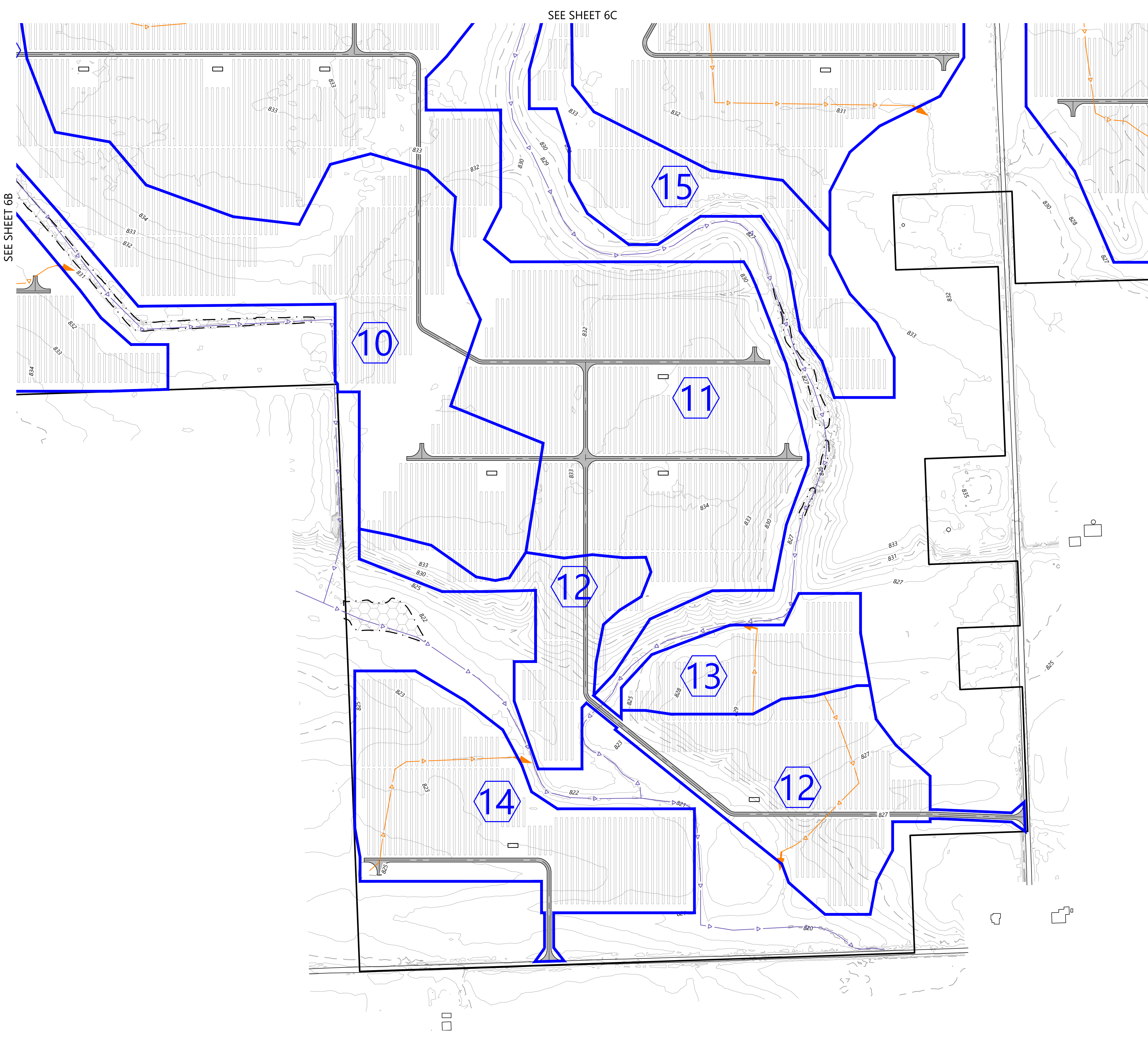
SEE SHEET 6A

SEE SHEET 6B

SEE SHEET 6E

SEE SHEET 6D

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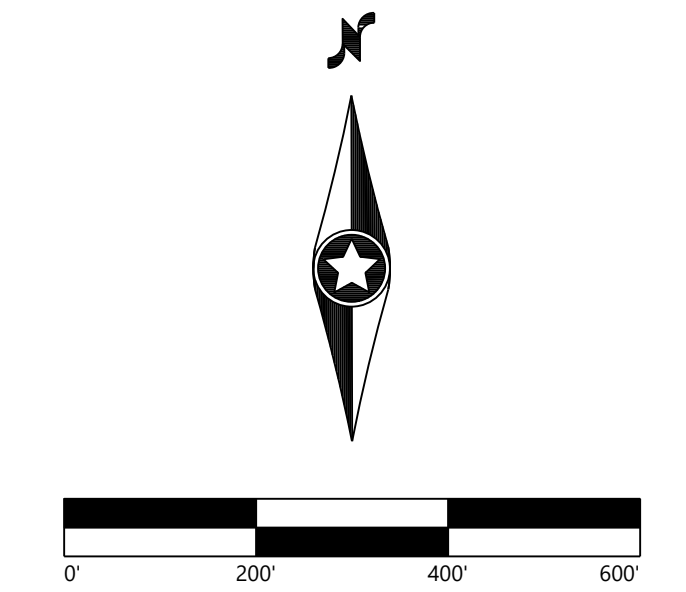
SEE SHEET 6C

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 - EX. INTERVAL CONTOUR
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 - EX. BUILDING
 - EX. WETLAND
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 - PROPOSED FACILITIES
 - PROPOSED BASIN
 - PROPOSED ONSITE DRAINAGE AREA BOUNDARY
 - PROPOSED TIME OF CONCENTRATION LINE
 - OFFSITE FLOW PATH
 - DISCHARGE LOCATION
 - DRAINAGE AREA LABEL

SEE SHEET 6E

REVISIONS:

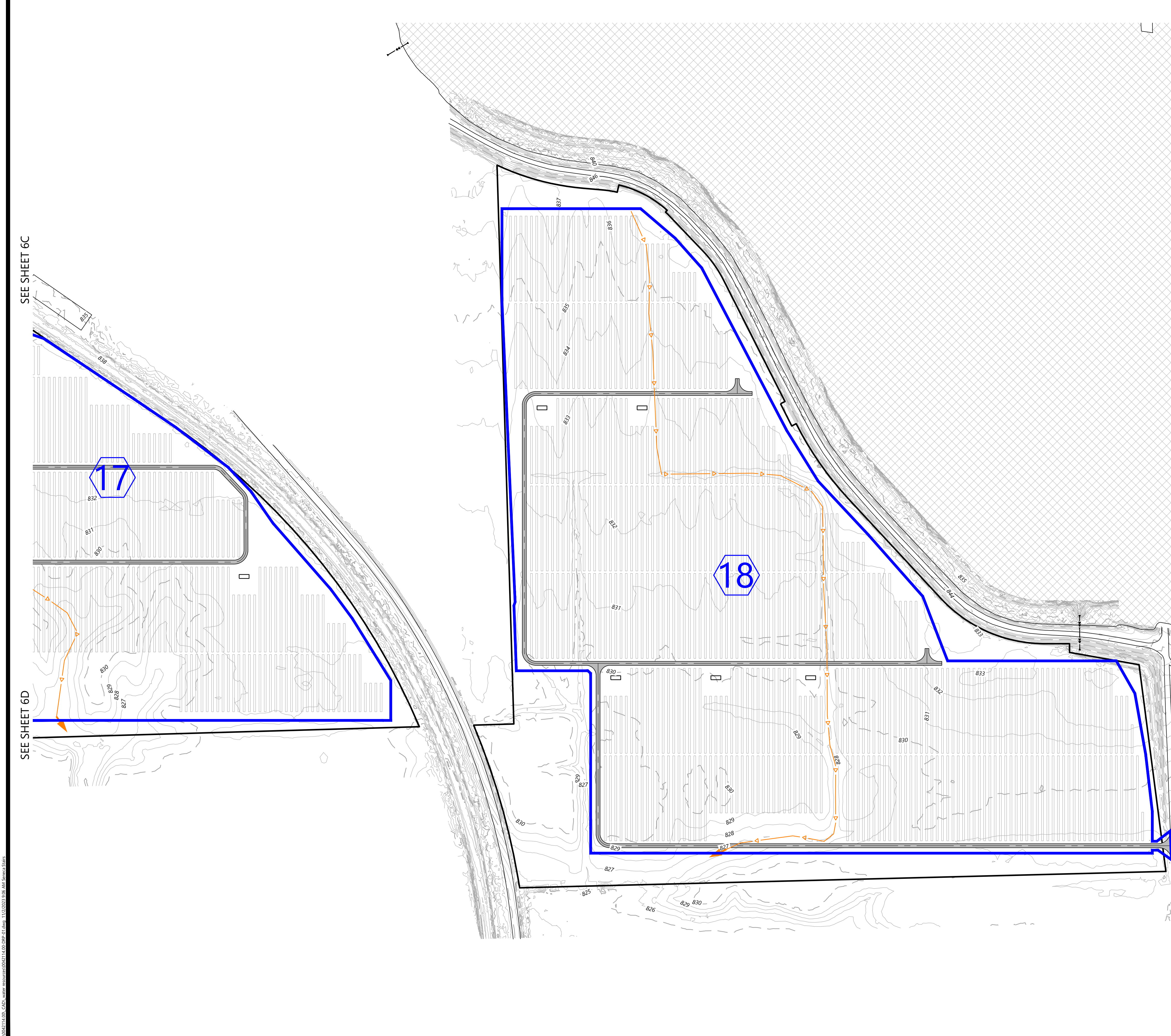
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Kansas Sky Energy Center
 Douglas County, Kansas

Proposed Drainage Map

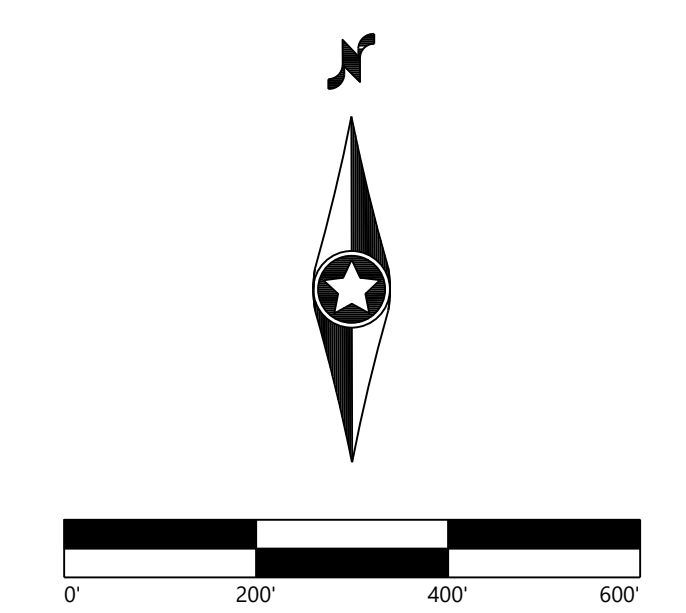
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 - EX. PAVED ROAD
 - EX. BUILDING
 - EX. WETLAND
 - FEMA FLOOD HAZARD ZONE
 - PROPOSED SOLAR ARRAY
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REVISIONS:

#	DATE	COMMENT	BY	CHK	APR



**Kansas Sky
 Energy Center**
 Douglas County, Kansas

Proposed Drainage
 Map

SEE SHEET 6C

SEE SHEET 6D

11/02/2023 10:00 AM C:\Users\mccormack\OneDrive\Documents\040714\01\040714.dwg 11/2/2023 9:06 AM Savion.dwg

The background of the page is a topographic map with contour lines in a reddish-brown color. A dashed line of the same color runs vertically through the center. A solid red dot is located on the lower left side of the dashed line, and a red 'x' is located on the upper right side of the dashed line.

Appendix A

NOAA Atlas 14 Precipitation Data



NOAA Atlas 14, Volume 8, Version 2
Location name: Lawrence, Kansas, USA*
Latitude: 39.0205°, Longitude: -95.2524°
Elevation: m/ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aeriels](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.395 (0.311-0.499)	0.470 (0.369-0.594)	0.592 (0.464-0.750)	0.694 (0.542-0.881)	0.835 (0.634-1.07)	0.943 (0.704-1.22)	1.05 (0.765-1.38)	1.16 (0.819-1.54)	1.31 (0.895-1.75)	1.42 (0.952-1.91)
10-min	0.579 (0.455-0.731)	0.688 (0.540-0.870)	0.868 (0.680-1.10)	1.02 (0.793-1.29)	1.22 (0.928-1.57)	1.38 (1.03-1.79)	1.54 (1.12-2.01)	1.70 (1.20-2.25)	1.92 (1.31-2.57)	2.08 (1.39-2.80)
15-min	0.705 (0.555-0.892)	0.839 (0.659-1.06)	1.06 (0.829-1.34)	1.24 (0.967-1.57)	1.49 (1.13-1.92)	1.68 (1.26-2.18)	1.88 (1.37-2.46)	2.08 (1.46-2.74)	2.34 (1.60-3.13)	2.54 (1.70-3.42)
30-min	1.01 (0.798-1.28)	1.21 (0.952-1.53)	1.53 (1.20-1.94)	1.80 (1.40-2.28)	2.17 (1.64-2.78)	2.45 (1.82-3.16)	2.73 (1.98-3.56)	3.01 (2.12-3.97)	3.38 (2.31-4.52)	3.66 (2.46-4.93)
60-min	1.33 (1.05-1.69)	1.59 (1.25-2.02)	2.02 (1.59-2.56)	2.38 (1.86-3.02)	2.89 (2.19-3.71)	3.27 (2.44-4.24)	3.67 (2.67-4.80)	4.07 (2.87-5.38)	4.60 (3.15-6.16)	5.01 (3.36-6.76)
2-hr	1.65 (1.31-2.06)	1.98 (1.57-2.47)	2.51 (1.99-3.15)	2.97 (2.34-3.72)	3.60 (2.77-4.60)	4.10 (3.10-5.26)	4.61 (3.39-5.98)	5.13 (3.65-6.73)	5.83 (4.03-7.75)	6.36 (4.31-8.52)
3-hr	1.85 (1.48-2.30)	2.21 (1.77-2.75)	2.82 (2.25-3.51)	3.33 (2.65-4.16)	4.07 (3.15-5.17)	4.64 (3.53-5.93)	5.23 (3.88-6.76)	5.85 (4.20-7.65)	6.68 (4.65-8.86)	7.33 (4.99-9.77)
6-hr	2.21 (1.79-2.71)	2.63 (2.13-3.23)	3.35 (2.71-4.13)	3.97 (3.19-4.90)	4.86 (3.82-6.12)	5.57 (4.29-7.05)	6.30 (4.72-8.07)	7.06 (5.12-9.17)	8.11 (5.70-10.7)	8.92 (6.14-11.8)
12-hr	2.59 (2.12-3.14)	3.07 (2.52-3.74)	3.90 (3.19-4.75)	4.61 (3.75-5.62)	5.63 (4.47-7.02)	6.44 (5.02-8.08)	7.29 (5.52-9.26)	8.17 (5.99-10.5)	9.38 (6.66-12.3)	10.3 (7.17-13.6)
24-hr	3.01 (2.50-3.61)	3.54 (2.93-4.25)	4.43 (3.67-5.33)	5.21 (4.29-6.28)	6.32 (5.08-7.80)	7.21 (5.68-8.95)	8.12 (6.23-10.2)	9.09 (6.73-11.6)	10.4 (7.47-13.5)	11.4 (8.02-14.9)
2-day	3.47 (2.92-4.12)	4.02 (3.38-4.78)	4.95 (4.15-5.89)	5.76 (4.80-6.87)	6.92 (5.63-8.45)	7.85 (6.26-9.65)	8.81 (6.83-11.0)	9.82 (7.36-12.4)	11.2 (8.13-14.4)	12.3 (8.71-15.9)
3-day	3.78 (3.20-4.46)	4.35 (3.68-5.13)	5.32 (4.49-6.28)	6.15 (5.16-7.28)	7.34 (6.02-8.91)	8.30 (6.66-10.1)	9.29 (7.25-11.5)	10.3 (7.78-13.0)	11.7 (8.57-15.0)	12.9 (9.16-16.6)
4-day	4.06 (3.45-4.76)	4.65 (3.95-5.45)	5.64 (4.79-6.63)	6.50 (5.49-7.66)	7.73 (6.36-9.33)	8.71 (7.03-10.6)	9.72 (7.62-12.0)	10.8 (8.17-13.5)	12.2 (8.97-15.6)	13.4 (9.57-17.2)
7-day	4.82 (4.15-5.60)	5.47 (4.70-6.36)	6.57 (5.63-7.65)	7.51 (6.40-8.76)	8.84 (7.35-10.6)	9.91 (8.07-11.9)	11.0 (8.71-13.5)	12.1 (9.28-15.1)	13.7 (10.1-17.4)	14.9 (10.8-19.1)
10-day	5.49 (4.75-6.33)	6.22 (5.38-7.18)	7.44 (6.41-8.61)	8.48 (7.28-9.84)	9.95 (8.32-11.8)	11.1 (9.11-13.3)	12.3 (9.80-15.0)	13.6 (10.4-16.8)	15.2 (11.3-19.2)	16.6 (12.0-21.1)
20-day	7.30 (6.40-8.33)	8.32 (7.29-9.50)	9.99 (8.72-11.4)	11.4 (9.89-13.1)	13.3 (11.2-15.6)	14.8 (12.2-17.5)	16.3 (13.1-19.6)	17.8 (13.8-21.8)	19.8 (14.9-24.8)	21.4 (15.7-27.0)
30-day	8.86 (7.83-10.0)	10.1 (8.91-11.4)	12.1 (10.7-13.7)	13.7 (12.0-15.6)	16.0 (13.5-18.5)	17.6 (14.7-20.7)	19.3 (15.6-23.0)	20.9 (16.3-25.5)	23.1 (17.4-28.6)	24.7 (18.2-31.0)
45-day	10.9 (9.72-12.3)	12.4 (11.0-14.0)	14.7 (13.1-16.6)	16.6 (14.7-18.8)	19.1 (16.3-21.9)	20.9 (17.5-24.2)	22.6 (18.4-26.7)	24.3 (19.0-29.3)	26.4 (19.9-32.5)	27.8 (20.7-34.9)
60-day	12.8 (11.4-14.3)	14.4 (12.9-16.1)	17.0 (15.1-19.0)	19.0 (16.8-21.4)	21.5 (18.4-24.5)	23.4 (19.6-27.0)	25.1 (20.4-29.4)	26.6 (20.9-31.9)	28.5 (21.7-34.9)	29.8 (22.2-37.2)

