

KANSAS FOOD BANK WAREHOUSE ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

OWNER: AMERICAN NATIONAL RED CROSS
LOT 1, BULGER ADDITION
ZONED: "U" LIMITED INDUSTRIAL

DRAINAGE PLAN

UNDER EXISTING CONDITIONS SHOWN, APPROXIMATELY 95% OF THE SITE (LOT 1, BLOCK 1) IS IMPERVIOUS. PROPOSED CONDITIONS OF THE KANSAS FOOD BANK WAREHOUSE AND PARKING LOT CONSIST OF APPROXIMATELY THE SAME AMOUNT OF IMPERVIOUS AREA. THEREFORE, THE PROPOSED SITE SHALL BE GRADED TO DRAIN VIA APPROVED DRAINAGE CONVEYANCE METHODS TO MATCH THE EXISTING HYDROLOGY. NO DETENTION STORAGE IS REQUIRED.

EXISTING HYDROLOGY: RATIONAL METHOD, $Q=CIA$

BASIN A

-RUNOFF FLOWS TO THE ALLEY AND IS CARRIED SOUTH
-AREA=4.0 AC

*INTENSITY: ASSUME MINIMUM TIME OF CONCENTRATION FOR ALL BASINS. THEREFORE, AT $T_c=15$ MINUTES:

$i_1=3.8$ in/hr, $i_2=4.62$ in/hr, $i_{100}=7.4$ in/hr

-RUNOFF COEFFICIENTS

% IMPERVIOUS=80

$C_1=0.74$, $C_2=0.76$, $C_{100}=0.84$

$-Q_1=C_1 i_1 A=0.74(3.8 \text{ in/hr})(4.0 \text{ AC})=11.2 \text{ CFS}$

$Q_2=C_2 i_2 A=0.76(4.62)(4.0)=14.0 \text{ CFS}$

$Q_{100}=C_{100} i_{100} A=0.84(7.4)(4.0)=24.9 \text{ CFS}$

BASIN B

-RUNOFF FLOWS TO CUL-DE-SAC AND IS THEN CARRIED SOUTHEAST TO MINNESOTA AVE

-AREA=7.7 AC

% IMP=70: $C_1=0.68$, $C_2=0.69$, $C_{100}=0.80$

$-Q_1=0.68(3.8)(7.7)=19.9 \text{ CFS}$

$Q_2=0.69(4.62)(7.7)=24.5 \text{ CFS}$

$Q_{100}=0.80(7.4)(7.7)=45.6 \text{ CFS}$

BASIN C

-RUNOFF FLOWS TO THE NORTH AND ENTERS DOUGLAS AVE SWS

-AREA=5.6 AC

% IMP=75: $C_1=0.67$, $C_2=0.70$, $C_{100}=0.80$

$-Q_1=0.67(3.8)(5.6)=14.3 \text{ CFS}$

$Q_2=0.70(4.62)(5.6)=18.1 \text{ CFS}$

$Q_{100}=0.80(7.4)(5.6)=33.2 \text{ CFS}$

BASIN D

-RUNOFF FLOWS TO THE WEST AND IS CARRIED SOUTH BY MINNEAPOLIS AVE

-AREA=8.7 AC

% IMP=99: $C_1=0.87$, $C_2=0.88$, $C_{100}=0.93$

$-Q_1=0.87(3.8)(8.7)=28.8 \text{ CFS}$

$Q_2=0.88(4.62)(8.7)=35.4 \text{ CFS}$

$Q_{100}=0.93(7.4)(8.7)=59.9 \text{ CFS}$

SCALE: 1"=30'
• = 3/4" IRON PIPE W/PEC CAP UNLESS OTHERWISE NOTED
○ = FOUND #4 BAR UNLESS OTHERWISE NOTED

BM	BENCH MARK
u	ELECTRIC POLE
LP	LIGHT POLE
DM	DEADMAN
EM	ELECTRIC METER
ELR	ELECTRIC RISER
EYL	ELECTRIC YARD LIGHT
AC	AIR CONDITIONER
U E	BURIED ELECTRIC
O E	OVERHEAD ELECTRIC
TR	TELEPHONE RISER
WM	WATER METER
WW	WATER WELL
W	WATER LINE
SS	SANITARY SEWER MANHOLE
CO	SANITARY SEWER CLEANOUT
GM	GAS METER
TSP	TRAFFIC SIGNAL POLE
TSM	TRAFFIC SIGNAL MANHOLE

A	BASIN IDENTIFIER
---	BASIN BOUNDARY
→	STORM WATER FLOW

