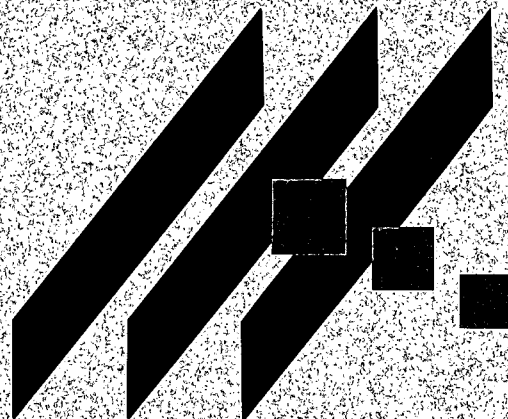


M K E C ENGINEERING CONSULTANTS, INC.



DRAINAGE REPORT

FOR

FIRE STATION 13 ADDITION

March, 2002

Drainage Report for Fire Station 13 Addition

Location

The site lies in the Southeast Quarter of the Northeast Quarter of Section 25, Township 26 South, Range 1 West. The site is located West of the intersection of 42nd Street North and Meridian. The dimensions are 300 feet East to West and 250 feet North to South. The total site area is approximately 1.72 acres.

Soils

According to the NRCS (SCS) Sedgwick County Soil Survey, the soils consist of Canadian-Waldeck fine sandy loam. The Hydrological Soil Group (HSG) to select runoff coefficients is "B".

Pre-Developed Condition

Current Development

The site is undeveloped wooded area.

Current Landform and Slope

The slopes in the area are flat. The site in relation to the area drainage is shown in Appendix A. Elevations vary from 138 in the Northwest corner to 137 in the Southeast corner of the site.

Current Runoff Characteristics

The site is 0% impervious. All runoff flows across the East and South sides of the site into a roadside ditch South of the site. This drainage ditch along the South property line carries water from the West along 42nd Street to an underground storm water system locate at the intersection of 42nd Street and Meridian. The site is not included in a regulatory floodplain as shown in Appendix B, (FIRM Panel 10, City of Wichita, Kansas, May 15, 1986).

Post-Developed Condition

Proposed Development

A new City of Wichita fire station is proposed for this site.

Proposed Landform and Slope

The proposed site will have slopes ranging from 1.0% to 3.0%. The grading beyond site improvements will remain unchanged as shown in the lot grading plan in Appendix C.

Proposed Runoff Characteristics

The site will continue to flow South and East to existing roadside ditch along 42nd Street. The construction of the new fire station will increase the pervious area by approximately 35%. The rational method was used to analyze the runoff from the site. The spreadsheet in Appendix D displays the area, runoff coefficient (c), time of concentration (t_c), and the flowrate (Q) for the site, for the 2, 5, 10, and 100-year events. Table 1 shows the runoff before and after the proposed development occurs. The change in runoff leaving the site is negligible after construction of proposed improvements.

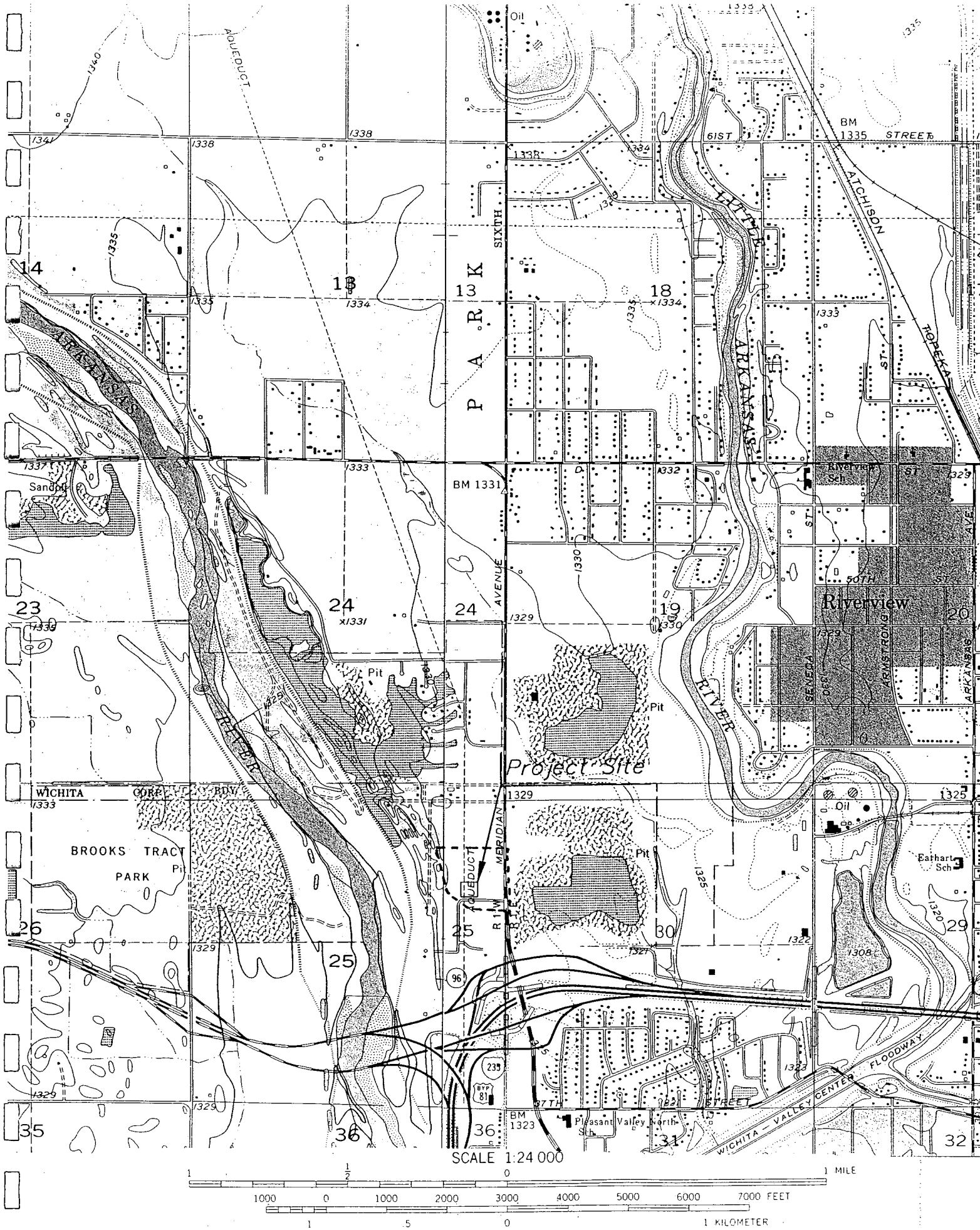
Table 1. Watershed runoff.