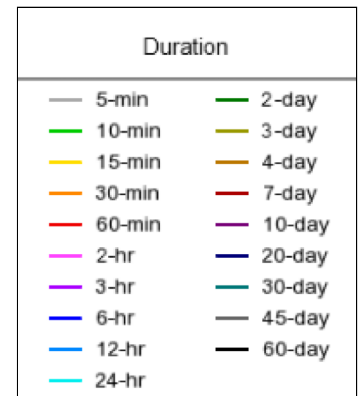
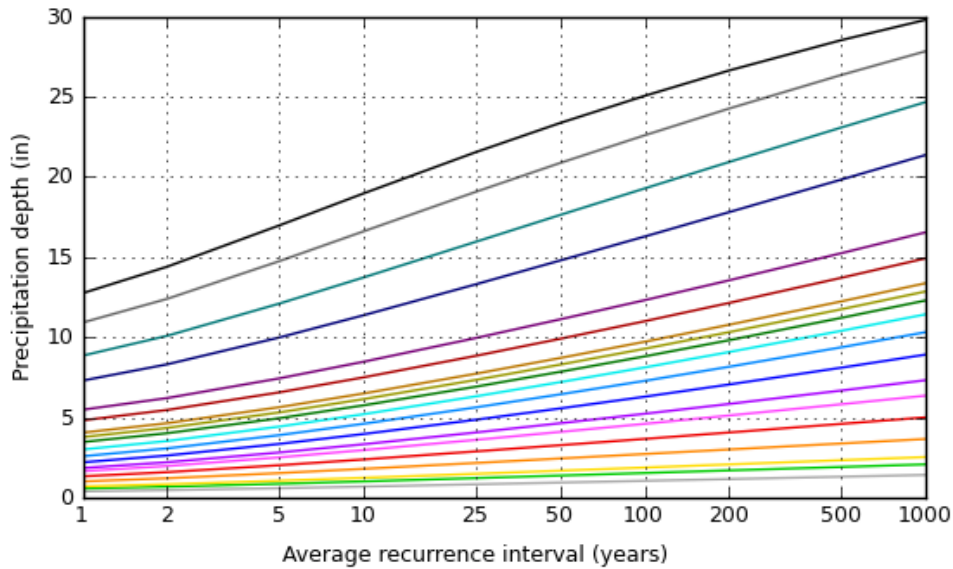
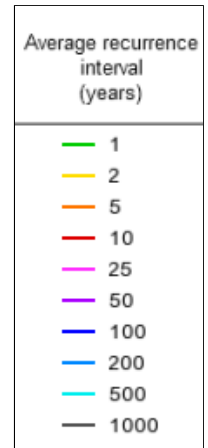
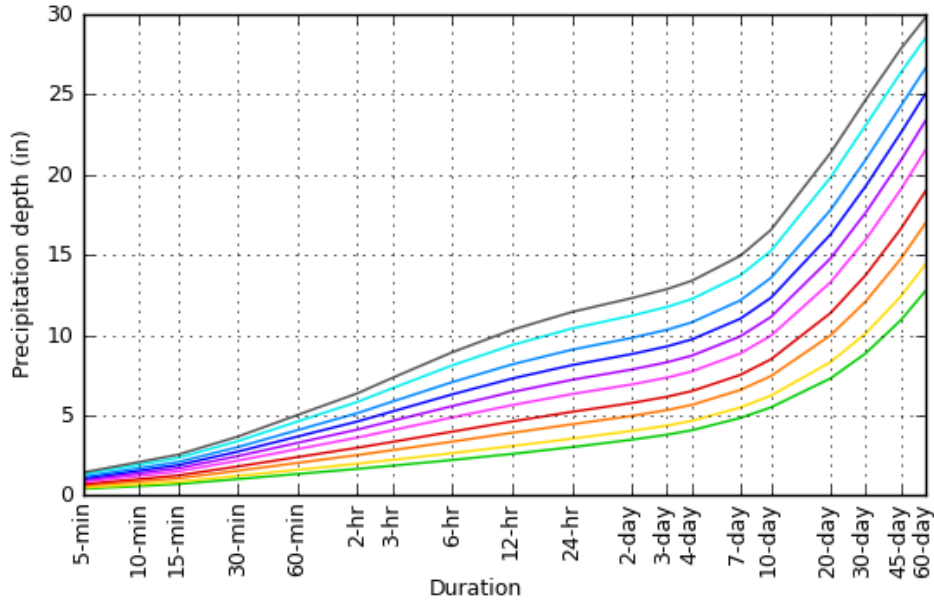
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

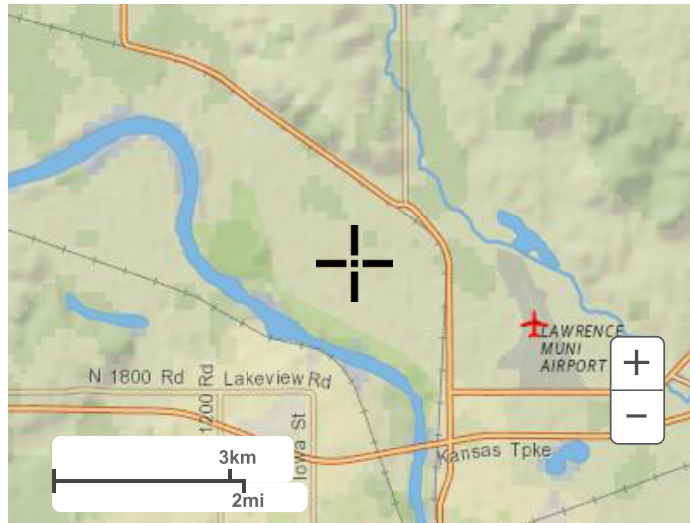
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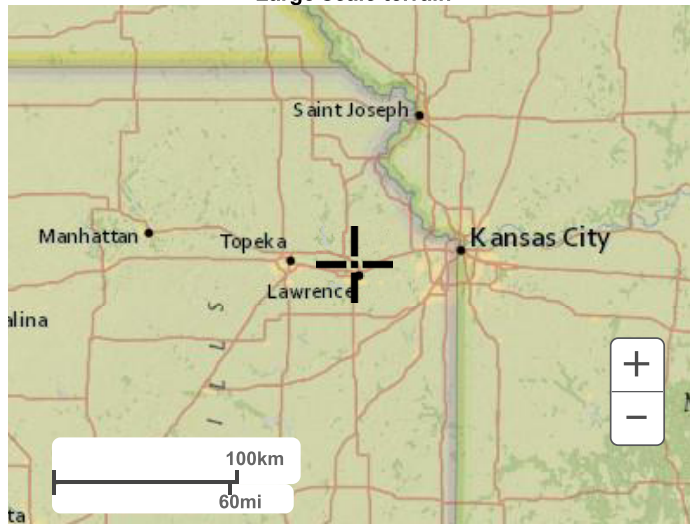
[Back to Top](#)

Maps & aerials

Small scale terrain



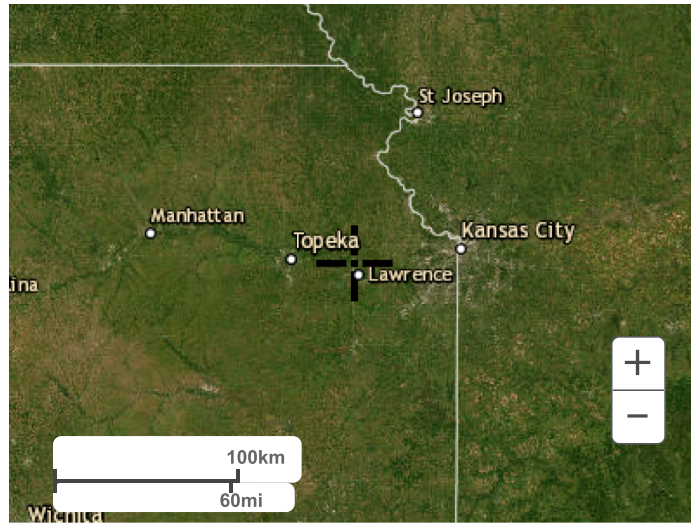
Large scale terrain



Large scale map



Large scale aerial



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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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Appendix B

NRCS TR-55 Standard Curve Numbers

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 2-2b Runoff curve numbers for cultivated agricultural lands ^{1/}

Cover description			Curve numbers for hydrologic soil group			
Cover type	Treatment ^{2/}	Hydrologic condition ^{3/}	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
C&T+ CR	Poor	65	73	79	81	
	Good	61	70	77	80	
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
C&T+ CR	Poor	60	71	78	81	
	Good	58	69	77	80	
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

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

² Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

³ Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good $\geq 20\%$), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

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.

Table 2-2d Runoff curve numbers for arid and semiarid rangelands ^{1/}

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition ^{2/}	A ^{3/}	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

¹ Average runoff condition, and $I_a = 0.2S$. For range in humid regions, use table 2-2c.

² Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: > 70% ground cover.

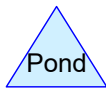
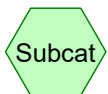
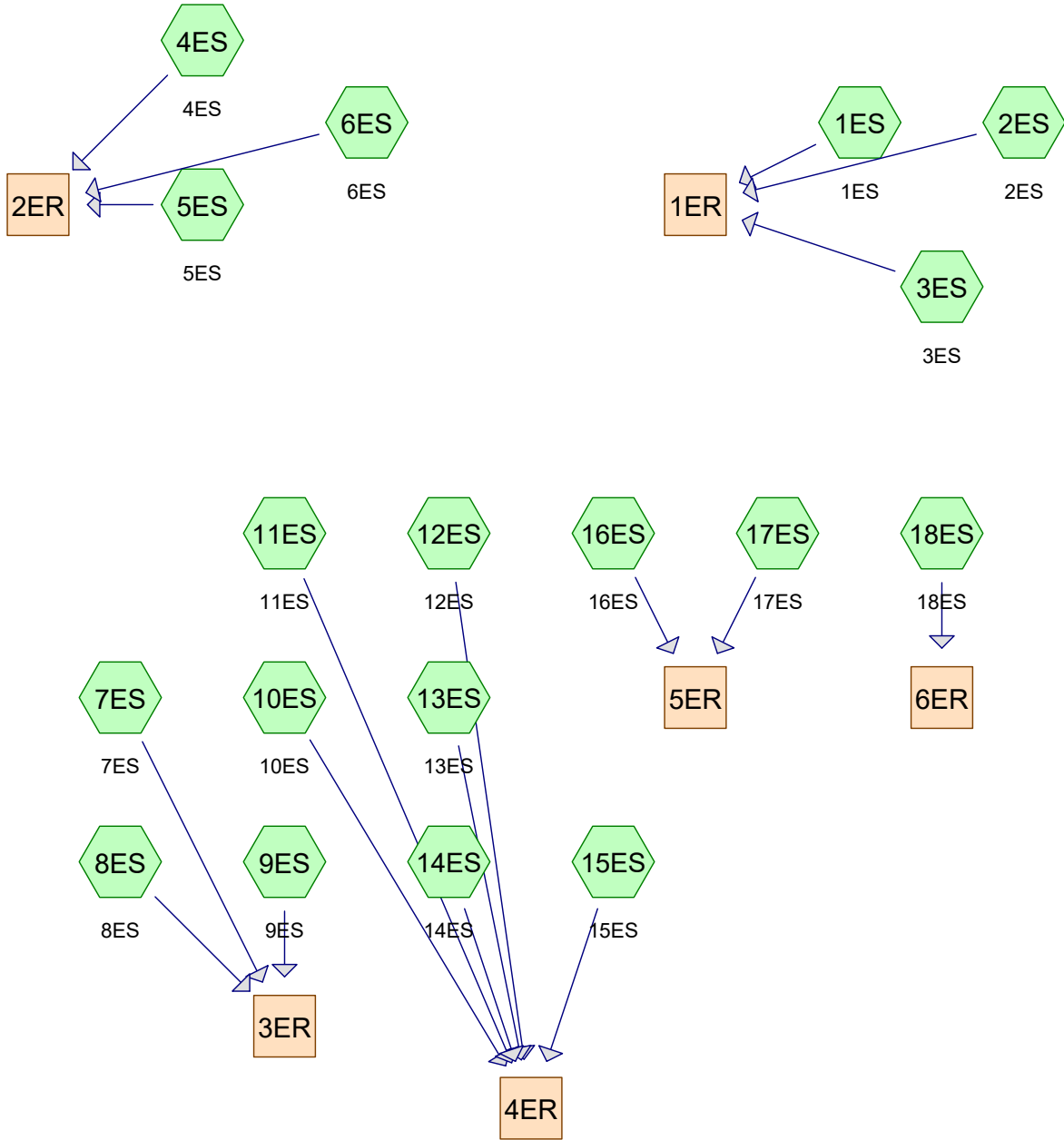
³ Curve numbers for group A have been developed only for desert shrub.



