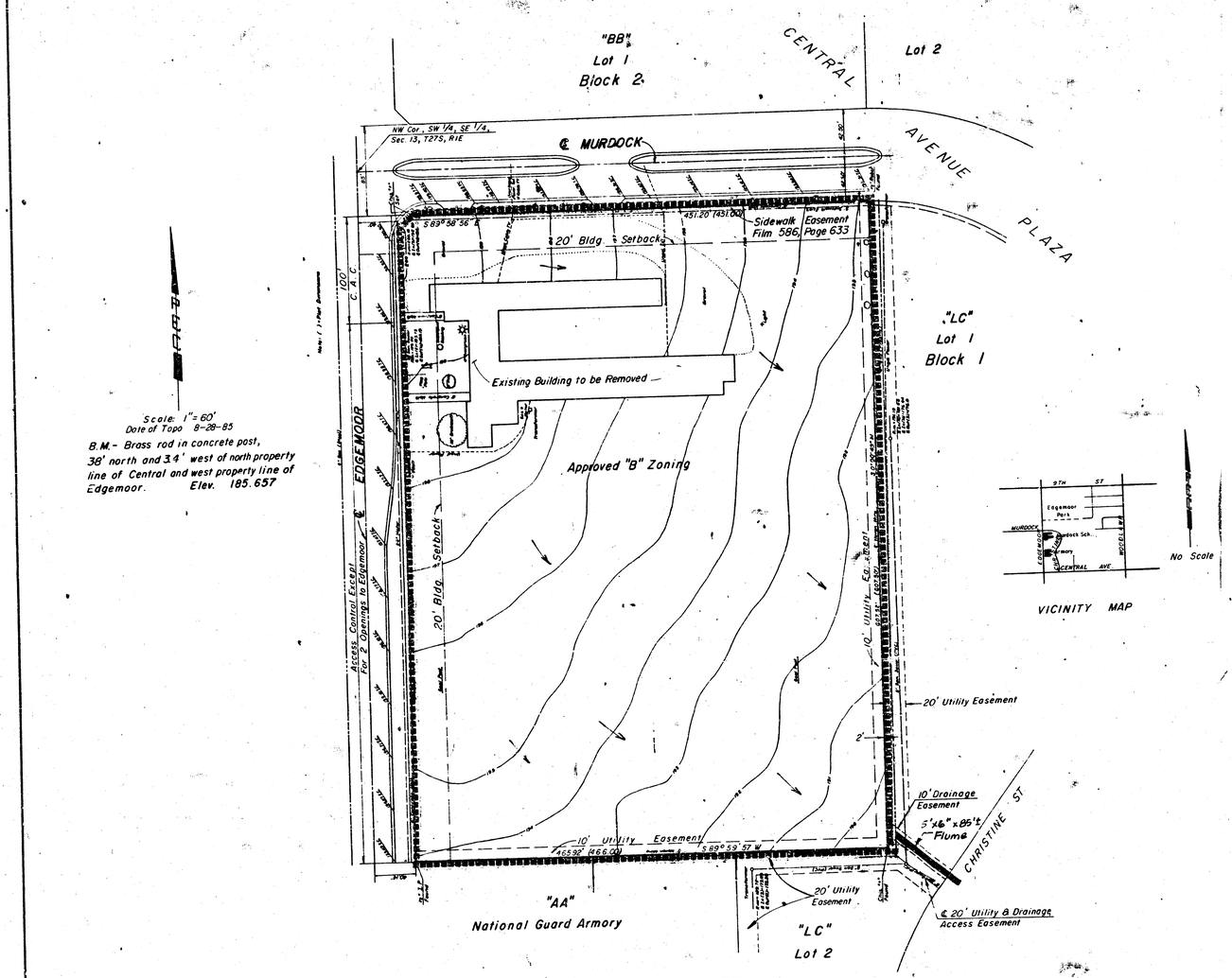


DRAINAGE PLAN OF

CARRIAGE PARK CARE CENTER

Owner: U.S.D. 259
Attn. Dr. Richard L. Holstead

Engineer: P.E.C. p.a.
1440 English, Wichita, Ks. 67211

Revised 10-1-85
11-13-85

Note: The 5' x 6" x 85'± Flume shown is based on Q_5 & based on draining 100% of the proposed plat. Upon completion of the Site Development & Site Grading Plans for the proposed improvements, the hydrology & hydraulics of the flume shall be revised as necessary.

154

MEMO

TO: City of Wichita
455 North Main
Wichita, Kansas 67202

ATTN: Vicki Huang

PROJECT NO. 36-85396-1934
PROJECT: Carriage Park
Cave Center Addition
DATE: 11-13-85

COPIES TO: Louise Olivarez - MAPD

FROM: Charles S. Brown, P.E.
REFERENCE: Revised Drainage Plan

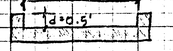
PLEASE ADVISE IMMEDIATELY OF ANY MISCONCEPTIONS OR OMISSIONS YOU BELIEVE TO BE CONTAINED HEREIN.

Transmitted herewith are two (2) copies of the Revised Drainage Plan and Supporting Calculations for the proposed Carriage Park Care Center Addition to Wichita.

This plan has been revised to include flume sizing at the southeast corner of the plat.

Date 11-13-85 Page 2 of 2
Project Carriage Park Care Center
Item Drainage

b/ Flume Section:



w	d	A	P	R	$R^{2/3}$	$AR^{2/3}$
30'	0.5'	15.0	31'	0.48	0.62	9.25
25'	0.5'	12.5	26'	0.48	0.61	7.67
20'	0.5'	10.0	21'	0.48	0.61	6.10
15'	0.5'	7.5	16'	0.47	0.60	4.52
10'	0.5'	5.0	11'	0.45	0.59	2.96
5'	0.5'	2.5	6'	0.42	0.56	1.39

SUMMARY:

5' wide x 6" deep @ 4.71% will handle 28.0 cfs (greater than 5-yr. storm.)

Date 11-13-85 Page 1 of 2
Project Carriage Park Care Center
Item Drainage

I Determine 5-yr. Runoff From Entire Site

1. D.A. = 466' x 607.5' = 283,095 ft^2
= 6.5 Ac.

2. C = 0.7

3. t_c = 15 min ∴ I_5 = 5.21

$Q_5 = C I_5 A$
= 0.7 x 5.21 x 6.5
= 23.7 cfs

II Determine Flume Size to Handle Q_5

Use Mannings Eq'n:

$Q = \frac{1.486}{n} AR^{2/3} S^{1/2}$ where n = 0.016 (conc.)

Q = 23.7 cfs

$23.7 = \frac{1.486}{0.016}(AR^{2/3})(0.0471)^{1/2}$

$23.7 = (92.88)(AR^{2/3})(0.217)$

Req'd $AR^{2/3}$ = 1.18