



Project Narrative:

The Proposed Development is located south of W 47th Street S and a ¼ mile west of S Meridian Ave. The site is currently an undeveloped agriculture area. The existing drainage pattern indicates that the site drains overland to the south and east into the existing Grover Drain creek. This is will remain the same in developed condition with the addition of a proposed SWS system to convey site runoff to a proposed detention pond before outletting to the Grover Drain. The scope of the project to develop the land as a residential housing division with streets, drives, and housing.

Water Quality and TSS Removal Calculation:

Water Quality Volume (WQv) Calculation				
Calculation for water quality volume (WQv=P*Rv*A/12)			Soil Group 'C'	
85th percentile storm event (1.2 inches), P =	1.20	inches	Calculation of Rv	
Total area, A =	39.15	acres	Coeff.	Area
Rainfall Coeff, Rv, =	0.485	cf	Coeff for undisturbed area, RvU=	0.03
Required Vol. for Water Quality =	1.899	ac-ft	Coeff for turf cover, disturbed, RvT=	0.20
Corresponding Water Quality Peak Flow =	18.44	cfs	Coeff for impervious area, RvI=	0.95
			Weighted, Rv =	0.485

Water quality treatment will be accomplished through off-site water quality credits.

Runoff Calculations (2-, 5-, 10-, 25-, and 100-yr)

EXISTING CONDITION

Total Area A = 39.15 acres, Surface Type = Undeveloped Agricultural Land, Soil Group = C

EXISTING SITE									
DRAINAGE AREA	ACRES	Tc min	CN	Q2	Q5	Q10	Q25	Q100	REMARKS
On-site (1)	30.91	77.8	77	20.75	32.98	42.02	53.98	77.20	Runoff from site flowing south and east to existing Grover Drain.
On-site (2)	8.24	36.5	77	8.68	13.72	17.44	22.36	31.87	Runoff from site flowing directly south into the Grover Drain.

DEVELOPED CONDITION:

Total Area, A = 39.15 acres, Total Impervious Area = (¼ acre Lots) 38% impervious
Hydrological Soil Group = C

DEVELOPED SITE									
DRAINAGE AREA	ACRES	Tc min	CN	Q2	Q5	Q10	Q25	Q100	REMARKS
On-site (1)	39.15	42.6	85	53.89	77.78	94.76	116.67	158.28	Runoff from site to be routed to proposed detention pond

OUTLET STRUCTURE:

5' Opening Weir @ Elevation= 1972.00

OUTFLOW							
DRAINAGE AREA	ACRES	Q2	Q5	Q10	Q25	Q100	REMARKS
On-Site (1)	39.15	21.39	36.70	48.79	65.50	99.76	Outletting east to Existing drainage ditch

Stage-Storage for Detention Pond		
Pond 1		
Storm Event	Runoff Volume, ac-ft	Water Surface Elevation (ft)
2-yr	6.58	1272.93
5-yr	9.43	1273.25
10-yr	11.59	1273.45
25-yr	14.34	1273.69
100-yr	19.64	1274.09

Notes:

- Existing and developed flows are calculated using the SCS Hydrograph method. "CN" & "I" values are established from "City of Wichita Stormwater Design Manual."
- The developed peak flows are routed through the proposed SWS system of the development and into the detention pond before exiting to the east drainage ditch.
- The designated 100-yr floodplain runs through a portion of the site (FIRM 20173C0482G, Revised, December 22, 2016)

- 1 Onsite drainage basin, Area = 30.91 acres
- 2 Onsite drainage basin, Area = 8.24 acres

FEMA 100-yr Floodplain --- Drainage Basin Boundary



DATE: 04-10-2017
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

**Fox Run Addition
Drainage Plan
Wichita, Kansas**

PROJECT NUMBER			
 KEMILLER ENGINEERING PA 117 E. Lewis, Wichita, KS 67202 (316)264-0242	KEM NO. 17063	FILE	DATE 05/2017
	DESIGN KM	DRAWN ME	REVISED
			SHEET 2.0