Appendix C

Existing HydroCAD Results

Existing



Routing Diagram for 2023-10-31 Kansas Sky Pre Post
Prepared by Westwood MultiDisciplined Eng, Printed 11/2/2023
HydroCAD® 10.20-2d s/n 02351 © 2021 HydroCAD Software Solutions LLC

2023-10-31 Kansas Sky Pre Post

Prepared by Westwood MultiDisciplined Eng

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Printed 11/2/2023

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	KS-KansasSky 24-hr S1	2-yr	Default	24.00	1	3.54	2
2	10-yr	KS-KansasSky 24-hr S1	10-yr	Default	24.00	1	5.21	2
3	100-yr	KS-KansasSky 24-hr S1	100-yr	Default	24.00	1	8.12	2

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
256.700	82	County Provided (1ES, 2ES, 3ES, 4ES, 6ES, 10ES, 11ES, 12ES, 15ES, 16ES, 18ES)
2.900	84	County Provided (1ES, 2ES)
0.100	78	County Provided (1ES)
8.500	79	County Provided (1ES, 11ES, 13ES)
379.200	86	County Provided (1ES, 3ES, 4ES, 5ES, 6ES, 10ES, 11ES, 15ES, 16ES, 17ES, 18ES)
25.900	77	County Provided (2ES, 7ES, 8ES, 9ES)
91.100	75	County Provided (6ES, 7ES, 9ES, 10ES, 11ES, 12ES, 15ES)
3.400	80	County Provided (6ES)
12.800	74	County Provided (12ES, 13ES)
29.100	76	County Provided (12ES, 13ES, 14ES)
809.700	83	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
809.700	Other	1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES, 8ES, 9ES, 10ES, 11ES, 12ES, 13ES, 14ES, 15ES, 16ES, 17ES, 18ES
809.700		TOTAL AREA

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1ES: 1ES Runoff Area=9.000 ac 0.00% Impervious Runoff Depth=1.97"
Flow Length=1,110' Slope=0.0100 '/' Tc=30.3 min CN=84 Runoff=12.93 cfs 1.478 af

Subcatchment 2ES: 2ES Runoff Area=2.100 ac 0.00% Impervious Runoff Depth=1.82"
Flow Length=295' Slope=0.0100 '/' Tc=11.2 min CN=82 Runoff=4.46 cfs 0.318 af

Subcatchment 3ES: 3ES Runoff Area=20.500 ac 0.00% Impervious Runoff Depth=1.89"
Flow Length=1,180' Slope=0.0050 '/' Tc=46.6 min CN=83 Runoff=22.51 cfs 3.233 af

Subcatchment 4ES: 4ES Runoff Area=52.700 ac 0.00% Impervious Runoff Depth=2.05"
Flow Length=2,400' Slope=0.0010 '/' Tc=171.6 min CN=85 Runoff=26.08 cfs 9.008 af

Subcatchment 5ES: 5ES Runoff Area=24.900 ac 0.00% Impervious Runoff Depth=2.13"
Flow Length=745' Slope=0.0010 '/' Tc=65.0 min CN=86 Runoff=25.23 cfs 4.428 af

Subcatchment 6ES: 6ES Runoff Area=192.600 ac 0.00% Impervious Runoff Depth=1.97"
Flow Length=1,115' Slope=0.0010 '/' Tc=96.2 min CN=84 Runoff=138.56 cfs 31.631 af

Subcatchment 7ES: 7ES Runoff Area=18.200 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=1,825' Slope=0.0010 '/' Tc=183.4 min CN=76 Runoff=5.59 cfs 2.115 af

Subcatchment 8ES: 8ES Runoff Area=17.700 ac 0.00% Impervious Runoff Depth=1.46"
Flow Length=2,335' Slope=0.0010 '/' Tc=216.9 min CN=77 Runoff=4.95 cfs 2.154 af

Subcatchment 9ES: 9ES Runoff Area=3.400 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=550' Slope=0.0100 '/' Tc=22.2 min CN=76 Runoff=3.90 cfs 0.395 af

Subcatchment 10ES: 10ES Runoff Area=70.100 ac 0.00% Impervious Runoff Depth=1.74"
Flow Length=1,550' Slope=0.0100 '/' Tc=43.7 min CN=81 Runoff=72.82 cfs 10.170 af

Subcatchment 11ES: 11ES Runoff Area=135.700 ac 0.00% Impervious Runoff Depth=1.74"
Flow Length=165' Slope=0.0400 '/' Tc=3.6 min CN=81 Runoff=396.30 cfs 19.688 af

Subcatchment 12ES: 12ES Runoff Area=22.200 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=665' Slope=0.0100 '/' Tc=25.9 min CN=76 Runoff=23.65 cfs 2.580 af

Subcatchment 13ES: 13ES Runoff Area=6.900 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=2,365' Slope=0.0050 '/' Tc=100.9 min CN=76 Runoff=3.32 cfs 0.802 af

Subcatchment 14ES: 14ES Runoff Area=17.900 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=310' Slope=0.0050 '/' Tc=19.9 min CN=76 Runoff=21.71 cfs 2.080 af

Subcatchment 15ES: 15ES Runoff Area=24.200 ac 0.00% Impervious Runoff Depth=1.82"
Flow Length=680' Slope=0.0100 '/' Tc=21.9 min CN=82 Runoff=37.55 cfs 3.662 af

Subcatchment 16ES: 16ES Runoff Area=54.300 ac 0.00% Impervious Runoff Depth=2.05"
Flow Length=430' Slope=0.0050 '/' Tc=19.4 min CN=85 Runoff=102.10 cfs 9.282 af

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Subcatchment 17ES: 17ES Runoff Area=47.600 ac 0.00% Impervious Runoff Depth=2.13"
Flow Length=1,510' Slope=0.0020 '/' Tc=80.8 min CN=86 Runoff=42.18 cfs 8.464 af

Subcatchment 18ES: 18ES Runoff Area=89.700 ac 0.00% Impervious Runoff Depth=1.89"
Flow Length=1,690' Slope=0.0050 '/' Tc=62.1 min CN=83 Runoff=82.77 cfs 14.145 af

Reach 1ER: Inflow=34.69 cfs 5.028 af
Outflow=34.69 cfs 5.028 af

Reach 2ER: Inflow=172.48 cfs 45.067 af
Outflow=172.48 cfs 45.067 af

Reach 3ER: Inflow=10.71 cfs 4.664 af
Outflow=10.71 cfs 4.664 af

Reach 4ER: Inflow=438.08 cfs 38.981 af
Outflow=438.08 cfs 38.981 af

Reach 5ER: Inflow=112.41 cfs 17.746 af
Outflow=112.41 cfs 17.746 af

Reach 6ER: Inflow=82.77 cfs 14.145 af
Outflow=82.77 cfs 14.145 af

Total Runoff Area = 809.700 ac Runoff Volume = 125.631 af Average Runoff Depth = 1.86"
100.00% Pervious = 809.700 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1ES: 1ES

Runoff = 12.93 cfs @ 12.36 hrs, Volume= 1.478 af, Depth= 1.97"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 2.600	82	County Provided
* 2.700	84	County Provided
* 0.100	78	County Provided
* 0.100	79	County Provided
* 3.500	86	County Provided
9.000	84	Weighted Average
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.3	1,110	0.0100	0.61		Lag/CN Method,

Summary for Subcatchment 2ES: 2ES

Runoff = 4.46 cfs @ 12.11 hrs, Volume= 0.318 af, Depth= 1.82"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.200	77	County Provided
* 1.700	82	County Provided
* 0.200	84	County Provided
2.100	82	Weighted Average
2.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	295	0.0100	0.44		Lag/CN Method,

Summary for Subcatchment 3ES: 3ES

Runoff = 22.51 cfs @ 12.59 hrs, Volume= 3.233 af, Depth= 1.89"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Area (ac)	CN	Description
* 13.600	82	County Provided
* 6.900	86	County Provided
20.500	83	Weighted Average
20.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	1,180	0.0050	0.42		Lag/CN Method,

Summary for Subcatchment 4ES: 4ES

Runoff = 26.08 cfs @ 14.30 hrs, Volume= 9.008 af, Depth= 2.05"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 8.900	82	County Provided
* 43.800	86	County Provided
52.700	85	Weighted Average
52.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
171.6	2,400	0.0010	0.23		Lag/CN Method,

Summary for Subcatchment 5ES: 5ES

Runoff = 25.23 cfs @ 12.85 hrs, Volume= 4.428 af, Depth= 2.13"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 24.900	86	County Provided
24.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0	745	0.0010	0.19		Lag/CN Method,

Summary for Subcatchment 6ES: 6ES

Runoff = 138.56 cfs @ 13.26 hrs, Volume= 31.631 af, Depth= 1.97"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 59.700	82	County Provided
* 115.600	86	County Provided
* 13.900	75	County Provided
* 3.400	80	County Provided
192.600	84	Weighted Average
192.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
96.2	1,115	0.0010	0.19		Lag/CN Method,

Summary for Subcatchment 7ES: 7ES

Runoff = 5.59 cfs @ 14.47 hrs, Volume= 2.115 af, Depth= 1.39"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 5.600	77	County Provided
* 12.600	75	County Provided
18.200	76	Weighted Average
18.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
183.4	1,825	0.0010	0.17		Lag/CN Method,

Summary for Subcatchment 8ES: 8ES

Runoff = 4.95 cfs @ 14.94 hrs, Volume= 2.154 af, Depth= 1.46"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Area (ac)	CN	Description
* 17.700	77	County Provided
17.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
216.9	2,335	0.0010	0.18		Lag/CN Method,

Summary for Subcatchment 9ES: 9ES

Runoff = 3.90 cfs @ 12.28 hrs, Volume= 0.395 af, Depth= 1.39"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 2.400	77	County Provided
* 1.000	75	County Provided
3.400	76	Weighted Average
3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	550	0.0100	0.41		Lag/CN Method,

Summary for Subcatchment 10ES: 10ES

Runoff = 72.82 cfs @ 12.58 hrs, Volume= 10.170 af, Depth= 1.74"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 26.600	75	County Provided
* 30.500	86	County Provided
* 13.000	82	County Provided
70.100	81	Weighted Average
70.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.7	1,550	0.0100	0.59		Lag/CN Method,

Summary for Subcatchment 11ES: 11ES

Runoff = 396.30 cfs @ 12.02 hrs, Volume= 19.688 af, Depth= 1.74"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 37.100	86	County Provided
* 30.600	75	County Provided
* 2.500	86	County Provided
* 59.600	82	County Provided
* 5.900	79	County Provided
135.700	81	Weighted Average
135.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	165	0.0400	0.76		Lag/CN Method,

Summary for Subcatchment 12ES: 12ES

Runoff = 23.65 cfs @ 12.34 hrs, Volume= 2.580 af, Depth= 1.39"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 1.100	75	County Provided
* 1.500	82	County Provided
* 9.100	74	County Provided
* 10.500	76	County Provided
22.200	76	Weighted Average
22.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	665	0.0100	0.43		Lag/CN Method,

Summary for Subcatchment 13ES: 13ES

Runoff = 3.32 cfs @ 13.34 hrs, Volume= 0.802 af, Depth= 1.39"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Area (ac)	CN	Description
* 2.500	79	County Provided
* 3.700	74	County Provided
* 0.700	76	County Provided
6.900	76	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
100.9	2,365	0.0050	0.39		Lag/CN Method,

Summary for Subcatchment 14ES: 14ES

Runoff = 21.71 cfs @ 12.25 hrs, Volume= 2.080 af, Depth= 1.39"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 17.900	76	County Provided
17.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	310	0.0050	0.26		Lag/CN Method,

Summary for Subcatchment 15ES: 15ES

Runoff = 37.55 cfs @ 12.26 hrs, Volume= 3.662 af, Depth= 1.82"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 10.700	86	County Provided
* 5.300	75	County Provided
* 8.200	82	County Provided
24.200	82	Weighted Average
24.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.9	680	0.0100	0.52		Lag/CN Method,

Summary for Subcatchment 16ES: 16ES

Runoff = 102.10 cfs @ 12.22 hrs, Volume= 9.282 af, Depth= 2.05"
 Routed to Reach 5ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 41.400	86	County Provided
* 12.900	82	County Provided
54.300	85	Weighted Average
54.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	430	0.0050	0.37		Lag/CN Method,

Summary for Subcatchment 17ES: 17ES

Runoff = 42.18 cfs @ 13.02 hrs, Volume= 8.464 af, Depth= 2.13"
 Routed to Reach 5ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 47.600	86	County Provided
47.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
80.8	1,510	0.0020	0.31		Lag/CN Method,

Summary for Subcatchment 18ES: 18ES

Runoff = 82.77 cfs @ 12.83 hrs, Volume= 14.145 af, Depth= 1.89"
 Routed to Reach 6ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 14.700	86	County Provided
* 75.000	82	County Provided
89.700	83	Weighted Average
89.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.1	1,690	0.0050	0.45		Lag/CN Method,

Summary for Reach 1ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.600 ac, 0.00% Impervious, Inflow Depth = 1.91" for 2-yr event
 Inflow = 34.69 cfs @ 12.49 hrs, Volume= 5.028 af
 Outflow = 34.69 cfs @ 12.49 hrs, Volume= 5.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 2ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 270.200 ac, 0.00% Impervious, Inflow Depth = 2.00" for 2-yr event
 Inflow = 172.48 cfs @ 13.25 hrs, Volume= 45.067 af
 Outflow = 172.48 cfs @ 13.25 hrs, Volume= 45.067 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 3ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39.300 ac, 0.00% Impervious, Inflow Depth = 1.42" for 2-yr event
 Inflow = 10.71 cfs @ 14.70 hrs, Volume= 4.664 af
 Outflow = 10.71 cfs @ 14.70 hrs, Volume= 4.664 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 4ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 277.000 ac, 0.00% Impervious, Inflow Depth = 1.69" for 2-yr event
 Inflow = 438.08 cfs @ 12.02 hrs, Volume= 38.981 af
 Outflow = 438.08 cfs @ 12.02 hrs, Volume= 38.981 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 5ER:

[40] Hint: Not Described (Outflow=Inflow)

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Inflow Area = 101.900 ac, 0.00% Impervious, Inflow Depth = 2.09" for 2-yr event
Inflow = 112.41 cfs @ 12.23 hrs, Volume= 17.746 af
Outflow = 112.41 cfs @ 12.23 hrs, Volume= 17.746 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 6ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 89.700 ac, 0.00% Impervious, Inflow Depth = 1.89" for 2-yr event
Inflow = 82.77 cfs @ 12.83 hrs, Volume= 14.145 af
Outflow = 82.77 cfs @ 12.83 hrs, Volume= 14.145 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1ES: 1ES Runoff Area=9.000 ac 0.00% Impervious Runoff Depth=3.46"
Flow Length=1,110' Slope=0.0100 '/' Tc=30.3 min CN=84 Runoff=22.99 cfs 2.597 af