	2-Year (cfs)	5-Year (cfs)	10-Year (cfs)	100-Year (cfs)
Pre-developed	0.41	0.62	1.01	2.52
Post-developed	1.94	2.52	3.42	5.99

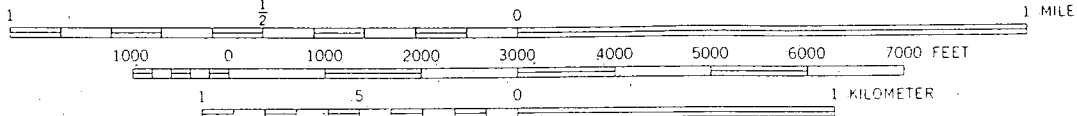
Summary

The site is 1.72 acres of wooded area. The site will remain the same except for the construction of a new fire station. With the proposed development, the percent impervious changes about 35%. This has little effect on the volume of runoff from the site. Runoff will continue to flow from the site into the existing roadside ditch South of the site.

Appendix A



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

Appendix B

ZONE A

ZONE C

CORPORATE

THIS AREA PROTECTED FROM THE ONE PERCENT ANNUAL CHANCE (100-YEAR) FLOOD BY LEVEE, DIKE, OR OTHER STRUCTURES SUBJECT TO POSSIBLE FAILURE OR OVERTOPPING DURING LARGER FLOODS.

ZONE C

ZONE B

ZONE C

Project Site

LIMIT OF DETAILED STUDY

ZONE B

ZONE B

ZONE C

ZONE B

NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP

CITY OF
WICHITA,
KANSAS
SEDGWICK COUNTY

PANEL 10 OF 40
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200328 0010 B

EFFECTIVE DATE:
MAY 15, 1986



Federal Emergency Management Agency

CORPORATE

LIMITS

MERIDIAN AVE

EDWARDS

MERIDIAN AVENUE

RM6

36TH STREET

35TH STREET

34TH STREET

CARLOCK COURT

39TH

38TH

37TH

36TH

35TH

34TH

33TH

32TH

31TH

30TH

29TH

28TH

27TH

26TH

25TH

24TH

23TH

22TH

21TH

CORPORATE

LIMITS

THIS AREA PROTECTED FROM THE ONE PERCENT ANNUAL CHANCE (100-YEAR) FLOOD BY LEVEE, DIKE, OR OTHER STRUCTURES SUBJECT TO POSSIBLE FAILURE OR OVERTOPPING DURING LARGER FLOODS.

Appendix C

Appendix D

3/11/02

**DRAINAGE ANALYSIS SUMMARY
FIRE STATION 13 ADDITION**

Milan Loam - Soil Group B

Area ID	Area ac	Accum. Area ac	C2	C5	C10	C100	Elev Max	Elev Min	Flow Length	Tc2 Calc	Avg V2	Tc5 Calc	Avg V5	Tc10 Calc	Avg V10	Tc100 Calc	Tc100 wg V10	Tc2 min	Tc5 min	Tc10 min	Tc100 min	I2 in/hr	I5 in/hr	I10 in/hr	I100 in/hr	O10		O5		O2				
																										dfs	dfs	dfs	dfs	dfs	dfs	dfs	dfs	
Pre-Developed	1.7		0.16	0.18	0.24	0.37	138.0	137.0	550	70.04	0.13	68.55	0.13	64.08	0.14	54.39	0.17	70	69	64	54	1.50	1.99	2.44	3.96	0.41	0.62	1.01	2.52	0.41	0.62	1.01	2.52	
Post-Developed	1.7		0.44	0.46	0.51	0.59	140.5	137.0	550	32.39	0.28	31.41	0.29	28.86	0.32	25.03	0.37	32	31	29	25	2.57	3.19	3.90	5.90	1.94	3.42	5.99	1.94	3.42	5.99	1.94	3.42	5.99