Subcatchment 2ES: 2ES Runoff Area=2.100 ac 0.00% Impervious Runoff Depth=3.27"
Flow Length=295' Slope=0.0100 '/' Tc=11.2 min CN=82 Runoff=8.14 cfs 0.572 af

Subcatchment 3ES: 3ES Runoff Area=20.500 ac 0.00% Impervious Runoff Depth=3.36"
Flow Length=1,180' Slope=0.0050 '/' Tc=46.6 min CN=83 Runoff=40.69 cfs 5.748 af

Subcatchment 4ES: 4ES Runoff Area=52.700 ac 0.00% Impervious Runoff Depth=3.56"
Flow Length=2,400' Slope=0.0010 '/' Tc=171.6 min CN=85 Runoff=45.79 cfs 15.646 af

Subcatchment 5ES: 5ES Runoff Area=24.900 ac 0.00% Impervious Runoff Depth=3.66"
Flow Length=745' Slope=0.0010 '/' Tc=65.0 min CN=86 Runoff=43.66 cfs 7.602 af

Subcatchment 6ES: 6ES Runoff Area=192.600 ac 0.00% Impervious Runoff Depth=3.46"
Flow Length=1,115' Slope=0.0010 '/' Tc=96.2 min CN=84 Runoff=246.96 cfs 55.582 af

Subcatchment 7ES: 7ES Runoff Area=18.200 ac 0.00% Impervious Runoff Depth=2.71"
Flow Length=1,825' Slope=0.0010 '/' Tc=183.4 min CN=76 Runoff=11.35 cfs 4.109 af

Subcatchment 8ES: 8ES Runoff Area=17.700 ac 0.00% Impervious Runoff Depth=2.80"
Flow Length=2,335' Slope=0.0010 '/' Tc=216.9 min CN=77 Runoff=9.92 cfs 4.129 af

Subcatchment 9ES: 9ES Runoff Area=3.400 ac 0.00% Impervious Runoff Depth=2.71"
Flow Length=550' Slope=0.0100 '/' Tc=22.2 min CN=76 Runoff=7.93 cfs 0.768 af

Subcatchment 10ES: 10ES Runoff Area=70.100 ac 0.00% Impervious Runoff Depth=3.17"
Flow Length=1,550' Slope=0.0100 '/' Tc=43.7 min CN=81 Runoff=135.30 cfs 18.528 af

Subcatchment 11ES: 11ES Runoff Area=135.700 ac 0.00% Impervious Runoff Depth=3.17"
Flow Length=165' Slope=0.0400 '/' Tc=3.6 min CN=81 Runoff=726.65 cfs 35.866 af

Subcatchment 12ES: 12ES Runoff Area=22.200 ac 0.00% Impervious Runoff Depth=2.71"
Flow Length=665' Slope=0.0100 '/' Tc=25.9 min CN=76 Runoff=47.91 cfs 5.013 af

Subcatchment 13ES: 13ES Runoff Area=6.900 ac 0.00% Impervious Runoff Depth=2.71"
Flow Length=2,365' Slope=0.0050 '/' Tc=100.9 min CN=76 Runoff=6.75 cfs 1.558 af

Subcatchment 14ES: 14ES Runoff Area=17.900 ac 0.00% Impervious Runoff Depth=2.71"
Flow Length=310' Slope=0.0050 '/' Tc=19.9 min CN=76 Runoff=44.08 cfs 4.042 af

Subcatchment 15ES: 15ES Runoff Area=24.200 ac 0.00% Impervious Runoff Depth=3.27"
Flow Length=680' Slope=0.0100 '/' Tc=21.9 min CN=82 Runoff=68.66 cfs 6.590 af

Subcatchment 16ES: 16ES Runoff Area=54.300 ac 0.00% Impervious Runoff Depth=3.56"
Flow Length=430' Slope=0.0050 '/' Tc=19.4 min CN=85 Runoff=178.31 cfs 16.121 af

2023-10-31 Kansas Sky Pre Post

KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Subcatchment 17ES: 17ES Runoff Area=47.600 ac 0.00% Impervious Runoff Depth=3.66"
Flow Length=1,510' Slope=0.0020 '/' Tc=80.8 min CN=86 Runoff=73.10 cfs 14.532 af

Subcatchment 18ES: 18ES Runoff Area=89.700 ac 0.00% Impervious Runoff Depth=3.36"
Flow Length=1,690' Slope=0.0050 '/' Tc=62.1 min CN=83 Runoff=149.81 cfs 25.151 af

Reach 1ER: Inflow=62.42 cfs 8.917 af
Outflow=62.42 cfs 8.917 af

Reach 2ER: Inflow=306.72 cfs 78.830 af
Outflow=306.72 cfs 78.830 af

Reach 3ER: Inflow=21.47 cfs 9.007 af
Outflow=21.47 cfs 9.007 af

Reach 4ER: Inflow=817.84 cfs 71.595 af
Outflow=817.84 cfs 71.595 af

Reach 5ER: Inflow=197.75 cfs 30.653 af
Outflow=197.75 cfs 30.653 af

Reach 6ER: Inflow=149.81 cfs 25.151 af
Outflow=149.81 cfs 25.151 af

Total Runoff Area = 809.700 ac Runoff Volume = 224.153 af Average Runoff Depth = 3.32"
100.00% Pervious = 809.700 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1ES: 1ES

Runoff = 22.99 cfs @ 12.36 hrs, Volume= 2.597 af, Depth= 3.46"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 2.600	82	County Provided
* 2.700	84	County Provided
* 0.100	78	County Provided
* 0.100	79	County Provided
* 3.500	86	County Provided
9.000	84	Weighted Average
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.3	1,110	0.0100	0.61		Lag/CN Method,

Summary for Subcatchment 2ES: 2ES

Runoff = 8.14 cfs @ 12.11 hrs, Volume= 0.572 af, Depth= 3.27"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.200	77	County Provided
* 1.700	82	County Provided
* 0.200	84	County Provided
2.100	82	Weighted Average
2.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	295	0.0100	0.44		Lag/CN Method,

Summary for Subcatchment 3ES: 3ES

Runoff = 40.69 cfs @ 12.58 hrs, Volume= 5.748 af, Depth= 3.36"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Area (ac)	CN	Description
* 13.600	82	County Provided
* 6.900	86	County Provided
20.500	83	Weighted Average
20.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	1,180	0.0050	0.42		Lag/CN Method,

Summary for Subcatchment 4ES: 4ES

Runoff = 45.79 cfs @ 14.30 hrs, Volume= 15.646 af, Depth= 3.56"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 8.900	82	County Provided
* 43.800	86	County Provided
52.700	85	Weighted Average
52.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
171.6	2,400	0.0010	0.23		Lag/CN Method,

Summary for Subcatchment 5ES: 5ES

Runoff = 43.66 cfs @ 12.79 hrs, Volume= 7.602 af, Depth= 3.66"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 24.900	86	County Provided
24.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0	745	0.0010	0.19		Lag/CN Method,

Summary for Subcatchment 6ES: 6ES

Runoff = 246.96 cfs @ 13.25 hrs, Volume= 55.582 af, Depth= 3.46"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 59.700	82	County Provided
* 115.600	86	County Provided
* 13.900	75	County Provided
* 3.400	80	County Provided
192.600	84	Weighted Average
192.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
96.2	1,115	0.0010	0.19		Lag/CN Method,

Summary for Subcatchment 7ES: 7ES

Runoff = 11.35 cfs @ 14.47 hrs, Volume= 4.109 af, Depth= 2.71"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 5.600	77	County Provided
* 12.600	75	County Provided
18.200	76	Weighted Average
18.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
183.4	1,825	0.0010	0.17		Lag/CN Method,

Summary for Subcatchment 8ES: 8ES

Runoff = 9.92 cfs @ 14.71 hrs, Volume= 4.129 af, Depth= 2.80"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Area (ac)	CN	Description
* 17.700	77	County Provided
17.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
216.9	2,335	0.0010	0.18		Lag/CN Method,

Summary for Subcatchment 9ES: 9ES

Runoff = 7.93 cfs @ 12.26 hrs, Volume= 0.768 af, Depth= 2.71"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 2.400	77	County Provided
* 1.000	75	County Provided
3.400	76	Weighted Average
3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	550	0.0100	0.41		Lag/CN Method,

Summary for Subcatchment 10ES: 10ES

Runoff = 135.30 cfs @ 12.57 hrs, Volume= 18.528 af, Depth= 3.17"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 26.600	75	County Provided
* 30.500	86	County Provided
* 13.000	82	County Provided
70.100	81	Weighted Average
70.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.7	1,550	0.0100	0.59		Lag/CN Method,

Summary for Subcatchment 11ES: 11ES

Runoff = 726.65 cfs @ 12.02 hrs, Volume= 35.866 af, Depth= 3.17"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 37.100	86	County Provided
* 30.600	75	County Provided
* 2.500	86	County Provided
* 59.600	82	County Provided
* 5.900	79	County Provided
135.700	81	Weighted Average
135.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	165	0.0400	0.76		Lag/CN Method,

Summary for Subcatchment 12ES: 12ES

Runoff = 47.91 cfs @ 12.32 hrs, Volume= 5.013 af, Depth= 2.71"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 1.100	75	County Provided
* 1.500	82	County Provided
* 9.100	74	County Provided
* 10.500	76	County Provided
22.200	76	Weighted Average
22.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	665	0.0100	0.43		Lag/CN Method,

Summary for Subcatchment 13ES: 13ES

Runoff = 6.75 cfs @ 13.34 hrs, Volume= 1.558 af, Depth= 2.71"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Area (ac)	CN	Description
* 2.500	79	County Provided
* 3.700	74	County Provided
* 0.700	76	County Provided
6.900	76	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
100.9	2,365	0.0050	0.39		Lag/CN Method,

Summary for Subcatchment 14ES: 14ES

Runoff = 44.08 cfs @ 12.23 hrs, Volume= 4.042 af, Depth= 2.71"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 17.900	76	County Provided
17.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	310	0.0050	0.26		Lag/CN Method,

Summary for Subcatchment 15ES: 15ES

Runoff = 68.66 cfs @ 12.25 hrs, Volume= 6.590 af, Depth= 3.27"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 10.700	86	County Provided
* 5.300	75	County Provided
* 8.200	82	County Provided
24.200	82	Weighted Average
24.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.9	680	0.0100	0.52		Lag/CN Method,

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Summary for Subcatchment 16ES: 16ES

Runoff = 178.31 cfs @ 12.22 hrs, Volume= 16.121 af, Depth= 3.56"
 Routed to Reach 5ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 41.400	86	County Provided
* 12.900	82	County Provided
54.300	85	Weighted Average
54.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	430	0.0050	0.37		Lag/CN Method,

Summary for Subcatchment 17ES: 17ES

Runoff = 73.10 cfs @ 13.02 hrs, Volume= 14.532 af, Depth= 3.66"
 Routed to Reach 5ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 47.600	86	County Provided
47.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
80.8	1,510	0.0020	0.31		Lag/CN Method,

Summary for Subcatchment 18ES: 18ES

Runoff = 149.81 cfs @ 12.77 hrs, Volume= 25.151 af, Depth= 3.36"
 Routed to Reach 6ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 14.700	86	County Provided
* 75.000	82	County Provided
89.700	83	Weighted Average
89.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.1	1,690	0.0050	0.45		Lag/CN Method,

Summary for Reach 1ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.600 ac, 0.00% Impervious, Inflow Depth = 3.39" for 10-yr event
 Inflow = 62.42 cfs @ 12.48 hrs, Volume= 8.917 af
 Outflow = 62.42 cfs @ 12.48 hrs, Volume= 8.917 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 2ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 270.200 ac, 0.00% Impervious, Inflow Depth = 3.50" for 10-yr event
 Inflow = 306.72 cfs @ 13.25 hrs, Volume= 78.830 af
 Outflow = 306.72 cfs @ 13.25 hrs, Volume= 78.830 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 3ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39.300 ac, 0.00% Impervious, Inflow Depth = 2.75" for 10-yr event
 Inflow = 21.47 cfs @ 14.67 hrs, Volume= 9.007 af
 Outflow = 21.47 cfs @ 14.67 hrs, Volume= 9.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 4ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 277.000 ac, 0.00% Impervious, Inflow Depth = 3.10" for 10-yr event
 Inflow = 817.84 cfs @ 12.02 hrs, Volume= 71.595 af
 Outflow = 817.84 cfs @ 12.02 hrs, Volume= 71.595 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 5ER:

[40] Hint: Not Described (Outflow=Inflow)

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Inflow Area = 101.900 ac, 0.00% Impervious, Inflow Depth = 3.61" for 10-yr event
Inflow = 197.75 cfs @ 12.23 hrs, Volume= 30.653 af
Outflow = 197.75 cfs @ 12.23 hrs, Volume= 30.653 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 6ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 89.700 ac, 0.00% Impervious, Inflow Depth = 3.36" for 10-yr event
Inflow = 149.81 cfs @ 12.77 hrs, Volume= 25.151 af
Outflow = 149.81 cfs @ 12.77 hrs, Volume= 25.151 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment 1ES: 1ES** Runoff Area=9.000 ac 0.00% Impervious Runoff Depth=6.21"
Flow Length=1,110' Slope=0.0100 '/' Tc=30.3 min CN=84 Runoff=39.94 cfs 4.658 af
- Subcatchment 2ES: 2ES** Runoff Area=2.100 ac 0.00% Impervious Runoff Depth=5.97"
Flow Length=295' Slope=0.0100 '/' Tc=11.2 min CN=82 Runoff=14.36 cfs 1.045 af
- Subcatchment 3ES: 3ES** Runoff Area=20.500 ac 0.00% Impervious Runoff Depth=6.09"
Flow Length=1,180' Slope=0.0050 '/' Tc=46.6 min CN=83 Runoff=71.71 cfs 10.407 af
- Subcatchment 4ES: 4ES** Runoff Area=52.700 ac 0.00% Impervious Runoff Depth=6.33"
Flow Length=2,400' Slope=0.0010 '/' Tc=171.6 min CN=85 Runoff=79.70 cfs 27.795 af
- Subcatchment 5ES: 5ES** Runoff Area=24.900 ac 0.00% Impervious Runoff Depth=6.45"
Flow Length=745' Slope=0.0010 '/' Tc=65.0 min CN=86 Runoff=74.72 cfs 13.379 af
- Subcatchment 6ES: 6ES** Runoff Area=192.600 ac 0.00% Impervious Runoff Depth=6.21"
Flow Length=1,115' Slope=0.0010 '/' Tc=96.2 min CN=84 Runoff=432.85 cfs 99.678 af
- Subcatchment 7ES: 7ES** Runoff Area=18.200 ac 0.00% Impervious Runoff Depth=5.27"
Flow Length=1,825' Slope=0.0010 '/' Tc=183.4 min CN=76 Runoff=22.08 cfs 7.989 af
- Subcatchment 8ES: 8ES** Runoff Area=17.700 ac 0.00% Impervious Runoff Depth=5.38"
Flow Length=2,335' Slope=0.0010 '/' Tc=216.9 min CN=77 Runoff=19.22 cfs 7.942 af
- Subcatchment 9ES: 9ES** Runoff Area=3.400 ac 0.00% Impervious Runoff Depth=5.27"
Flow Length=550' Slope=0.0100 '/' Tc=22.2 min CN=76 Runoff=15.21 cfs 1.492 af
- Subcatchment 10ES: 10ES** Runoff Area=70.100 ac 0.00% Impervious Runoff Depth=5.86"
Flow Length=1,550' Slope=0.0100 '/' Tc=43.7 min CN=81 Runoff=243.51 cfs 34.206 af
- Subcatchment 11ES: 11ES** Runoff Area=135.700 ac 0.00% Impervious Runoff Depth=5.86"
Flow Length=165' Slope=0.0400 '/' Tc=3.6 min CN=81 Runoff=1,279.54 cfs 66.217 af
- Subcatchment 12ES: 12ES** Runoff Area=22.200 ac 0.00% Impervious Runoff Depth=5.27"
Flow Length=665' Slope=0.0100 '/' Tc=25.9 min CN=76 Runoff=91.86 cfs 9.744 af
- Subcatchment 13ES: 13ES** Runoff Area=6.900 ac 0.00% Impervious Runoff Depth=5.27"
Flow Length=2,365' Slope=0.0050 '/' Tc=100.9 min CN=76 Runoff=13.05 cfs 3.029 af
- Subcatchment 14ES: 14ES** Runoff Area=17.900 ac 0.00% Impervious Runoff Depth=5.27"
Flow Length=310' Slope=0.0050 '/' Tc=19.9 min CN=76 Runoff=84.41 cfs 7.857 af
- Subcatchment 15ES: 15ES** Runoff Area=24.200 ac 0.00% Impervious Runoff Depth=5.97"
Flow Length=680' Slope=0.0100 '/' Tc=21.9 min CN=82 Runoff=121.90 cfs 12.047 af
- Subcatchment 16ES: 16ES** Runoff Area=54.300 ac 0.00% Impervious Runoff Depth=6.33"
Flow Length=430' Slope=0.0050 '/' Tc=19.4 min CN=85 Runoff=304.80 cfs 28.639 af

2023-10-31 Kansas Sky Pre Post

KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Subcatchment 17ES: 17ES Runoff Area=47.600 ac 0.00% Impervious Runoff Depth=6.45"
Flow Length=1,510' Slope=0.0020 '/' Tc=80.8 min CN=86 Runoff=125.19 cfs 25.576 af

Subcatchment 18ES: 18ES Runoff Area=89.700 ac 0.00% Impervious Runoff Depth=6.09"
Flow Length=1,690' Slope=0.0050 '/' Tc=62.1 min CN=83 Runoff=264.97 cfs 45.538 af

Reach 1ER: Inflow=109.65 cfs 16.111 af
Outflow=109.65 cfs 16.111 af

Reach 2ER: Inflow=538.78 cfs 140.853 af
Outflow=538.78 cfs 140.853 af

Reach 3ER: Inflow=41.74 cfs 17.423 af
Outflow=41.74 cfs 17.423 af

Reach 4ER: Inflow=1,469.91 cfs 133.100 af
Outflow=1,469.91 cfs 133.100 af

Reach 5ER: Inflow=341.40 cfs 54.215 af
Outflow=341.40 cfs 54.215 af

Reach 6ER: Inflow=264.97 cfs 45.538 af
Outflow=264.97 cfs 45.538 af

Total Runoff Area = 809.700 ac Runoff Volume = 407.240 af Average Runoff Depth = 6.04"
100.00% Pervious = 809.700 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1ES: 1ES

Runoff = 39.94 cfs @ 12.36 hrs, Volume= 4.658 af, Depth= 6.21"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 2.600	82	County Provided
* 2.700	84	County Provided
* 0.100	78	County Provided
* 0.100	79	County Provided
* 3.500	86	County Provided
9.000	84	Weighted Average
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.3	1,110	0.0100	0.61		Lag/CN Method,

Summary for Subcatchment 2ES: 2ES

Runoff = 14.36 cfs @ 12.10 hrs, Volume= 1.045 af, Depth= 5.97"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.200	77	County Provided
* 1.700	82	County Provided
* 0.200	84	County Provided
2.100	82	Weighted Average
2.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	295	0.0100	0.44		Lag/CN Method,

Summary for Subcatchment 3ES: 3ES

Runoff = 71.71 cfs @ 12.58 hrs, Volume= 10.407 af, Depth= 6.09"
 Routed to Reach 1ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Area (ac)	CN	Description
* 13.600	82	County Provided
* 6.900	86	County Provided
20.500	83	Weighted Average
20.500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.6	1,180	0.0050	0.42		Lag/CN Method,

Summary for Subcatchment 4ES: 4ES

Runoff = 79.70 cfs @ 14.29 hrs, Volume= 27.795 af, Depth= 6.33"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 8.900	82	County Provided
* 43.800	86	County Provided
52.700	85	Weighted Average
52.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
171.6	2,400	0.0010	0.23		Lag/CN Method,

Summary for Subcatchment 5ES: 5ES

Runoff = 74.72 cfs @ 12.79 hrs, Volume= 13.379 af, Depth= 6.45"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 24.900	86	County Provided
24.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
65.0	745	0.0010	0.19		Lag/CN Method,

Summary for Subcatchment 6ES: 6ES

Runoff = 432.85 cfs @ 13.16 hrs, Volume= 99.678 af, Depth= 6.21"
 Routed to Reach 2ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 59.700	82	County Provided
* 115.600	86	County Provided
* 13.900	75	County Provided
* 3.400	80	County Provided
192.600	84	Weighted Average
192.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
96.2	1,115	0.0010	0.19		Lag/CN Method,

Summary for Subcatchment 7ES: 7ES

Runoff = 22.08 cfs @ 14.46 hrs, Volume= 7.989 af, Depth= 5.27"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 5.600	77	County Provided
* 12.600	75	County Provided
18.200	76	Weighted Average
18.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
183.4	1,825	0.0010	0.17		Lag/CN Method,

Summary for Subcatchment 8ES: 8ES

Runoff = 19.22 cfs @ 14.70 hrs, Volume= 7.942 af, Depth= 5.38"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 17.700	77	County Provided
17.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
216.9	2,335	0.0010	0.18		Lag/CN Method,

Summary for Subcatchment 9ES: 9ES

Runoff = 15.21 cfs @ 12.26 hrs, Volume= 1.492 af, Depth= 5.27"
 Routed to Reach 3ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 2.400	77	County Provided
* 1.000	75	County Provided
3.400	76	Weighted Average
3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	550	0.0100	0.41		Lag/CN Method,

Summary for Subcatchment 10ES: 10ES

Runoff = 243.51 cfs @ 12.57 hrs, Volume= 34.206 af, Depth= 5.86"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 26.600	75	County Provided
* 30.500	86	County Provided
* 13.000	82	County Provided
70.100	81	Weighted Average
70.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.7	1,550	0.0100	0.59		Lag/CN Method,

Summary for Subcatchment 11ES: 11ES

Runoff = 1,279.54 cfs @ 12.01 hrs, Volume= 66.217 af, Depth= 5.86"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 37.100	86	County Provided
* 30.600	75	County Provided
* 2.500	86	County Provided
* 59.600	82	County Provided
* 5.900	79	County Provided
135.700	81	Weighted Average
135.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	165	0.0400	0.76		Lag/CN Method,

Summary for Subcatchment 12ES: 12ES

Runoff = 91.86 cfs @ 12.31 hrs, Volume= 9.744 af, Depth= 5.27"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 1.100	75	County Provided
* 1.500	82	County Provided
* 9.100	74	County Provided
* 10.500	76	County Provided
22.200	76	Weighted Average
22.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	665	0.0100	0.43		Lag/CN Method,

Summary for Subcatchment 13ES: 13ES

Runoff = 13.05 cfs @ 13.34 hrs, Volume= 3.029 af, Depth= 5.27"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Area (ac)	CN	Description
* 2.500	79	County Provided
* 3.700	74	County Provided
* 0.700	76	County Provided
6.900	76	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
100.9	2,365	0.0050	0.39		Lag/CN Method,

Summary for Subcatchment 14ES: 14ES

Runoff = 84.41 cfs @ 12.23 hrs, Volume= 7.857 af, Depth= 5.27"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 17.900	76	County Provided
17.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.9	310	0.0050	0.26		Lag/CN Method,

Summary for Subcatchment 15ES: 15ES

Runoff = 121.90 cfs @ 12.24 hrs, Volume= 12.047 af, Depth= 5.97"
 Routed to Reach 4ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 10.700	86	County Provided
* 5.300	75	County Provided
* 8.200	82	County Provided
24.200	82	Weighted Average
24.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.9	680	0.0100	0.52		Lag/CN Method,

Summary for Subcatchment 16ES: 16ES

Runoff = 304.80 cfs @ 12.22 hrs, Volume= 28.639 af, Depth= 6.33"
 Routed to Reach 5ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 41.400	86	County Provided
* 12.900	82	County Provided
54.300	85	Weighted Average
54.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	430	0.0050	0.37		Lag/CN Method,

Summary for Subcatchment 17ES: 17ES

Runoff = 125.19 cfs @ 13.02 hrs, Volume= 25.576 af, Depth= 6.45"
 Routed to Reach 5ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 47.600	86	County Provided
47.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
80.8	1,510	0.0020	0.31		Lag/CN Method,

Summary for Subcatchment 18ES: 18ES

Runoff = 264.97 cfs @ 12.77 hrs, Volume= 45.538 af, Depth= 6.09"
 Routed to Reach 6ER :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 14.700	86	County Provided
* 75.000	82	County Provided
89.700	83	Weighted Average
89.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.1	1,690	0.0050	0.45		Lag/CN Method,

Summary for Reach 1ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.600 ac, 0.00% Impervious, Inflow Depth = 6.12" for 100-yr event
Inflow = 109.65 cfs @ 12.48 hrs, Volume= 16.111 af
Outflow = 109.65 cfs @ 12.48 hrs, Volume= 16.111 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 2ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 270.200 ac, 0.00% Impervious, Inflow Depth = 6.26" for 100-yr event
Inflow = 538.78 cfs @ 13.15 hrs, Volume= 140.853 af
Outflow = 538.78 cfs @ 13.15 hrs, Volume= 140.853 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 3ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39.300 ac, 0.00% Impervious, Inflow Depth = 5.32" for 100-yr event
Inflow = 41.74 cfs @ 14.47 hrs, Volume= 17.423 af
Outflow = 41.74 cfs @ 14.47 hrs, Volume= 17.423 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 4ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 277.000 ac, 0.00% Impervious, Inflow Depth = 5.77" for 100-yr event
Inflow = 1,469.91 cfs @ 12.02 hrs, Volume= 133.100 af
Outflow = 1,469.91 cfs @ 12.02 hrs, Volume= 133.100 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 5ER:

[40] Hint: Not Described (Outflow=Inflow)

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KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Inflow Area = 101.900 ac, 0.00% Impervious, Inflow Depth = 6.38" for 100-yr event
Inflow = 341.40 cfs @ 12.22 hrs, Volume= 54.215 af
Outflow = 341.40 cfs @ 12.22 hrs, Volume= 54.215 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 6ER:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 89.700 ac, 0.00% Impervious, Inflow Depth = 6.09" for 100-yr event
Inflow = 264.97 cfs @ 12.77 hrs, Volume= 45.538 af
Outflow = 264.97 cfs @ 12.77 hrs, Volume= 45.538 af, Atten= 0%, Lag= 0.0 min

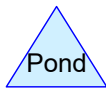
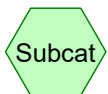
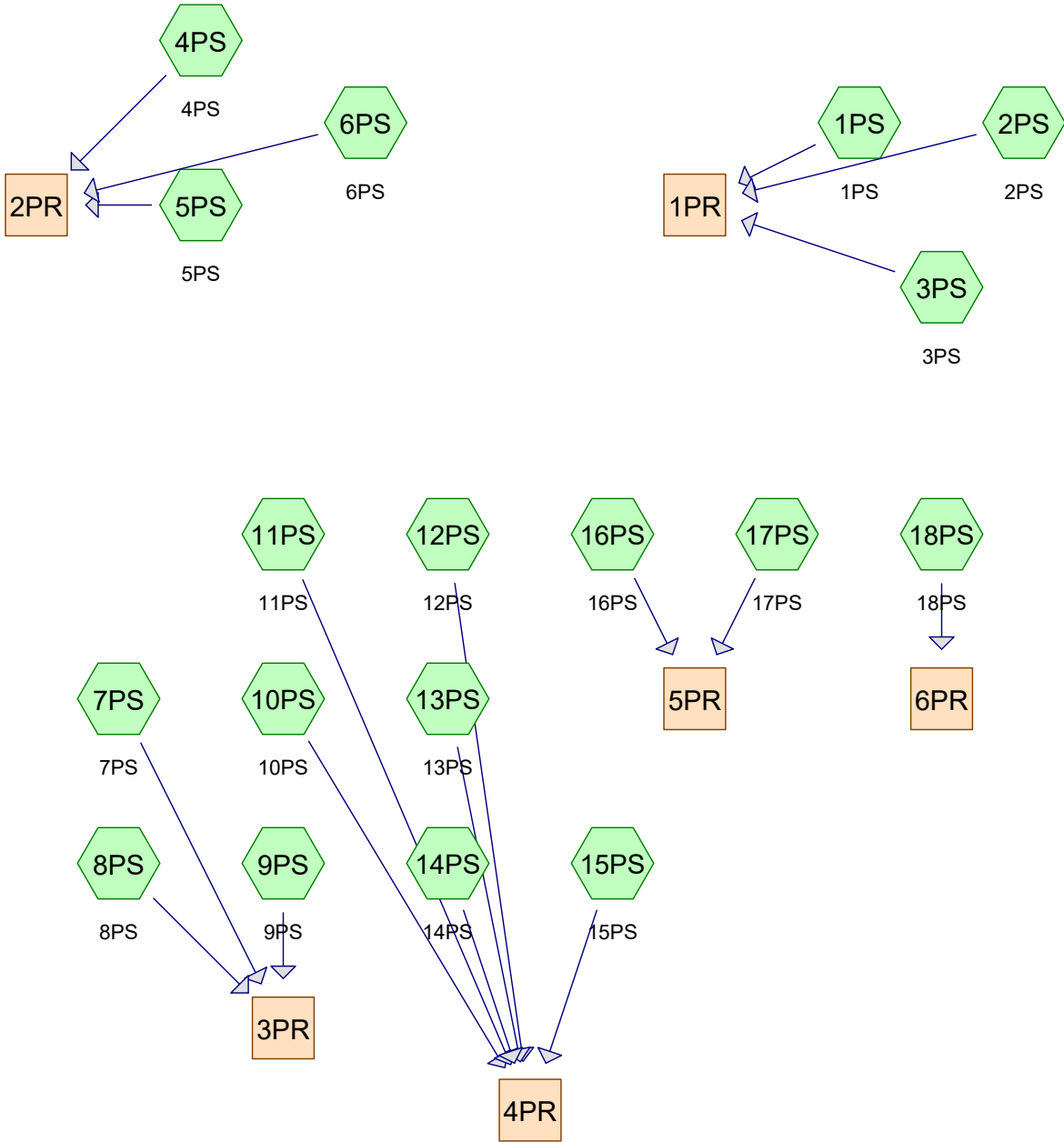
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs



Appendix D

Proposed HydroCAD Results

Proposed



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	KS-KansasSky 24-hr S1	2-yr	Default	24.00	1	3.54	2
2	10-yr	KS-KansasSky 24-hr S1	10-yr	Default	24.00	1	5.21	2
3	100-yr	KS-KansasSky 24-hr S1	100-yr	Default	24.00	1	8.12	2

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
23.700	98	Impervious (1PS, 2PS, 3PS, 4PS, 5PS, 6PS, 7PS, 8PS, 10PS, 11PS, 12PS, 14PS, 15PS, 16PS, 17PS, 18PS)
157.500	58	Meadow, HSG B (2PS, 6PS, 7PS, 8PS, 9PS, 10PS, 11PS, 12PS, 13PS, 14PS, 15PS)
254.100	71	Meadow, HSG C (1PS, 2PS, 3PS, 4PS, 6PS, 10PS, 11PS, 12PS, 13PS, 15PS, 16PS, 18PS)
374.400	78	Meadow, HSG D (1PS, 2PS, 3PS, 4PS, 5PS, 6PS, 10PS, 11PS, 15PS, 16PS, 17PS, 18PS)
809.700	72	TOTAL AREA

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
157.500	HSG B	2PS, 6PS, 7PS, 8PS, 9PS, 10PS, 11PS, 12PS, 13PS, 14PS, 15PS
254.100	HSG C	1PS, 2PS, 3PS, 4PS, 6PS, 10PS, 11PS, 12PS, 13PS, 15PS, 16PS, 18PS
374.400	HSG D	1PS, 2PS, 3PS, 4PS, 5PS, 6PS, 10PS, 11PS, 15PS, 16PS, 17PS, 18PS
23.700	Other	1PS, 2PS, 3PS, 4PS, 5PS, 6PS, 7PS, 8PS, 10PS, 11PS, 12PS, 14PS, 15PS, 16PS, 17PS, 18PS
809.700		TOTAL AREA

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PS: 1PS Runoff Area=9.000 ac 28.89% Impervious Runoff Depth=1.89"
Flow Length=1,110' Slope=0.0100 '/' Tc=31.4 min CN=83 Runoff=12.18 cfs 1.419 af

Subcatchment 2PS: 2PS Runoff Area=2.100 ac 42.86% Impervious Runoff Depth=1.82"
Flow Length=260' Slope=0.0100 '/' Tc=10.1 min CN=82 Runoff=4.65 cfs 0.318 af

Subcatchment 3PS: 3PS Runoff Area=20.500 ac 2.44% Impervious Runoff Depth=1.27"
Flow Length=1,180' Slope=0.0050 '/' Tc=61.3 min CN=74 Runoff=12.23 cfs 2.165 af

Subcatchment 4PS: 4PS Runoff Area=52.700 ac 1.71% Impervious Runoff Depth=1.46"
Flow Length=2,400' Slope=0.0010 '/' Tc=221.8 min CN=77 Runoff=14.75 cfs 6.413 af

Subcatchment 5PS: 5PS Runoff Area=24.900 ac 3.61% Impervious Runoff Depth=1.60"
Flow Length=745' Slope=0.0010 '/' Tc=81.9 min CN=79 Runoff=15.97 cfs 3.314 af

Subcatchment 6PS: 6PS Runoff Area=192.600 ac 2.18% Impervious Runoff Depth=1.33"
Flow Length=1,115' Slope=0.0010 '/' Tc=127.3 min CN=75 Runoff=73.97 cfs 21.350 af

Subcatchment 7PS: 7PS Runoff Area=18.200 ac 4.40% Impervious Runoff Depth=0.55"
Flow Length=1,825' Slope=0.0010 '/' Tc=281.5 min CN=60 Runoff=1.32 cfs 0.832 af

Subcatchment 8PS: 8PS Runoff Area=17.700 ac 3.95% Impervious Runoff Depth=0.55"
Flow Length=2,335' Slope=0.0010 '/' Tc=342.8 min CN=60 Runoff=1.10 cfs 0.809 af

Subcatchment 9PS: 9PS Runoff Area=3.400 ac 0.00% Impervious Runoff Depth=0.47"
Flow Length=550' Slope=0.0100 '/' Tc=35.9 min CN=58 Runoff=0.71 cfs 0.133 af

Subcatchment 10PS: 10PS Runoff Area=70.100 ac 2.14% Impervious Runoff Depth=0.98"
Flow Length=1,550' Slope=0.0100 '/' Tc=61.9 min CN=69 Runoff=30.31 cfs 5.713 af

Subcatchment 11PS: 11PS Runoff Area=135.700 ac 2.80% Impervious Runoff Depth=1.15"
Flow Length=165' Slope=0.0400 '/' Tc=4.7 min CN=72 Runoff=231.84 cfs 12.972 af

Subcatchment 12PS: 12PS Runoff Area=22.200 ac 4.50% Impervious Runoff Depth=0.59"
Flow Length=665' Slope=0.0100 '/' Tc=38.7 min CN=61 Runoff=6.30 cfs 1.093 af

Subcatchment 13PS: 13PS Runoff Area=6.900 ac 0.00% Impervious Runoff Depth=0.68"
Flow Length=2,365' Slope=0.0050 '/' Tc=143.5 min CN=63 Runoff=1.04 cfs 0.391 af

Subcatchment 14PS: 14PS Runoff Area=17.900 ac 2.79% Impervious Runoff Depth=0.51"
Flow Length=310' Slope=0.0050 '/' Tc=31.3 min CN=59 Runoff=4.42 cfs 0.758 af

Subcatchment 15PS: 15PS Runoff Area=24.200 ac 0.83% Impervious Runoff Depth=1.09"
Flow Length=680' Slope=0.0100 '/' Tc=30.3 min CN=71 Runoff=17.68 cfs 2.197 af

Subcatchment 16PS: 16PS Runoff Area=54.300 ac 2.58% Impervious Runoff Depth=1.21"
Flow Length=430' Slope=0.0050 '/' Tc=28.1 min CN=73 Runoff=46.61 cfs 5.460 af

2023-10-31 Kansas Sky Pre Post

KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Subcatchment 17PS: 17PS Runoff Area=47.600 ac 2.31% Impervious Runoff Depth=1.53"
Flow Length=1,510' Slope=0.0050 '/' Tc=66.4 min CN=78 Runoff=33.58 cfs 6.060 af

Subcatchment 18PS: 18PS Runoff Area=89.700 ac 3.01% Impervious Runoff Depth=1.21"
Flow Length=1,690' Slope=0.0050 '/' Tc=84.0 min CN=73 Runoff=41.33 cfs 9.019 af

Reach 1PR: Inflow=21.33 cfs 3.902 af
Outflow=21.33 cfs 3.902 af

Reach 2PR: Inflow=92.59 cfs 31.077 af
Outflow=92.59 cfs 31.077 af

Reach 3PR: Inflow=2.47 cfs 1.775 af
Outflow=2.47 cfs 1.775 af

Reach 4PR: Inflow=236.64 cfs 23.124 af
Outflow=236.64 cfs 23.124 af

Reach 5PR: Inflow=63.72 cfs 11.520 af
Outflow=63.72 cfs 11.520 af

Reach 6PR: Inflow=41.33 cfs 9.019 af
Outflow=41.33 cfs 9.019 af

Total Runoff Area = 809.700 ac Runoff Volume = 80.417 af Average Runoff Depth = 1.19"
97.07% Pervious = 786.000 ac 2.93% Impervious = 23.700 ac

Summary for Subcatchment 1PS: 1PS

Runoff = 12.18 cfs @ 12.39 hrs, Volume= 1.419 af, Depth= 1.89"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 2.600	98	Impervious
* 0.400	71	Meadow, HSG C
* 6.000	78	Meadow, HSG D
9.000	83	Weighted Average
6.400		71.11% Pervious Area
2.600		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4	1,110	0.0100	0.59		Lag/CN Method,

Summary for Subcatchment 2PS: 2PS

Runoff = 4.65 cfs @ 12.09 hrs, Volume= 0.318 af, Depth= 1.82"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 0.200	58	Meadow, HSG B
* 0.800	71	Meadow, HSG C
* 0.200	78	Meadow, HSG D
2.100	82	Weighted Average
1.200		57.14% Pervious Area
0.900		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	260	0.0100	0.43		Lag/CN Method,

Summary for Subcatchment 3PS: 3PS

Runoff = 12.23 cfs @ 12.87 hrs, Volume= 2.165 af, Depth= 1.27"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Area (ac)	CN	Description
* 0.500	98	Impervious
* 13.600	71	Meadow, HSG C
* 6.400	78	Meadow, HSG D
20.500	74	Weighted Average
20.000		97.56% Pervious Area
0.500		2.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3	1,180	0.0050	0.32		Lag/CN Method,

Summary for Subcatchment 4PS: 4PS

Runoff = 14.75 cfs @ 15.03 hrs, Volume= 6.413 af, Depth= 1.46"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 8.900	71	Meadow, HSG C
* 42.900	78	Meadow, HSG D
52.700	77	Weighted Average
51.800		98.29% Pervious Area
0.900		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
221.8	2,400	0.0010	0.18		Lag/CN Method,

Summary for Subcatchment 5PS: 5PS

Runoff = 15.97 cfs @ 13.10 hrs, Volume= 3.314 af, Depth= 1.60"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 24.000	78	Meadow, HSG D
24.900	79	Weighted Average
24.000		96.39% Pervious Area
0.900		3.61% Impervious Area

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
81.9	745	0.0010	0.15		Lag/CN Method,

Summary for Subcatchment 6PS: 6PS

Runoff = 73.97 cfs @ 13.72 hrs, Volume= 21.350 af, Depth= 1.33"
Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 4.200	98	Impervious
* 13.900	58	Meadow, HSG B
* 55.400	71	Meadow, HSG C
* 119.100	78	Meadow, HSG D
192.600	75	Weighted Average
188.400		97.82% Pervious Area
4.200		2.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
127.3	1,115	0.0010	0.15		Lag/CN Method,

Summary for Subcatchment 7PS: 7PS

Runoff = 1.32 cfs @ 16.27 hrs, Volume= 0.832 af, Depth= 0.55"
Routed to Reach 3PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.800	98	Impervious
* 17.400	58	Meadow, HSG B
18.200	60	Weighted Average
17.400		95.60% Pervious Area
0.800		4.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
281.5	1,825	0.0010	0.11		Lag/CN Method,

Summary for Subcatchment 8PS: 8PS

Runoff = 1.10 cfs @ 17.14 hrs, Volume= 0.809 af, Depth= 0.55"
Routed to Reach 3PR :

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.700	98	Impervious
* 17.000	58	Meadow, HSG B
17.700	60	Weighted Average
17.000		96.05% Pervious Area
0.700		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
342.8	2,335	0.0010	0.11		Lag/CN Method,

Summary for Subcatchment 9PS: 9PS

Runoff = 0.71 cfs @ 12.65 hrs, Volume= 0.133 af, Depth= 0.47"
 Routed to Reach 3PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 3.400	58	Meadow, HSG B
3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	550	0.0100	0.26		Lag/CN Method,

Summary for Subcatchment 10PS: 10PS

Runoff = 30.31 cfs @ 12.87 hrs, Volume= 5.713 af, Depth= 0.98"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 1.500	98	Impervious
* 27.700	58	Meadow, HSG B
* 11.200	71	Meadow, HSG C
* 29.700	78	Meadow, HSG D
70.100	69	Weighted Average
68.600		97.86% Pervious Area
1.500		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.9	1,550	0.0100	0.42		Lag/CN Method,

Summary for Subcatchment 11PS: 11PS

Runoff = 231.84 cfs @ 12.03 hrs, Volume= 12.972 af, Depth= 1.15"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 3.800	98	Impervious
* 31.100	58	Meadow, HSG B
* 38.200	71	Meadow, HSG C
* 62.600	78	Meadow, HSG D
135.700	72	Weighted Average
131.900		97.20% Pervious Area
3.800		2.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	165	0.0400	0.58		Lag/CN Method,

Summary for Subcatchment 12PS: 12PS

Runoff = 6.30 cfs @ 12.64 hrs, Volume= 1.093 af, Depth= 0.59"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 1.000	98	Impervious
* 19.700	58	Meadow, HSG B
* 1.500	71	Meadow, HSG C
22.200	61	Weighted Average
21.200		95.50% Pervious Area
1.000		4.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.7	665	0.0100	0.29		Lag/CN Method,

Summary for Subcatchment 13PS: 13PS

Runoff = 1.04 cfs @ 14.19 hrs, Volume= 0.391 af, Depth= 0.68"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 4.400	58	Meadow, HSG B
* 2.500	71	Meadow, HSG C
6.900	63	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
143.5	2,365	0.0050	0.27		Lag/CN Method,

Summary for Subcatchment 14PS: 14PS

Runoff = 4.42 cfs @ 12.55 hrs, Volume= 0.758 af, Depth= 0.51"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 0.500	98	Impervious
* 17.400	58	Meadow, HSG B
17.900	59	Weighted Average
17.400		97.21% Pervious Area
0.500		2.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3	310	0.0050	0.17		Lag/CN Method,

Summary for Subcatchment 15PS: 15PS

Runoff = 17.68 cfs @ 12.42 hrs, Volume= 2.197 af, Depth= 1.09"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

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Area (ac)	CN	Description
* 0.200	98	Impervious
* 5.300	58	Meadow, HSG B
* 8.200	71	Meadow, HSG C
* 10.500	78	Meadow, HSG D
24.200	71	Weighted Average
24.000		99.17% Pervious Area
0.200		0.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.3	680	0.0100	0.37		Lag/CN Method,

Summary for Subcatchment 16PS: 16PS

Runoff = 46.61 cfs @ 12.37 hrs, Volume= 5.460 af, Depth= 1.21"
 Routed to Reach 5PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 1.400	98	Impervious
* 41.100	71	Meadow, HSG C
* 11.800	78	Meadow, HSG D
54.300	73	Weighted Average
52.900		97.42% Pervious Area
1.400		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1	430	0.0050	0.25		Lag/CN Method,

Summary for Subcatchment 17PS: 17PS

Runoff = 33.58 cfs @ 12.91 hrs, Volume= 6.060 af, Depth= 1.53"
 Routed to Reach 5PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 1.100	98	Impervious
* 46.500	78	Meadow, HSG D
47.600	78	Weighted Average
46.500		97.69% Pervious Area
1.100		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
66.4	1,510	0.0050	0.38		Lag/CN Method,

Summary for Subcatchment 18PS: 18PS

Runoff = 41.33 cfs @ 13.16 hrs, Volume= 9.019 af, Depth= 1.21"
 Routed to Reach 6PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 2-yr Rainfall=3.54"

Area (ac)	CN	Description
* 2.700	98	Impervious
* 72.300	71	Meadow, HSG C
* 14.700	78	Meadow, HSG D
89.700	73	Weighted Average
87.000		96.99% Pervious Area
2.700		3.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
84.0	1,690	0.0050	0.34		Lag/CN Method,

Summary for Reach 1PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.600 ac, 12.66% Impervious, Inflow Depth = 1.48" for 2-yr event
 Inflow = 21.33 cfs @ 12.53 hrs, Volume= 3.902 af
 Outflow = 21.33 cfs @ 12.53 hrs, Volume= 3.902 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 2PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 270.200 ac, 2.22% Impervious, Inflow Depth = 1.38" for 2-yr event
 Inflow = 92.59 cfs @ 13.72 hrs, Volume= 31.077 af
 Outflow = 92.59 cfs @ 13.72 hrs, Volume= 31.077 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 3PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39.300 ac, 3.82% Impervious, Inflow Depth = 0.54" for 2-yr event
 Inflow = 2.47 cfs @ 16.72 hrs, Volume= 1.775 af
 Outflow = 2.47 cfs @ 16.72 hrs, Volume= 1.775 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 4PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 277.000 ac, 2.53% Impervious, Inflow Depth = 1.00" for 2-yr event
 Inflow = 236.64 cfs @ 12.03 hrs, Volume= 23.124 af
 Outflow = 236.64 cfs @ 12.03 hrs, Volume= 23.124 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 5PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 101.900 ac, 2.45% Impervious, Inflow Depth = 1.36" for 2-yr event
 Inflow = 63.72 cfs @ 12.46 hrs, Volume= 11.520 af
 Outflow = 63.72 cfs @ 12.46 hrs, Volume= 11.520 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 6PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 89.700 ac, 3.01% Impervious, Inflow Depth = 1.21" for 2-yr event
 Inflow = 41.33 cfs @ 13.16 hrs, Volume= 9.019 af
 Outflow = 41.33 cfs @ 13.16 hrs, Volume= 9.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1PS: 1PS Runoff Area=9.000 ac 28.89% Impervious Runoff Depth=3.36"
Flow Length=1,110' Slope=0.0100 '/' Tc=31.4 min CN=83 Runoff=21.96 cfs 2.524 af

Subcatchment 2PS: 2PS Runoff Area=2.100 ac 42.86% Impervious Runoff Depth=3.27"
Flow Length=260' Slope=0.0100 '/' Tc=10.1 min CN=82 Runoff=8.49 cfs 0.572 af

Subcatchment 3PS: 3PS Runoff Area=20.500 ac 2.44% Impervious Runoff Depth=2.53"
Flow Length=1,180' Slope=0.0050 '/' Tc=61.3 min CN=74 Runoff=25.69 cfs 4.327 af

Subcatchment 4PS: 4PS Runoff Area=52.700 ac 1.71% Impervious Runoff Depth=2.80"
Flow Length=2,400' Slope=0.0010 '/' Tc=221.8 min CN=77 Runoff=29.34 cfs 12.295 af

Subcatchment 5PS: 5PS Runoff Area=24.900 ac 3.61% Impervious Runoff Depth=2.98"
Flow Length=745' Slope=0.0010 '/' Tc=81.9 min CN=79 Runoff=30.79 cfs 6.190 af

Subcatchment 6PS: 6PS Runoff Area=192.600 ac 2.18% Impervious Runoff Depth=2.62"
Flow Length=1,115' Slope=0.0010 '/' Tc=127.3 min CN=75 Runoff=153.16 cfs 42.061 af

Subcatchment 7PS: 7PS Runoff Area=18.200 ac 4.40% Impervious Runoff Depth=1.43"
Flow Length=1,825' Slope=0.0010 '/' Tc=281.5 min CN=60 Runoff=3.90 cfs 2.162 af

Subcatchment 8PS: 8PS Runoff Area=17.700 ac 3.95% Impervious Runoff Depth=1.43"
Flow Length=2,335' Slope=0.0010 '/' Tc=342.8 min CN=60 Runoff=3.19 cfs 2.102 af

Subcatchment 9PS: 9PS Runoff Area=3.400 ac 0.00% Impervious Runoff Depth=1.29"
Flow Length=550' Slope=0.0100 '/' Tc=35.9 min CN=58 Runoff=2.57 cfs 0.364 af

Subcatchment 10PS: 10PS Runoff Area=70.100 ac 2.14% Impervious Runoff Depth=2.11"
Flow Length=1,550' Slope=0.0100 '/' Tc=61.9 min CN=69 Runoff=71.77 cfs 12.334 af

Subcatchment 11PS: 11PS Runoff Area=135.700 ac 2.80% Impervious Runoff Depth=2.36"
Flow Length=165' Slope=0.0400 '/' Tc=4.7 min CN=72 Runoff=507.26 cfs 26.697 af

Subcatchment 12PS: 12PS Runoff Area=22.200 ac 4.50% Impervious Runoff Depth=1.50"
Flow Length=665' Slope=0.0100 '/' Tc=38.7 min CN=61 Runoff=19.65 cfs 2.769 af

Subcatchment 13PS: 13PS Runoff Area=6.900 ac 0.00% Impervious Runoff Depth=1.64"
Flow Length=2,365' Slope=0.0050 '/' Tc=143.5 min CN=63 Runoff=2.89 cfs 0.945 af

Subcatchment 14PS: 14PS Runoff Area=17.900 ac 2.79% Impervious Runoff Depth=1.36"
Flow Length=310' Slope=0.0050 '/' Tc=31.3 min CN=59 Runoff=15.50 cfs 2.021 af

Subcatchment 15PS: 15PS Runoff Area=24.200 ac 0.83% Impervious Runoff Depth=2.28"
Flow Length=680' Slope=0.0100 '/' Tc=30.3 min CN=71 Runoff=39.80 cfs 4.591 af

Subcatchment 16PS: 16PS Runoff Area=54.300 ac 2.58% Impervious Runoff Depth=2.45"
Flow Length=430' Slope=0.0050 '/' Tc=28.1 min CN=73 Runoff=100.50 cfs 11.069 af

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Subcatchment 17PS: 17PS Runoff Area=47.600 ac 2.31% Impervious Runoff Depth=2.89"
Flow Length=1,510' Slope=0.0050 '/' Tc=66.4 min CN=78 Runoff=65.55 cfs 11.467 af

Subcatchment 18PS: 18PS Runoff Area=89.700 ac 3.01% Impervious Runoff Depth=2.45"
Flow Length=1,690' Slope=0.0050 '/' Tc=84.0 min CN=73 Runoff=88.86 cfs 18.286 af

Reach 1PR: Inflow=42.06 cfs 7.422 af
Outflow=42.06 cfs 7.422 af

Reach 2PR: Inflow=190.11 cfs 60.547 af
Outflow=190.11 cfs 60.547 af

Reach 3PR: Inflow=7.20 cfs 4.629 af
Outflow=7.20 cfs 4.629 af

Reach 4PR: Inflow=529.65 cfs 49.357 af
Outflow=529.65 cfs 49.357 af

Reach 5PR: Inflow=134.26 cfs 22.536 af
Outflow=134.26 cfs 22.536 af

Reach 6PR: Inflow=88.86 cfs 18.286 af
Outflow=88.86 cfs 18.286 af

Total Runoff Area = 809.700 ac Runoff Volume = 162.777 af Average Runoff Depth = 2.41"
97.07% Pervious = 786.000 ac 2.93% Impervious = 23.700 ac

Summary for Subcatchment 1PS: 1PS

Runoff = 21.96 cfs @ 12.39 hrs, Volume= 2.524 af, Depth= 3.36"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 2.600	98	Impervious
* 0.400	71	Meadow, HSG C
* 6.000	78	Meadow, HSG D
9.000	83	Weighted Average
6.400		71.11% Pervious Area
2.600		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4	1,110	0.0100	0.59		Lag/CN Method,

Summary for Subcatchment 2PS: 2PS

Runoff = 8.49 cfs @ 12.09 hrs, Volume= 0.572 af, Depth= 3.27"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 0.200	58	Meadow, HSG B
* 0.800	71	Meadow, HSG C
* 0.200	78	Meadow, HSG D
2.100	82	Weighted Average
1.200		57.14% Pervious Area
0.900		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	260	0.0100	0.43		Lag/CN Method,

Summary for Subcatchment 3PS: 3PS

Runoff = 25.69 cfs @ 12.81 hrs, Volume= 4.327 af, Depth= 2.53"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Area (ac)	CN	Description
* 0.500	98	Impervious
* 13.600	71	Meadow, HSG C
* 6.400	78	Meadow, HSG D
20.500	74	Weighted Average
20.000		97.56% Pervious Area
0.500		2.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3	1,180	0.0050	0.32		Lag/CN Method,

Summary for Subcatchment 4PS: 4PS

Runoff = 29.34 cfs @ 15.03 hrs, Volume= 12.295 af, Depth= 2.80"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 8.900	71	Meadow, HSG C
* 42.900	78	Meadow, HSG D
52.700	77	Weighted Average
51.800		98.29% Pervious Area
0.900		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
221.8	2,400	0.0010	0.18		Lag/CN Method,

Summary for Subcatchment 5PS: 5PS

Runoff = 30.79 cfs @ 13.02 hrs, Volume= 6.190 af, Depth= 2.98"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 24.000	78	Meadow, HSG D
24.900	79	Weighted Average
24.000		96.39% Pervious Area
0.900		3.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
81.9	745	0.0010	0.15		Lag/CN Method,

Summary for Subcatchment 6PS: 6PS

Runoff = 153.16 cfs @ 13.72 hrs, Volume= 42.061 af, Depth= 2.62"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 4.200	98	Impervious
* 13.900	58	Meadow, HSG B
* 55.400	71	Meadow, HSG C
* 119.100	78	Meadow, HSG D
192.600	75	Weighted Average
188.400		97.82% Pervious Area
4.200		2.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
127.3	1,115	0.0010	0.15		Lag/CN Method,

Summary for Subcatchment 7PS: 7PS

Runoff = 3.90 cfs @ 15.95 hrs, Volume= 2.162 af, Depth= 1.43"
 Routed to Reach 3PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.800	98	Impervious
* 17.400	58	Meadow, HSG B
18.200	60	Weighted Average
17.400		95.60% Pervious Area
0.800		4.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
281.5	1,825	0.0010	0.11		Lag/CN Method,

Summary for Subcatchment 8PS: 8PS

Runoff = 3.19 cfs @ 16.77 hrs, Volume= 2.102 af, Depth= 1.43"
 Routed to Reach 3PR :

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.700	98	Impervious
* 17.000	58	Meadow, HSG B
17.700	60	Weighted Average
17.000		96.05% Pervious Area
0.700		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
342.8	2,335	0.0010	0.11		Lag/CN Method,

Summary for Subcatchment 9PS: 9PS

Runoff = 2.57 cfs @ 12.53 hrs, Volume= 0.364 af, Depth= 1.29"
 Routed to Reach 3PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 3.400	58	Meadow, HSG B
3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	550	0.0100	0.26		Lag/CN Method,

Summary for Subcatchment 10PS: 10PS

Runoff = 71.77 cfs @ 12.86 hrs, Volume= 12.334 af, Depth= 2.11"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 1.500	98	Impervious
* 27.700	58	Meadow, HSG B
* 11.200	71	Meadow, HSG C
* 29.700	78	Meadow, HSG D
70.100	69	Weighted Average
68.600		97.86% Pervious Area
1.500		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.9	1,550	0.0100	0.42		Lag/CN Method,

Summary for Subcatchment 11PS: 11PS

Runoff = 507.26 cfs @ 12.03 hrs, Volume= 26.697 af, Depth= 2.36"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 3.800	98	Impervious
* 31.100	58	Meadow, HSG B
* 38.200	71	Meadow, HSG C
* 62.600	78	Meadow, HSG D
135.700	72	Weighted Average
131.900		97.20% Pervious Area
3.800		2.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	165	0.0400	0.58		Lag/CN Method,

Summary for Subcatchment 12PS: 12PS

Runoff = 19.65 cfs @ 12.56 hrs, Volume= 2.769 af, Depth= 1.50"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 1.000	98	Impervious
* 19.700	58	Meadow, HSG B
* 1.500	71	Meadow, HSG C
22.200	61	Weighted Average
21.200		95.50% Pervious Area
1.000		4.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.7	665	0.0100	0.29		Lag/CN Method,

Summary for Subcatchment 13PS: 13PS

Runoff = 2.89 cfs @ 14.03 hrs, Volume= 0.945 af, Depth= 1.64"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 4.400	58	Meadow, HSG B
* 2.500	71	Meadow, HSG C
6.900	63	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
143.5	2,365	0.0050	0.27		Lag/CN Method,

Summary for Subcatchment 14PS: 14PS

Runoff = 15.50 cfs @ 12.45 hrs, Volume= 2.021 af, Depth= 1.36"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 0.500	98	Impervious
* 17.400	58	Meadow, HSG B
17.900	59	Weighted Average
17.400		97.21% Pervious Area
0.500		2.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3	310	0.0050	0.17		Lag/CN Method,

Summary for Subcatchment 15PS: 15PS

Runoff = 39.80 cfs @ 12.39 hrs, Volume= 4.591 af, Depth= 2.28"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Area (ac)	CN	Description
* 0.200	98	Impervious
* 5.300	58	Meadow, HSG B
* 8.200	71	Meadow, HSG C
* 10.500	78	Meadow, HSG D
24.200	71	Weighted Average
24.000		99.17% Pervious Area
0.200		0.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.3	680	0.0100	0.37		Lag/CN Method,

Summary for Subcatchment 16PS: 16PS

Runoff = 100.50 cfs @ 12.36 hrs, Volume= 11.069 af, Depth= 2.45"
 Routed to Reach 5PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 1.400	98	Impervious
* 41.100	71	Meadow, HSG C
* 11.800	78	Meadow, HSG D
54.300	73	Weighted Average
52.900		97.42% Pervious Area
1.400		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1	430	0.0050	0.25		Lag/CN Method,

Summary for Subcatchment 17PS: 17PS

Runoff = 65.55 cfs @ 12.91 hrs, Volume= 11.467 af, Depth= 2.89"
 Routed to Reach 5PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 1.100	98	Impervious
* 46.500	78	Meadow, HSG D
47.600	78	Weighted Average
46.500		97.69% Pervious Area
1.100		2.31% Impervious Area

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KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
66.4	1,510	0.0050	0.38		Lag/CN Method,

Summary for Subcatchment 18PS: 18PS

Runoff = 88.86 cfs @ 13.16 hrs, Volume= 18.286 af, Depth= 2.45"
 Routed to Reach 6PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 10-yr Rainfall=5.21"

Area (ac)	CN	Description
* 2.700	98	Impervious
* 72.300	71	Meadow, HSG C
* 14.700	78	Meadow, HSG D
89.700	73	Weighted Average
87.000		96.99% Pervious Area
2.700		3.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
84.0	1,690	0.0050	0.34		Lag/CN Method,

Summary for Reach 1PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.600 ac, 12.66% Impervious, Inflow Depth = 2.82" for 10-yr event
 Inflow = 42.06 cfs @ 12.53 hrs, Volume= 7.422 af
 Outflow = 42.06 cfs @ 12.53 hrs, Volume= 7.422 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 2PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 270.200 ac, 2.22% Impervious, Inflow Depth = 2.69" for 10-yr event
 Inflow = 190.11 cfs @ 13.72 hrs, Volume= 60.547 af
 Outflow = 190.11 cfs @ 13.72 hrs, Volume= 60.547 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 3PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39.300 ac, 3.82% Impervious, Inflow Depth = 1.41" for 10-yr event
 Inflow = 7.20 cfs @ 16.38 hrs, Volume= 4.629 af
 Outflow = 7.20 cfs @ 16.38 hrs, Volume= 4.629 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 4PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 277.000 ac, 2.53% Impervious, Inflow Depth = 2.14" for 10-yr event
 Inflow = 529.65 cfs @ 12.03 hrs, Volume= 49.357 af
 Outflow = 529.65 cfs @ 12.03 hrs, Volume= 49.357 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 5PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 101.900 ac, 2.45% Impervious, Inflow Depth = 2.65" for 10-yr event
 Inflow = 134.26 cfs @ 12.43 hrs, Volume= 22.536 af
 Outflow = 134.26 cfs @ 12.43 hrs, Volume= 22.536 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 6PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 89.700 ac, 3.01% Impervious, Inflow Depth = 2.45" for 10-yr event
 Inflow = 88.86 cfs @ 13.16 hrs, Volume= 18.286 af
 Outflow = 88.86 cfs @ 13.16 hrs, Volume= 18.286 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

- Subcatchment 1PS: 1PS** Runoff Area=9.000 ac 28.89% Impervious Runoff Depth=6.09"
Flow Length=1,110' Slope=0.0100 '/' Tc=31.4 min CN=83 Runoff=38.57 cfs 4.569 af
- Subcatchment 2PS: 2PS** Runoff Area=2.100 ac 42.86% Impervious Runoff Depth=5.97"
Flow Length=260' Slope=0.0100 '/' Tc=10.1 min CN=82 Runoff=14.98 cfs 1.045 af
- Subcatchment 3PS: 3PS** Runoff Area=20.500 ac 2.44% Impervious Runoff Depth=5.03"
Flow Length=1,180' Slope=0.0050 '/' Tc=61.3 min CN=74 Runoff=50.92 cfs 8.598 af
- Subcatchment 4PS: 4PS** Runoff Area=52.700 ac 1.71% Impervious Runoff Depth=5.38"
Flow Length=2,400' Slope=0.0010 '/' Tc=221.8 min CN=77 Runoff=56.35 cfs 23.647 af
- Subcatchment 5PS: 5PS** Runoff Area=24.900 ac 3.61% Impervious Runoff Depth=5.62"
Flow Length=745' Slope=0.0010 '/' Tc=81.9 min CN=79 Runoff=57.40 cfs 11.661 af
- Subcatchment 6PS: 6PS** Runoff Area=192.600 ac 2.18% Impervious Runoff Depth=5.15"
Flow Length=1,115' Slope=0.0010 '/' Tc=127.3 min CN=75 Runoff=300.81 cfs 82.659 af
- Subcatchment 7PS: 7PS** Runoff Area=18.200 ac 4.40% Impervious Runoff Depth=3.42"
Flow Length=1,825' Slope=0.0010 '/' Tc=281.5 min CN=60 Runoff=9.99 cfs 5.192 af
- Subcatchment 8PS: 8PS** Runoff Area=17.700 ac 3.95% Impervious Runoff Depth=3.42"
Flow Length=2,335' Slope=0.0010 '/' Tc=342.8 min CN=60 Runoff=8.17 cfs 5.050 af
- Subcatchment 9PS: 9PS** Runoff Area=3.400 ac 0.00% Impervious Runoff Depth=3.20"
Flow Length=550' Slope=0.0100 '/' Tc=35.9 min CN=58 Runoff=7.04 cfs 0.906 af
- Subcatchment 10PS: 10PS** Runoff Area=70.100 ac 2.14% Impervious Runoff Depth=4.45"
Flow Length=1,550' Slope=0.0100 '/' Tc=61.9 min CN=69 Runoff=153.02 cfs 26.006 af
- Subcatchment 11PS: 11PS** Runoff Area=135.700 ac 2.80% Impervious Runoff Depth=4.80"
Flow Length=165' Slope=0.0400 '/' Tc=4.7 min CN=72 Runoff=1,017.30 cfs 54.279 af
- Subcatchment 12PS: 12PS** Runoff Area=22.200 ac 4.50% Impervious Runoff Depth=3.54"
Flow Length=665' Slope=0.0100 '/' Tc=38.7 min CN=61 Runoff=49.43 cfs 6.542 af
- Subcatchment 13PS: 13PS** Runoff Area=6.900 ac 0.00% Impervious Runoff Depth=3.76"
Flow Length=2,365' Slope=0.0050 '/' Tc=143.5 min CN=63 Runoff=7.06 cfs 2.164 af
- Subcatchment 14PS: 14PS** Runoff Area=17.900 ac 2.79% Impervious Runoff Depth=3.31"
Flow Length=310' Slope=0.0050 '/' Tc=31.3 min CN=59 Runoff=41.32 cfs 4.939 af
- Subcatchment 15PS: 15PS** Runoff Area=24.200 ac 0.83% Impervious Runoff Depth=4.68"
Flow Length=680' Slope=0.0100 '/' Tc=30.3 min CN=71 Runoff=82.33 cfs 9.445 af
- Subcatchment 16PS: 16PS** Runoff Area=54.300 ac 2.58% Impervious Runoff Depth=4.92"
Flow Length=430' Slope=0.0050 '/' Tc=28.1 min CN=73 Runoff=201.74 cfs 22.247 af

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KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Subcatchment 17PS: 17PS Runoff Area=47.600 ac 2.31% Impervious Runoff Depth=5.50"
Flow Length=1,510' Slope=0.0050 '/' Tc=66.4 min CN=78 Runoff=122.80 cfs 21.825 af

Subcatchment 18PS: 18PS Runoff Area=89.700 ac 3.01% Impervious Runoff Depth=4.92"
Flow Length=1,690' Slope=0.0050 '/' Tc=84.0 min CN=73 Runoff=178.43 cfs 36.750 af

Reach 1PR: Inflow=79.70 cfs 14.213 af
Outflow=79.70 cfs 14.213 af

Reach 2PR: Inflow=371.91 cfs 117.967 af
Outflow=371.91 cfs 117.967 af

Reach 3PR: Inflow=18.29 cfs 11.149 af
Outflow=18.29 cfs 11.149 af

Reach 4PR: Inflow=1,089.10 cfs 103.376 af
Outflow=1,089.10 cfs 103.376 af

Reach 5PR: Inflow=266.77 cfs 44.072 af
Outflow=266.77 cfs 44.072 af

Reach 6PR: Inflow=178.43 cfs 36.750 af
Outflow=178.43 cfs 36.750 af

Total Runoff Area = 809.700 ac Runoff Volume = 327.526 af Average Runoff Depth = 4.85"
97.07% Pervious = 786.000 ac 2.93% Impervious = 23.700 ac

Summary for Subcatchment 1PS: 1PS

Runoff = 38.57 cfs @ 12.38 hrs, Volume= 4.569 af, Depth= 6.09"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 2.600	98	Impervious
* 0.400	71	Meadow, HSG C
* 6.000	78	Meadow, HSG D
9.000	83	Weighted Average
6.400		71.11% Pervious Area
2.600		28.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.4	1,110	0.0100	0.59		Lag/CN Method,

Summary for Subcatchment 2PS: 2PS

Runoff = 14.98 cfs @ 12.09 hrs, Volume= 1.045 af, Depth= 5.97"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 0.200	58	Meadow, HSG B
* 0.800	71	Meadow, HSG C
* 0.200	78	Meadow, HSG D
2.100	82	Weighted Average
1.200		57.14% Pervious Area
0.900		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	260	0.0100	0.43		Lag/CN Method,

Summary for Subcatchment 3PS: 3PS

Runoff = 50.92 cfs @ 12.80 hrs, Volume= 8.598 af, Depth= 5.03"
 Routed to Reach 1PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Area (ac)	CN	Description
* 0.500	98	Impervious
* 13.600	71	Meadow, HSG C
* 6.400	78	Meadow, HSG D
20.500	74	Weighted Average
20.000		97.56% Pervious Area
0.500		2.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.3	1,180	0.0050	0.32		Lag/CN Method,

Summary for Subcatchment 4PS: 4PS

Runoff = 56.35 cfs @ 15.03 hrs, Volume= 23.647 af, Depth= 5.38"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 8.900	71	Meadow, HSG C
* 42.900	78	Meadow, HSG D
52.700	77	Weighted Average
51.800		98.29% Pervious Area
0.900		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
221.8	2,400	0.0010	0.18		Lag/CN Method,

Summary for Subcatchment 5PS: 5PS

Runoff = 57.40 cfs @ 13.02 hrs, Volume= 11.661 af, Depth= 5.62"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.900	98	Impervious
* 24.000	78	Meadow, HSG D
24.900	79	Weighted Average
24.000		96.39% Pervious Area
0.900		3.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
81.9	745	0.0010	0.15		Lag/CN Method,

Summary for Subcatchment 6PS: 6PS

Runoff = 300.81 cfs @ 13.72 hrs, Volume= 82.659 af, Depth= 5.15"
 Routed to Reach 2PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 4.200	98	Impervious
* 13.900	58	Meadow, HSG B
* 55.400	71	Meadow, HSG C
* 119.100	78	Meadow, HSG D
192.600	75	Weighted Average
188.400		97.82% Pervious Area
4.200		2.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
127.3	1,115	0.0010	0.15		Lag/CN Method,

Summary for Subcatchment 7PS: 7PS

Runoff = 9.99 cfs @ 15.95 hrs, Volume= 5.192 af, Depth= 3.42"
 Routed to Reach 3PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.800	98	Impervious
* 17.400	58	Meadow, HSG B
18.200	60	Weighted Average
17.400		95.60% Pervious Area
0.800		4.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
281.5	1,825	0.0010	0.11		Lag/CN Method,

Summary for Subcatchment 8PS: 8PS

Runoff = 8.17 cfs @ 16.39 hrs, Volume= 5.050 af, Depth= 3.42"
 Routed to Reach 3PR :

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.700	98	Impervious
* 17.000	58	Meadow, HSG B
17.700	60	Weighted Average
17.000		96.05% Pervious Area
0.700		3.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
342.8	2,335	0.0010	0.11		Lag/CN Method,

Summary for Subcatchment 9PS: 9PS

Runoff = 7.04 cfs @ 12.49 hrs, Volume= 0.906 af, Depth= 3.20"
 Routed to Reach 3PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 3.400	58	Meadow, HSG B
3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.9	550	0.0100	0.26		Lag/CN Method,

Summary for Subcatchment 10PS: 10PS

Runoff = 153.02 cfs @ 12.85 hrs, Volume= 26.006 af, Depth= 4.45"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 1.500	98	Impervious
* 27.700	58	Meadow, HSG B
* 11.200	71	Meadow, HSG C
* 29.700	78	Meadow, HSG D
70.100	69	Weighted Average
68.600		97.86% Pervious Area
1.500		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
61.9	1,550	0.0100	0.42		Lag/CN Method,

Summary for Subcatchment 11PS: 11PS

Runoff = 1,017.30 cfs @ 12.03 hrs, Volume= 54.279 af, Depth= 4.80"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 3.800	98	Impervious
* 31.100	58	Meadow, HSG B
* 38.200	71	Meadow, HSG C
* 62.600	78	Meadow, HSG D
135.700	72	Weighted Average
131.900		97.20% Pervious Area
3.800		2.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	165	0.0400	0.58		Lag/CN Method,

Summary for Subcatchment 12PS: 12PS

Runoff = 49.43 cfs @ 12.52 hrs, Volume= 6.542 af, Depth= 3.54"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 1.000	98	Impervious
* 19.700	58	Meadow, HSG B
* 1.500	71	Meadow, HSG C
22.200	61	Weighted Average
21.200		95.50% Pervious Area
1.000		4.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.7	665	0.0100	0.29		Lag/CN Method,

Summary for Subcatchment 13PS: 13PS

Runoff = 7.06 cfs @ 13.87 hrs, Volume= 2.164 af, Depth= 3.76"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 4.400	58	Meadow, HSG B
* 2.500	71	Meadow, HSG C
6.900	63	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
143.5	2,365	0.0050	0.27		Lag/CN Method,

Summary for Subcatchment 14PS: 14PS

Runoff = 41.32 cfs @ 12.42 hrs, Volume= 4.939 af, Depth= 3.31"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 0.500	98	Impervious
* 17.400	58	Meadow, HSG B
17.900	59	Weighted Average
17.400		97.21% Pervious Area
0.500		2.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.3	310	0.0050	0.17		Lag/CN Method,

Summary for Subcatchment 15PS: 15PS

Runoff = 82.33 cfs @ 12.36 hrs, Volume= 9.445 af, Depth= 4.68"
 Routed to Reach 4PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

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Area (ac)	CN	Description
* 0.200	98	Impervious
* 5.300	58	Meadow, HSG B
* 8.200	71	Meadow, HSG C
* 10.500	78	Meadow, HSG D
24.200	71	Weighted Average
24.000		99.17% Pervious Area
0.200		0.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.3	680	0.0100	0.37		Lag/CN Method,

Summary for Subcatchment 16PS: 16PS

Runoff = 201.74 cfs @ 12.34 hrs, Volume= 22.247 af, Depth= 4.92"
 Routed to Reach 5PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 1.400	98	Impervious
* 41.100	71	Meadow, HSG C
* 11.800	78	Meadow, HSG D
54.300	73	Weighted Average
52.900		97.42% Pervious Area
1.400		2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.1	430	0.0050	0.25		Lag/CN Method,

Summary for Subcatchment 17PS: 17PS

Runoff = 122.80 cfs @ 12.84 hrs, Volume= 21.825 af, Depth= 5.50"
 Routed to Reach 5PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 1.100	98	Impervious
* 46.500	78	Meadow, HSG D
47.600	78	Weighted Average
46.500		97.69% Pervious Area
1.100		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
66.4	1,510	0.0050	0.38		Lag/CN Method,

Summary for Subcatchment 18PS: 18PS

Runoff = 178.43 cfs @ 13.15 hrs, Volume= 36.750 af, Depth= 4.92"
 Routed to Reach 6PR :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 KS-KansasSky 24-hr S1 100-yr Rainfall=8.12"

Area (ac)	CN	Description
* 2.700	98	Impervious
* 72.300	71	Meadow, HSG C
* 14.700	78	Meadow, HSG D
89.700	73	Weighted Average
87.000		96.99% Pervious Area
2.700		3.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
84.0	1,690	0.0050	0.34		Lag/CN Method,

Summary for Reach 1PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.600 ac, 12.66% Impervious, Inflow Depth = 5.40" for 100-yr event
 Inflow = 79.70 cfs @ 12.53 hrs, Volume= 14.213 af
 Outflow = 79.70 cfs @ 12.53 hrs, Volume= 14.213 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 2PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 270.200 ac, 2.22% Impervious, Inflow Depth = 5.24" for 100-yr event
 Inflow = 371.91 cfs @ 13.71 hrs, Volume= 117.967 af
 Outflow = 371.91 cfs @ 13.71 hrs, Volume= 117.967 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 3PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 39.300 ac, 3.82% Impervious, Inflow Depth = 3.40" for 100-yr event
Inflow = 18.29 cfs @ 16.26 hrs, Volume= 11.149 af
Outflow = 18.29 cfs @ 16.26 hrs, Volume= 11.149 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 4PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 277.000 ac, 2.53% Impervious, Inflow Depth = 4.48" for 100-yr event
Inflow = 1,089.10 cfs @ 12.03 hrs, Volume= 103.376 af
Outflow = 1,089.10 cfs @ 12.03 hrs, Volume= 103.376 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 5PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 101.900 ac, 2.45% Impervious, Inflow Depth = 5.19" for 100-yr event
Inflow = 266.77 cfs @ 12.40 hrs, Volume= 44.072 af
Outflow = 266.77 cfs @ 12.40 hrs, Volume= 44.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach 6PR:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 89.700 ac, 3.01% Impervious, Inflow Depth = 4.92" for 100-yr event
Inflow = 178.43 cfs @ 13.15 hrs, Volume= 36.750 af
Outflow = 178.43 cfs @ 13.15 hrs, Volume= 36.750 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs