WICHITA-SEDGWICK COUNTY

METROPOLITAN AREA PLANNING DEPARTMENT

DATE

February 28, 1980

TO Mike Lindebak, City Engineering

FROM Louise Olivarez, Senior Planner

SUBJECT S/D 80-16 - Sketch plat - Lifetime Addition

Attached is a sketch plat of a proposed mobile home subdivision. The property is currently within the County but conceivably could be annexable in the near future. The property will need municipal sewer and water services and, because of this, probably should be required to request annexation. However, could the City provide sewer service to this property if it is annexed?

The plattor would like information regarding sewer service as soon as possible. Would you please review this matter and provide information to this office prior to March 6, 1980. Your comments on any other sketch plat matter would be appreciated also.

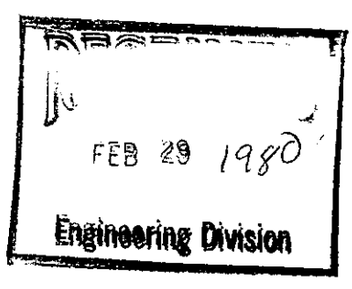
Louise Olivarez
Senior Planner

LO:bh

Attach.

City Sewer is not available at this time. The sewer in Oliver is the Arcarea Park Outfall

MEB



LIFETIME ADDITION 3-27-80

42+15	184.1	
44+10	185.9	
45+95	186.0	
47+75	187.2	
50+10	187.2	
50+60	187.8	(date of survey)
50+80		Downstream end of culvert
50+85	192.7	S. Shoulder of 37th St. date of survey
51+05	192.7	" " " " " " " "
51+10		Upstream end of culvert, " "

Drainage Areas

Area 1 - 37th to Northline of Lifetime Addition

12650	9044
6258	2650
6392	6394

> 63.93 x .918 = 58 Acres

Area 2 Northline of Lifetime Addn to South line.

3683	5279
2072	3683
1611	1596

> 16.04 x .918 = 15 Acres.

Area 3 Southline of Lifetime Addn to dam

7069	8436
5703	7069
1366	1367

> 13.67 x .918 = 13 Acres

Lifetime Addition 3-21-80

Composite runoff factor determination

Use 0.5 for existing residential development north of 37th Street. (37 acres)

Use 0.90 for proposed heavy industrial use in North Oliver Industrial Addition (58 acres).

$$\text{Composite } C = \frac{(37 \times 0.5) + (58 \times 0.9)}{95} = 0.74 \text{ @ North}$$

line of Lifetime Addition.

Drainage Area at North line Lifetime Addn = 95 Acres

Length of channel from upper end to North line of Lifetime Addn is 4780 feet.

Fall, H, thru drainage area is 218.1 − 173.4 = 44.7 feet

$$T_c = \left(\frac{11.9\ L^3}{H}\right)^{.385} = \left[\frac{11.9}{44.7}\left(\frac{4780}{5280}\right)^3\right]^{.385} = .54 \times 60 = 32 \text{ minutes}$$

for duration of 32 minutes, $I_{100} = 6.45$ inches/hour

$$Q = C\ I\ A = 0.74 \times 6.45 \times 95 = \underline{453 \text{ cfs}}$$ NL

Drainage area thru Lifetime Addition is 15 acres of mobile home residential land use w/c = 0.5

Composite runoff factor for 37 acres of residental north of 37th (C=0.5), 58 acres of industrial (C=0.9) and 15 acres of mobile home residental (C=0.5) is

$$\text{Composite } C = \frac{(37 \times .5) + (58 \times .9) + (15 \times .5)}{110} = 0.71$$

Lifetime Addn

4-1-80

Drainage Area at South line of Lifetime Addition = 110 Ac
Length of channel from north line to south line is (25+60) - (19+60) = 600 feet. Total length of channel to south line Lifetime Addition is 4780 + 600 = 5380 feet
Fall, H, thru drainage area to south line of Lifetime Addition is 218.1 − 168.0 = 50.1 feet

$$T_c = \left(\frac{11.9 L^3}{H}\right)^{.385} = \left[\frac{11.9}{50.1}\left(\frac{5380}{5280}\right)^3\right]^{.385} = .59 \times 60 = 35 \text{ minutes}$$
@ 2.5 fps

for duration of 35 minutes $I_{100} = 6.02$ inches/hour

$Q = CiA = 0.71 \times 6.02 \times 110 = 470$ cfs @ South line of Lifetime Addition.

Drainage Area at Dam south of Lifetime Addn is 123 Ac
Length of channel from south line to dam is (19+60) - (11+40) = 820
Total length of channel to dam is 5380 + 820 = 6200 feet
Fall, H, thru drainage area above dam is 218.1 - 166.5 = 51.6

$$T_c = \left[\frac{11.9 L^3}{H}\right]^{.385} = \left[\frac{11.9}{51.6} \times \left(\frac{6200}{5280}\right)^3\right]^{.385} = .68 \times 60 = 41 \text{ minutes @ 2.5}$$

I_{100} for 41 min = 5.32 in

Composite runoff factor 'C' for 52 acres residential (C = .5), 58 acres industrial (C = 0.9) and 13 acres grassland (C = 0.2) is Composite 'C' = $\frac{(52 \times .5) + (58 \times .9) + (13 \times .2)}{123} = 0.66$

Q_{100} @ Dam = $CiA = 0.66 \times 5.32 \times 123 = 432$ cfs

Lifetime Addition 4-1-80

Spillway Areas at dam south of Lifetime Addn.

@ Elevation 168

Rt bank

1798
1788

.10 × 1000 = 100 Sqft

Left bank

~~1838~~
~~1831~~

55 × .5 = 27.5 .09 × 1000 = 90 Sq.ft

between elevation 168 and 168.5

203.5 × .5 = 101.75 Sq.ft.

203.5 × .5 = 101.75 Sq.ft

0656
0649

.07 × 1000 = 70 Sq.ft

between elevation 168.5 and 169

270 × .5 = 135 Sq.ft.

0700
0663

.37 × 1000 = 370 Sq.ft

What is the purpose of all these calc.'s?

This is only 1.5' below T.O. Dam

Spillway discharge

@ Elev 168 n = 0.035, S = 0.25%

A = 100, wP = 50, $R^{2/3}$ = 1.59

$Q = \frac{1.486}{0.035} \times 100 \times 1.59 \times 0.05$

Q = 338 cfs

Using weir formula w/L = 30, h = 2.5

$Q = 3LH^{3/2}$

$Q = 3 \times 30 \times 3.95 = 356$ cfs

Sum @ 168 = 431 cfs

Emergency spillway El. is at least 3.0' below the T.O. dam when discharges greater than 100-yr. frequency will pass.

A = 55, wP = 55 $R^{2/3}$ = 1, S = 0.3

$Q = \frac{1.486}{0.035} \times 55 \times 1 \times .05$

Q = 11.7 cfs } Sum = 454 cfs

Using weir formula w/L = 2 h = 1

$Q = 3 \times 25 \times 1 = 75$ cfs

4:30 - 5
4-6-80 C-9

LIFETIME ADDN

Areas of x-sections by planimeter

STATION

7+15 Area under elev 162

2732	2754
2710	2732
.22	.22

> × 1000 = 220 Sq.ft.

WP = 195, $R^{2/3}$ = 1.08

10+55 Area under elev 164

1831	1853
1809	1831
.22	.22

> × 1000 = 220 Sq.ft. WP = 125, $R^{2/3}$ = 1.46

Area under elev 163.5

220 - (115 × .5) = 163 Sq.ft WP = 115, $R^{2/3}$ = 1.26

17+85 Area under elev 168.2

2860	2880
2840	2860
.20	.20

× 1000 = 200 Sq.ft. WP = 90, $R^{2/3}$ = 1.70

Area under elev 169.0

2970	3000
2942	2970
.28	.30

> .29 × 1000 = 290 Sq.ft. WP = 155 $R^{2/3}$ = 1.52

22+30 Area under elev 174.5

1705	1723
1687	1705
.18	.18

> .18 × 1000 = 180 Sq.ft. WP = 125 $R^{2/3}$ = 1.28

Area under elev 173.5

1711	1719
1704	1711
.07	.08

> .07 × 1000 = 70 Sq.ft. WP = 80, $R^{2/3}$ = 0.91

Lifetime Addn 4-6-80

Station

21+65 Area under elev 172.5

1970	1985	1996
1958	1970	1985
.12	~~.15~~	.11

> 0.12 × 1000 = 120 Sq.ft. WP = 168, $R^{2/3}$ = 0.80

Area under elev 172.0

2025
2019
.06

135' × 1 × .5 = 67 Sq.ft, WP = 135, $R^{2/3}$ = 0.63

Area under 172.2

2574	2586
2563	2574
11	12

> .11 × 1000 = 110 Sq.ft. WP = 160, $R^{2/3}$ 0.78

22+30 Spillway discharge - Dam in Lifetime Addn Sta 22+30

Under elevation 173.5, n = 0.025 S = 0.25%

A = 70, $R^{2/3}$ = 0.91

$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$ = 42.46 × 70 × .91 × .05 = 243 cfs

Under elevation 174.5,

A = 180, $R^{2/3}$ = 1.28 S = 0.25%

$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$, 42.46 × 180 × 1.28 × .05 = 471 cfs V =

25+25 Area under elevation 175

3611	3641
3582	3611
.29	.30

> .29 × 1000 = 290 Sq.ft. WP = 250, $R^{2/3}$ = 1.10

~~Area under elevation 174~~

~~290 − (1.95 × 0.5) = 192 Sq.ft, WP = 140 $R^{2/3}$ = 1.23~~

BACKWATER COMPUTATION WORK SHEET

Project: Tolerville Tributary to East Branch of Chisholm Creek

470 cfs from Sta 0 to Sta 26; 450 cfs Sta 26 to Sta 29; 370 cfs Sta 29 to Sta 35; 300 cfs Sta 35 to Sta 40; 230 cfs Sta 40 to Sta 45; 160 cfs Sta 45 to Sta 50+60

Q = .645 @ 7+15 n = .035 balance of tributary

Page 1 of 2

Computed by: MSM Date 4-6-80

Checked by: _____ Date _____

	Mile or Sec. No.	Reach Length	Est. W.S. Elev.	Area	2/3 r	WEIGHTED S1/2 = 0.01 I	WEIGHTED S1/2 = 0.01 Q	S	Mean S	hf	TRUE V	TRUE Q	V²Q	hv	hv Diff	H	Comp. Elev.	
n=.045	7+15	0	162.0	220	1.08	0.36	78	.0036	.0036	—	2.16	474	—	0.07	—	.09	162.09	470
n=.035	10+55	340	164.0	320	1.46	0.62	136	.0012	.0024	0.82	2.14	470	—	0.07	0	.82	162.82	
n=.035	10+55	340	163.5	163	1.26	0.42	69	.0046	.0041	1.40	2.85	465	—	0.13	-.03	1.37	162.37	
	USING	BROAD-CREST	WEIR		FORMULA		@ DAM	.0025	SPILL	WAY	S.W.S.	@ Sta	11+40	0.13	1S		168.0	
n=.035	17+85	645	169.2	200	1.70	0.72	145	.0011	.0018	1.16	2.34	468		0.08	.05	1.21	169.21	
n=.035	17+85	645	169.0	290	1.52	0.64	187	.0006	.0016	1.01	1.61	466		0.04	.09	1.10	169.10	
n=.035	21+65	380	172.5	120	0.80	0.34	41	.0133	.0070	2.65	3.93	471		0.24	-.10	2.55	171.65	
n=.035	21+65	380	172.2	110	0.78	0.33	36	.0167	.0086	3.28	4.26	469		0.28	-.12	3.16	172.26	
	USING	MANNING	FORMULA		FOR		DISCHARGE	.0025	THRU		SPILLWAY	@ DAM	@ Sta	22+30	0.11		174.5	
n=.035	25+25	360	175.0	290	1.10	0.47	136	.0012	.0018	0.66	1.62	471		0.04	.07	0.73	175.23	
n=.035	29+90	465	179.0	150	1.07	0.46	68	.0029	.0021	0.96	2.49	373		0.10	-.03	0.93	176.16	
	29+90	465	178.5	96	1.13	0.48	46	.0065	.0038	1.78	3.86	370		1.00	-0.45	1.33	176.56	370
	29+90	465	178.0	60	1.13	0.48	29	.0166	.0089	4.12	6.17	370		0.59	-0.37	3.75	178.98	

$V_1 = C r^{2/3} S^{1/2}$ $C = \frac{1.486}{n}$ $S = (0.01 \frac{Q}{Q_1})^2$ $V = V_1 \frac{Q}{Q_1}$ $h_v = \frac{V^2 Q}{64.4 Q_1}$ $H = h_v \text{ Diff.} + h_f$

SWT Form 49-C
Rev 18 Dec 61

BACKWATER COMPUTATION WORK SHEET

Project: Tolerville Tributary con't

Page 2 of 2

Computed by: MSM **Date** 4-7-80

Checked by: _____ **Date** _____

Q = 370 cfs Sta 29 to Sta 35; 300 cfs to Sta 40; 230 cfs to Sta 45; 160 cfs to Sta 50 WEIGHTED **n =** 0.035 **c =** _____

Mile or Sec. No.	Reach Length	Est. W.S. Elev.	Area	2/3 r	S1/2 = 0.01 V1	S1/2 = 0.01 Q1	S	Mean S	hf	TRUE V	TRUE Q	V²Q	hv	hv Diff.	H	Comp. Elev.	
							.0012										
29+90	465	178.3	70	1.0	0.42	30	.0155	.0083	3.88	5.25	366		0.43	-0.19	3.69	178.92	
29+90	465	178.4	83	1.06	0.45	37	.0098	.0055	2.56	4.46	370		0.31	-0.14	2.42	177.65	370 cfs
29+90	465	178.35	76	1.03	0.43	33	.0124	.0068	3.16	4.79	364		0.36	-0.16	3.0	178.23	ok
34+10	420	181.0	90	0.64	0.27	25	.0228	.0176	7.38	4.08	367		0.26	0.10	7.48	186.71	
34+10	420	182.0	300	0.83	0.35	106	.0012	.0068	2.86	1.22	366		0.02	0.34	3.20	181.40	
34+10	420	181.5	195	0.71	0.33	64	.0034	.0079	3.31	1.92	375		0.06	0.30	3.61	181.84	ok
39+50	440	184.0	130	0.87	0.37	48	.0039	.0036	1.61	2.31	300		0.08	-0.01	1.60	183.44	300 cfs
39+50	440	183.7	90	0.78	0.33	30	.0101	.0067	2.96	3.31	298		0.17	-.05	2.91	184.75	
39+50	440	183.85	110	0.83	0.35	39	.0060	.0047	2.06	2.70	297		0.11	0.03	2.03	183.87	
44+00	340	186.5	90	0.64	0.27	25	.0088	.0094	3.21	2.53	228		0.10	0.01	2.54	186.91	230 cfs
47+90	390	188.5	50	0.52	0.22	11	.0214	.0151	5.88	3.22	161		0.16	-0.03	5.85	192.26	160 cfs
47+90	390	189.0	150	0.74	0.31	47	.0011	.0050	1.94	1.05	158		0.18	-0.04	1.90	188.31	
47+90	390	188.75	100	0.63	0.27	27	.0036	.0062	2.42	1.62	162		0.04	.06	2.48	188.89	

* $V_1 = C r^{2/3} S^{1/2}$ $C = \frac{1.486}{n}$ $S = (0.01 \frac{Q}{Q_1})^2$ $V = V_1 \frac{Q}{Q_1}$ $h_v = \frac{V^2 Q}{64.40}$ H = h_v Diff. + h_f

SWT Form 49-C
Rev 18 Dec 61

LIFETIME ADON

4-7-80

Channel Design

$Q = 470$ cfs Side-Slopes 4:1 Gradient = 0.002 ft/ft

$B = 15$ $n = 0.035$ $S^{1/2} = 0.0447$

Try $D = 5$; $\frac{D}{b} = .33$ $K' = .396$

$Q = \left(\frac{.396}{.035}\right) 15^{8/3} \times .0447 = 692$ cfs

Try $D = 4$ $\frac{D}{b} = .27$ $K' = .260$

$Q = \left(\frac{.260}{.035}\right) (15^{8/3} \times .0447) = 455$ cfs ($15^{8/3} = 61.23$)

$D = 3$, $A = 4(D)^2 + DW = 4 \times (3)^2 + 3(15) = 81$ Sq. ft

$WP = 2\sqrt{17}\, D + 15 = 39.75$ ft, $R^{2/3} = 1.61$

$D = 4$ $A = 124$, $WP = 48$ $R^{2/3} = 1.88$

$D = 5$ $A = 175$, $WP = 56$ $R^{2/3} = 2.13$

$D = 6$ $A = 234$, $WP = 65$ $R^{2/3} = 2.36$

BACKWATER COMPUTATION WORK SHEET

Project: Tolerville Tributary to East Branch of Chisholm Creek
Channel thru Lifetime Addn - 15' bottom; 4:1 Side Slopes;
0.2% Gradient;

Page 1 of _____

Computed by: MSM Date 4-7-80

Checked by: _____ Date _____

Q = 470 cfs n = 0.035 c = _____

WEIGHTED

	Mile or Sec. No.	Reach Length	Est. W.S. Elev.	Area	2/3 r	S1/2 = 0.01 Q1	S1/2 = 0.01 Q	S	Mean S	hf	TRUE V	TRUE Q	V²Q	hv	hv Diff.	H	Comp. Elev.	
	Unimproved channel per Sheet 1 of 2																	
	17+45	645	169.0	290	1.52	0.64	187	.0006	.0016	1.01	1.61	466	—	0.04	0.09	1.10	169.10	
	Improved channel begins @ South line of Lifetime Addn																	=E
D=3	~~20+00~~	~~255~~		~~81~~	~~1.61~~	~~0.68~~	~~55~~	~~.0072~~	~~.0039~~	~~1.00~~	~~5.78~~	~~468~~		~~0.52~~	~~-0.26~~	~~0.75~~	~~169.85~~	~~166.84~~
D=4	20+00	255		124	1.88	0.80	99	.0022	.0014	0.36	3.79	470		0.22	-0.09	0.27	169.37	165.4
D=4	21+10	110		124	1.88	0.80	99	.0022	.0022	0.24	3.79	470		0.22	0	0.24	169.61	165.6
	21+20	to	21+90	USE	2 -	7x4	RCBC	w/DS	FL	165.6	&	US FL	166.0	.DwS= 1.09	171.	32;	V=8.4 fps	
D=5	~~22+10~~	90		175	2.13	0.91	158	.0009	.0005	—	2.7	472	—	0.11	0.98			
D=6	22+10	90	172.04	234	2.36	1.00	234	.0004	.0002	—	2.01	470		0.06	1.03	1.03	172.35	166.04
D=6	23+00	90	172.22	234	2.36	1.00	234	.0004	.0004	0.04	2.01	470		0.06	0	0.04	172.39	166.22
D=6	24+00	100	172.42	234	2.36	1.00	234	.0004	.0004	.04	2.01	470		0.06	0	0.04	172.43	166.42
D=6	25+00	100	172.62	234	2.36	1.00	234	.0004	.0004	.04	2.01	470		0.06	0	0.04	172.47	166.62

$V_1 = C r^{2/3} S^{1/2}$ $C = \frac{1.486}{n}$ $S = (0.01 \frac{Q}{Q_1})^2$ $V = V_1 \frac{Q}{Q_1}$ $h_v = \frac{V^2 Q}{64.4 Q_1}$ $H = h_v \text{ Diff.} + h_f$

SWT Form 49-C
Rev 16 Dec 61

Preliminary plat

SUBDIVISION REPORT

SUBDIVISION COMMITTEE
METROPOLITAN AREA
PLANNING COMMISSION

S/D NO. 80-16 Name Lifetime Addition
Date Application Rec'd. May 2, 1980 Preliminary Approval
Scheduled S/D Meeting 5-15-80

DESCRIPTION

General Location East side of Oliver, approximately 1/2 mile south of 37th St. North

Owner ~~Jesse L. Graham~~
Surveyor/Engineer Baughman Company
Address 330 Laura, 67211 Phone 262-7271

1. Gross Acreage of Plat 34.3 acres
2. Number of Lots:
   - Residential 142
   - Commercial 2
   - Industrial
   - Other
   - Total Number of Lots 144
3. Minimum Lot Frontage 35 ft.
4. Minimum Lot Area 5000 sq. ft.
5. Existing Zoning R-1
6. Proposed Zoning G and LC
7. Lineal Feet of New Streets:
   - a. 64' R/W 4500 ft.
   - b. R/W ft.
   - c. R/W ft.
   - d. R/W ft.
   - e. R/W ft.
   - TOTAL 4500 ft.
8. Sidewalk adjacent to all streets? yes X no
9. Public Water Supply X (Yes-No), Name City of Wichita
10. Public Sanitary Sewers X (Yes-No), Name
11. Health Department Approval (where applicable) (Yes-No)
12. City of Wichita Annexation: Three-Mile Area to be requested

STAFF COMMENTS:

A. To avoid having a straight street 1/2 mile long which would encourage high-speed traffic, it is recommended that the applicant consider some redesign in the west half of the property. The redesign should also consider the possibility of there being no light commercial lots. The planning staff will not be supportive of the applicant's request for "LC" zoning on the two large lots fronting on Oliver across the street for proposed residences.

B. Most of the lots at the ends of the cul-de-sac streets which have a front lot line dimension of only 35 feet would have a frontage of only about 20 feet at the curb line. This is impractical for purposes of moving mobile homes in or out and is also impractical for 2 car driveways. These front lot line dimensions shall be increased to at least 45 feet.

C. The property abuts the City limits on the east and partially on the south. The applicant shall request annexation of this property into the City prior to filing a final plat.

D. After annextion, the applicant shall file a request for the appropriate zoning for his proposed mobile home subdivision. Zoning to be determined prior to filing final plat.

E. The representatives from City Engineering and Flood Control shall be prepared to comment on the applicant's drainage concept. Any drainage improvements required by the platting of this property shall be guaranteed by the applicant.

F. The applicant shall guarantee the extension of sewer and water to serve all lots.

(over)

G. The applicant shall guarantee the paving of all interior streets including a sidewalk on one side of the thru street.

H. The applicant shall install or guarantee the installation of all utilities and facilities which are applicable and described in Article 8 of the MAPC Subdivision Regulations.

I. Requirements for a final plat (see pages 20-25, Part 4, Article 5 of the MAPC Subidivsion Regulations).

WICHITA — SEDGWICK COUNTY
W-SC
METROPOLITAN AREA PLANNING DEPARTMENT
CITY HALL — TENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4561

May 16, 1980

Baughman Company
330 Laura
Wichita, Ks. 67211

Re: S/D 80-16 - Preliminary plat of Lifetime Addition

Gentlemen:

At the regular meeting of the Subdivision Committee of the Metropolitan Area Planning Commission, May 15, 1980, the above-captioned plat was considered. The action of the Committee was to approve the preliminary and authorize preparation of the final plat, subject to the following:

A. The property abuts the City limits on the east and partially on the south. The applicant shall request annexation of this property into the City prior to filing a final plat.

B. After annexation, the applicant shall file a request for the appropriate zoning for his proposed mobile home subdivision. The zoning shall be determined prior to filing the final plat.

C. The applicant shall guarantee the extension of sewer and water to serve all lots.

D. The applicant shall guarantee the paving of all interior streets including a sidewalk on one side of the thru street.

E. The applicant shall obtain approval of his drainage plan prior to submitting a final plat. Any drainage improvements required by the platting of this property shall be guaranteed by the applicant. A covenant providing for the ownership and maintenance of the detention pond will be required. An access easement to the pond will also be required.

F. Easements as requested by K.G. and E. and shown on the engineer's "marked copy" of the preliminary plat shall be shown on the final plat.

G. The applicant's surveyor shall meet with the planning staff to determine if any redesign of the west protion of the plat is possible.

H. The Subdivision Committee recommends a waiver of the minimum lot frontage requirement.

I. The applicant shall install or guarantee the installation of all utilities and facilites which are applicable and described in Article 8 of the MAPC Subdivision Regulations.

J. Requirements for a final plat (see pages 20-25, Part 4, Article 5 of the MAPC Subdivision Regulations).

Enclosed herewith is the "marked" copy of the preliminary plat for your information and files.

If you should have any questions concerning this matter, please call.

Sincerely,

L.O.

Louise Olivarez
Senior Planner

LO:bh

cc: Jesse L. Graham, 1403 Harding, 67208
Paul Treadwell, 11051 E. Kellogg, 67207
Dean Sellers, Acting City Engineer

Lifetime Addition

Planimeter Survey of Drainage Areas

Drainage Area ... of Cox Tributary to East Branch of Chisholm Creek in Section 25-26-1E

Area upstream of 37th Street in West Fork

12085 4334
9836 2085

22.49 22.49 > 22.49 x .918 = 20.65 Acres

Cox Tributary to E. Br. Chis. Crk in Sec 25

North parcel
6519 10494 4405
2669 6579 0494

3910 3915 3911 > 39.12 x .918 = 35.92 Acres

Center parcel (north of R.R.) Cox Tributary
10129 2029
8250 0129

1879 1900 > 18.90 x .918 = 17.36 Acres

South parcel (between R.R & 37th) Cox Tributary
7647 10843
4433 7647

3234 3196 > 32.14 x .918 = 29.51 Ac

Sub. total, Cox tributary in Sec 25 = 82.79 Ac

In North 1/2, Section 36, East of North Oliver Industrial Addition

North Parcel (N1/2 - N1/2)
13238 9670
6776 3238

6462 6432 > 64.47 x .918 = 59.18 Ac

Lifetime Addition

Planimeter survey of drainage areas; cont.

Cox Tributary

In N½ Section 36 - East of Lifetime Addition

South Parcel (S½, S½)

89.12 — 12668
51.49 — x.912

37.63 — 37.56 > 37.60 x .918 = 34.52 Acres

In N½ Sec 36 - Lifetime Addition

3561 — 4561
25.57 — 3561

10.04 — 10.00 > 10.02 x .918 = 9.20 Acres

In N½ Sec 36 - North River Industrial

45.25 — 51.37
39.15 — 45.25

6.10 — 6.12 > 6.11 x .918 = 5.61 Acres

Sub-total, Cox Tributary in Sec 36 = 108.51 Acres

Total Area in West Fork & Cox Trib draining to South Line of N½ Sec 36

W. Fork in Sec 25	=	20.65 Acres
Cox Trib in Sec 25	=	82.79 "
Cox Trib in Sec 36	=	108.51 "
Total		211.95 Acres

Lifetime Addn

Length of Cox Tributary in Sec 25 = 3060 feet

Length of Cox Tributary in Sec 36 = 3020 feet

Total length of Cox Trib to S Line of N½ Sec 36, L = 6080 feet, 1.15 miles

Elevation @ head of Cox Trib in Sec 25 216.0

Elevation @ S Line, N½ Sec 36 165.0

Fall, H, 51 feet

Time of concentration, T_c hr $= \left(\frac{11.9\ L^3_{miles}}{H}\right)^{.385}$

T_c (hours) $= \left(\frac{11.9 \times (1.15)^3}{51}\right)^{.385} = \left(\frac{11.9 \times 1.53}{51}\right)^{.385} = .67 \times 60 = 40$ minutes

V = 2.5 fps

Rainfall Intensity for 100 year storm for 40 minute duration from TP40 is 5.42 inches/hour.

Runoff Coefficient, c, for total drainage basin of 212 Acres @ present land use is determined thus:

Residential land use in Section 25 @ C = 0.5 is 103 Acres

Park and Agricultural land use in Sec 36 @ c = 0.3 is 94 Acres

Industrial land use in Section 36 @ c = 0.9 is 6 Acres

Agricultural land use in Lifetime Addition @ c = 0.3 is 9 Acres

212 Acres

Composite $C = \frac{(0.5 \times 103) + (0.3 \times 94) + (0.9 \times 6) + (0.3 \times 9)}{212} = \frac{87.8}{212} = 0.41$

Lifetime Addition

Peak Discharge, Q_p, from Rational Formula $Q = CIA$

$Q_{p100} = (0.41)(212)(5.42) = 471$ cfs

If 6 Acres in North Industrial Park are considered before zoning then

$$\text{Composite } C = \frac{(0.5 \times 103) + (0.3 \times 94) + (0.2 \times 6) + (0.3 \times 9)}{212} = \frac{84.2}{212} = .40$$

And $Q_{p100} = (0.4)(212)(5.42) = 460$ cfs

When Lifetime Addition land use is considered @ C = 0.5

$$\text{Composite } C = \frac{(0.5 \times 103) + (0.3 \times 94) + (0.9 \times 6) + (0.5 \times 9)}{212} = \frac{89.6}{212} = 0.42$$

And $Q_{p100} = (0.42)(212)(5.42) = 483$ cfs

In order to not increase peak discharge from North Oliver Industrial Park and Lifetime Addition into Park property, consider the peak discharge from both plats in their agricultural land use @ C = 0.3

Drainage Area of N. Ind. Park 5.61 Acres

" " " Lifetime Addn 9.20 "

Sum 14.81 Acres

use 15 Acres

NOTE @ Pg 5

Length of drainageway, L_1 = 1400 feet = 0.27 miles

Fall, H_1 = 187 − 168 = 19 feet

Time of Concentration, Tc, in hours = $\left(\frac{11.9\ L^3_{miles}}{H}\right)^{.385}$

USE 15 minimum

$T_c = \left(\frac{11.9\ (.27)^3}{19}\right)^{.385} = \left(\frac{11.9\ (.019)}{19}\right)^{.385} = .18$ hours $\times 60 = 11$ minutes

$V = 2.12$ fps

Rainfall intensity for 100 year storm for 15 minutes duration from TP40 is 8.98 inches/hour

Runoff coeficient for Agricultural land use = 0.3

Peak discharge Q_{p100} from Rational Formula $Q = C \cdot I \cdot A$

$Q_{p100} = (0.3)(8.98)(15) = \underline{40}$ cfs

When land use is change to industrial and single family residential, the drainage pattern will be slightly altered, w/ 6.69 acres of industustrial draining to park

ie from
g 4

Composite $C = \frac{(0.9 \times 7) + (0.5 \times 9)}{16} = \frac{10.8}{16} = 0.675$ ✓

* And $Q_{p100} = CIA = (0.675)(8.98)(16) = 97$ cfs

To reduce effect of development, design detention reservoir to limit peak discharge to 40 cfs

What happens to the discharge (developed or undeveloped) from the 197 ac. upstream?

From soils map # 27 of Soil Survey of Sedgwick County all drainage basin of Cox Trib in Sections 25 and 36 is Farnum loam and is in Hydrologic Group B (Pg 121 - Soil Survey)

From SCS TR 55, Table 2-2, Hydrologic Group B
CN for Industrial district (72% impervious) = 88
CN for Single family residential (65% impervious) = 85

$$\text{Composite CN} = \frac{(88 \times 7) + (85 \times 9)}{16} = 86$$

Rainfall, P, for 100 year frequency, 6 hour duration storm is 5.9 inches
Direct Runoff, Q, from equation $Q = \frac{(P - 0.2S)^2}{P + 0.8S}$

where $S = \frac{1000}{CN} - 10$; $\frac{1000}{87} - 10 = 1.63$

$$Q = \frac{[5.9 - (.2 \times 1.63)]^2}{5.9 + (.8 \times 1.63)} = \frac{31.07}{7.2} = 4.32 \text{ inches}$$

Volume of Runoff, R, in Acre-feet from Formula $R = \frac{AQ}{12}$

$$R = \frac{16 \times 4.32}{12} = 5.76 \text{ Acre-feet}$$ use 6 Acre-feet

Storage required in pond.

Lifetime Addn

Storage pond

1. Outlet pipe should be submerged w/ tailwater elevation @ 163 (Flowline = 161)

2. Maximum W.S. in pond should be 168 (Flow line = 164) only 1.0 ft. freeboard!

=300'±

3. Under conditions 1 & 2 above, a 30 inch diameter concrete pipe with outlet control on a slope of 1% will discharge 40 cfs @ HW + SL = 6.6 feet
SL = .01 x 300 = 3.0 ; therefore HW = 3.6 feet

4. Under conditions 1 & 2 above a 30 inch diameter concrete pipe with inlet control will discharge 40 cfs @ HW = 4.0 feet ; therefore inlet controls.

(Figure 42, Concrete Pipe Manual, Pg 220)

Emergency Spillway El. should be 168.0 or better 167.5 so for 100 year frequency or less there should be no discharge through Emergency spillway!

Lifetime Addn.

Discharge Hydrograph

For 30" culvert spillway w/inlet control, D=2.5'

HW	$\frac{HW}{D}$	Q
0	0	0
.5	0.2	
1	0.4	
1.25	0.5	7.2
1.38	0.55	8.5
1.5	0.6	10
1.63	0.65	11.2
1.75	0.7	13
1.88	0.75	14.2
2	0.8	16
2.13	0.85	17.3
2.25	0.9	19
2.38	0.95	20.2
2.5	1	22
2.75	1.1	24.5
3	1.2	28
3.25	1.3	30
3.5	1.4	32
3.75	1.5	34.5
4	1.6	36
4.25	1.7	38
4.5	1.8	40

← } Emergency Spillway el.

← }

Hence this system will deliver approx 34.5 cfs.

(From BPR Chart 1055)

Lifetime Addition

Hydrograph Values

Choose 1 inch of storage = 1/2 acre-foot

Choose 1 inch of discharge = 10 cfs

$$T(\text{min}) = \frac{0.5}{10} \times 726 = 36.3$$

Choose 1 inch of Time = 10 minutes

$$T(\text{inches}) = \frac{36.3}{10} = 3.63 \text{ inches}$$

Area between Curve I (Inflow Hydrograph) and Curve IV (Outflow Hydrograph)

8445	10419	
6466	8445	
19.79	19.64	19.72 Sq.In × 10min × 10 × 60 / 43560 = 2.72 Ac/Ft

Storage check

2.8 Acre-feet plotted - 3% error - OK

2.72 Acre-feet interior measurement

This is what is assumed so you are bound to obtain this result!

Pond Design

Trial 2 - Lundblade design @ SE Corner of plat

Area at top of pond @ elevation 169

9230	9617					
8852	9230					
372	377	3.74	× 0.23	=	0.86	Acres

Area at bottom of pond @ elevation 165

9920	10178					
9673	9920					
247	258	2.53	× 0.23	=	0.58	Acres

0.86 Acres @ Top

−0.58 Acres @ Bottom

0.28 ÷ 4 = 0.07 Acres/foot of depth

0.72×4 = 2.88 AF

Elevation	Area	Depth	Volume	Accum Volume
165	0.58	0	0	0
166	0.65	1	0.62	0.62
167	0.72	2	0.68	1.30
168	0.79	3	0.76	2.06
169	0.86	4	0.82	2.88

Groundwater in the area appears to be about 10 ft., hence could dig the pond deeper and thus provide more storage. Also outlet pipe could be lowered to elevation approximately 163.0'. The soil is blue or greyish clay and will not infiltrate too much water.

Capacity available in pond. less than 6.00 AF. Req'd. Hence pond should be larger

Plotting Coefficients for Development of Commons Inflow Hydrograph.

LIFETIME ADDN

Lifetime Addn 4-30-80 9:00

6 hour - 100 year storm runoff from 17 acres in N. Oliver Ind. Park & 9 acres in Lifetime Addn.

Ordinate Plotting Value	= 1 Unit of Flow X	Unit of Flow Coefficient	Unit of Time Coefficient	X 1 Unit of Time =	Abcissa Plotting Value
0	1.62	0	0	2.23	0
3		2	1.4		3
6		4	2.5		6
8		5	2.95		7
11		7	3.75		8
16		10	4.5		10
89		55	10.6		24
94		58	11.2		25
96		59	11.7		26
97		60	13.4		30
96		59	15.15		34
94		58	15.85		35
89		55	16.75		37
32		20	24.5		55
29		18	25.2		56
26		16	26.2		58
23		14	27.75		62
19		12	29.90		67
16		10	32.95		73
13		8	37.5		84
11		7	41.0		91
10		6	47.5		106
0		0	100		223

Q_p = 97 cfs

R = 6 acre feet

This hydrograph is just made to fit the assumptions. Does not represent the system to be designed.

1 inch of storage = 0.5 acre-feet

1 inch of discharge = 10 cfs

$T(min) = \frac{0.5}{10} \times 726 = 36.3$ minutes

1 inch of time = 10 minutes

$T(inches) \frac{36.3}{10} = 3.63$ inches

$\frac{6}{1196.5} = .0050$, Value of 1 Sq. Unit

$\frac{97}{60} = 1.6167$, Value of 1 unit of flow

$\frac{6}{1196.5} \times \frac{12}{97} \times 60 = 2.23$ minutes, value of 1 unit of time

J-11

Final plat

SUBDIVISION REPORT

SUBDIVISION COMMITTEE
METROPOLITAN AREA
PLANNING COMMISSION

S/D NO. 80-16 Name Lifetime Addition
Date Application Rec'd. 5-2-80 Preliminary Approval 5-15-80
Scheduled S/D Meeting 7-24-80

DESCRIPTION

General Location East side of Oliver, approximately 1/2 mile south of 37th St. North
Owner Jesse L. Graham
Surveyor/Engineer Baughman Company
Address 330 Laura 67211 Phone 262-7271

1. Gross Acreage of Plat 34.3 acres
2. Number of Lots:
   - Residential 142
   - Commercial 2
   - Industrial
   - Other
   - Total Number of Lots 144
3. Minimum Lot Frontage 35 ft.
4. Minimum Lot Area 5000 sq. ft.
5. Existing Zoning R-1
6. Proposed Zoning G and LC
7. Lineal Feet of New Streets:
   - a. 64' R/W 4500 ft.
   - b. R/W ft.
   - c. R/W ft.
   - d. R/W ft.
   - e. R/W ft.
   - TOTAL 4500 ft.
8. Sidewalk adjacent to all streets? yes X no
9. Public Water Supply x (Yes-No), Name City of Wichita
10. Public Sanitary Sewers X (Yes-No), Name City of Wichita
11. Health Department Approval (where applicable) (Yes-No)
12. City of Wichita X : Three-Mile Area

STAFF COMMENTS:

Note: This property has recently been annexed by the City of Wichita. An associated zone case requesting "AA" to "G" and "LC" has been filed (Z-2265).

A. The representative from City Engineering should be prepared to comment on the status of the applicant's final drainage plan.

B. The applicant shall guarantee the extension of sewer and water to serve all lots.

C. The applicant shall guarantee the paving of all interior streets including a sidewalk on one side of 33rd Street North/Edgemoor.

D. Any drainage improvements required by the platting of this property shall be guaranteed by the applicant. A covenant providing for the ownership and maintenance of the reserve shall be submitted.

E. At the time of preliminary plat approval, the Subdivision Committee recommended waiver of the minimum lot frontage requirement.

F. Approval of this plat is subject to the approval of the applicant's associated zone case requesting "G" zoning.

G. Recording of the plat within 30 days after approval by the Board of City Commissioners.

LIFETIME ADD - DRAINAGE

Small Areas : $T_c = 15$ min ; $I_2 = 4.06$ in/hr

$I_5 = 6.08$ in/hr $I_{100} = 8.98$ in/hr

Res $C = 0.5$; Ind $= 0.9$

DRAIN A

Area A-1

DA = 0.5 Ac

$Q_2 = 0.5 \times 4.06 \times 0.5 = 1.0$ c.f.s.

Area A-2

DA = 5.9 Ac

$Q_2 = 0.5 \times 4.06 \times 5.9 = 12.0$ cfs

Area A-3

DA = 0.5 Ac

$Q_2 = 0.5 \times 4.06 \times 0.5 = 1.0$ cfs

Area A-4

DA = 2.8 Ac.

$Q_2 = 0.5 \times 4.06 \times 2.8 = 5.7$ cfs

DRAIN B

Area B-1

DA = 0.4 Ac.

$Q_2 = 0.5 \times 4.06 \times 0.4 = 0.8$ cfs

$Q_{100} = 0.5 \times 8.98 \times 0.4 = 1.8$ cfs

Area B-2

DA = 2.5 Ac

$Q_2 = 0.5 \times 4.06 \times 2.5 = 5.1$ cfs

$Q_{100} = 0.5 \times 8.98 \times 2.5 = 11.2$ cfs

Area B-3

DA = 0.8 Ac $Q_2 = 0.5 \times 4.06 \times 0.8 = 1.6$ cfs

$Q_{100} = 0.5 \times 8.98 \times 0.8 = 3.6$ cfs

Area B-4

DA = 3.9 Ac

$Q_2 = 0.5 \times 4.06 \times 3.9 = 7.9$ cfs

$Q_{100} = 0.5 \times 8.98 \times 3.9 = 17.5$ cfs

Area B-5

DA = 6.3 Ac

$Q_2 = 0.9 \times 4.06 \times 6.3 = 23.0$ cfs

This is a lot of water, how will it be handled?

$Q_{100} = 0.9 \times 8.98 \times 6.3 = 50.9$ cfs

Area B-6

DA = 2.2 Ac

$Q_{100} = 0.5 \times 8.98 \times 2.2 = 9.9$ cfs

Area C-1

DRAIN C

Area C-1

DA = 0.3 Ac

$Q_2 = 0.5 \times 4.06 \times 0.3 = 0.6$ cfs

Area C-2

DA = 4.2 Ac

$Q_2 = 0.5 \times 4.06 \times 4.2 = 8.5$ cfs

$Q_{100} = 0.5 \times 8.98 \times 4.2 = 18.9$ cfs

Street Section (34' Pvmt)

Area = 1/2 (0.503 x 15.9167) = 4.02 s.f.

WP = 16.4197

$R = \frac{4.02}{16.4197} = 0.24$ $\quad R^{2/3} = 0.386$

$V = \frac{1.486}{0.016} \times 0.386 \times S^{1/2} = 35.85 \times S^{1/2}$

Slope	V (fps)	Q cfs
0.32 %	2.03	8.16
0.72 %	3.04	12.22
1.00 %	3.59	14.43
1.10 %	3.76	15.12
1.15 %	3.84	15.44
1.30 %	4.09	16.44
1.42 %	4.27	17.17
1.48 %	4.36	17.53
2.16 %	5.27	21.19

Inlet I-1A

Area A-2 + A-4 = 12.0 + 5.7 = 17.7 cfs

Use 3 inlets - Conn. to RCB by vert Drop Each inlet?

Inlet I-2A

Area A-1 + A-3 = 1.0 + 1.0 = 2.0 cfs

Use 1 inlet - conn. to RCB by vert. drop.

Inlet I-1B

Q_5 = 34.5 cfs - Use Bee Hive Drop Inlet slotted on 3 sides with 21" pipe @ 2.0 % = 24 cfs

Carry balance of Q_{100} (50.9 - 24.0) = 26.9 cfs in swales to 33rd. St.

Inlet I-2B

Q_2 = Area B-2, 4 & 5 = 5.1 + 7.9 + 24.0 = 37 cfs

Use 30" @ 1.0 %

Inlet I-3B

Q_2 = Area B-1 + B-3 + Above = 0.8 + 1.6 + 37 = 39.4 cfs

Q_{100} = Areas B-1, 2, 3, 4 & 5 = 85 cfs

Use 30" Pipes @ 1.0 % = 40 cfs

Carry balance in swales to detention pond = 45 cfs

DETENTION POND

Inlet I-4B

Q_{100} = 40 cfs - Use 30" Pipe @ 0.87 %

SWALES

From Inlet I-1B

Q_{100} = 26.9 cfs ; Bottom = 5' ; Slopes = 4:1 ;

D = 0.9' ; S_o = 0.01 ft/ft

A = 7.78 □' ; r = 0.63 ; $r^{2/3}$ = 0.735

$$Q = \frac{1.486}{.03} \times 7.78 \times 0.735 \times 0.1 = 28.3 \text{ cfs}$$

From Inlet I-3B to Detention Pond

Q_{100} = 45 cfs ; Bottom = 5' ; Slopes = 4:1 ;

D = 1.2' ; S_o = 0.01 ft/ft

A = 11.76 ; r = 0.79 ; $r^{2/3}$ = 0.855

$$Q = \frac{1.486}{0.03} \times 11.76 \times 0.855 \times 0.1 = 49.8 \text{ cfs}$$

WICHITA – SEDGWICK COUNTY
W-SC
METROPOLITAN AREA PLANNING DEPARTMENT
CITY HALL – TENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4561

July 25, 1980

Baughman Company, P.A.
330 Laura
Wichita, Ks. 67211

Re: S/D 80-16 - Final plat of Lifetime Addition

Gentlemen:

At the regular meeting of the Subdivision Committee of the Metropolitan Area Planning Commission on July 24, 1980, the above-captioned plat was considered. At your request, the action of the Committee was to defer this item for two weeks.

If you have any questions concerning this, please call.

Sincerely,

Forrest L. Nagley

Forrest L. Nagley
Junior Planner

FLN:bh

cc: Jesse L. Graham, 1403 Harding, 67208
Paul Treadwell, 11051 E. Kellogg, 67207
Dean Sellers, Acting City Engineer

August 8, 1980

Baughman Company, P.A.
330 Laura
Wichita, Ks. 67211

Re: S/D 80-16 - Final plat of Lifetime Addition

Gentlemen:

At the regular meeting of the Subdivision Committee of the Metropolitan Area Planning Commission, August 7, 1980, the above captioned plat was considered. The action of the Committee was to recommend that this plat be approved subject to:

A. Approval of this plat is subject to the approval of the applicant's associated zone case requesting "G" zoning.

B. The applicant's drainage plan has been approved subject to several conditions including:

1. minimum pad elevations;

2. access easements to the detention pond in the southeast corner of the plat;

3. designation of the channel as a floodway or reserve rather than a drainage dedication.

4. adjusting the floodway (or reserve) south of 33rd Street so that it "fans out" into the natural drainage pattern by the time it reaches the south property line.

C. The applicant shall guarantee all drainage improvements required by the platting of this property.

D. The applicant shall submit a covenant providing for the ownership and maintenance of the detention pond and drainage channel. The covenant shall include a statement which gives the City authority to maintain these areas and assess the cost to the owner(s) in the event the owner(s) fail to do so.

E. The applicant shall guarantee the extension of sanitary sewers to serve all lots.

F. The applicant shall guarantee the extension of City water to serve all lots.

G. The applicant shall guarantee the paving of all interior streets including a sidewalk on one side of 33rd Street North/Edgemoor.

H. Recording of the plat within 30 days after approval by the Board of City Commissioners.

Enclosed with the applicant's copy of this letter is a list of the five methods which have been adopted as being acceptable for guaranteeing improvements required in the approval of plats. Forms for the bond and irrevocable letter of credit are available from this office.

The enclosed "marked" copy of the final plat is for your information and files.

This matter will be forwarded to the Planning Commission for its consideration on Thursday, August 14, 1980, at 1:30 p.m. If you should have any questions concerning this matter, please call.

Sincerely,

L.O.

Louise Olivarez
Senior Planner

LO:bh

cc: Jesse L. Graham, 1403 Harding, 67208
Paul Treadwell, 11051 E. Kellogg, 67207
X Dean Sellers, Acting City Engineer
Paul Johnston, Flood Control

XXXXX 268-4591

August 12, 1980

Baughman Company
330 Laura
Wichita, Kansas 67211

Attn: John Lundblade

Subject: Lifetime Addition - S/D 80-16

Dear Mr. Lundblade:

In reference to subject plat, the following is offered in addition to the requirements of the Subdivision Committee per letter dated August 8, 1980:

1) Minimum Pad Requirements - same to be shown on face of plat.

Block	Lot(s)	Minimum Pad
2	9 - 24	177
1	15, 16, 23 - 30, 34 - 39, and 44	177
1	22, 31 - 33, 40 and 42	176.5

2) The required maintenance covenant for the detention pond and dreinage channel should also address the drainage system, swale and/or beehive accepting runoff from the North Oliver Industrial Park Addition into the detention pond.

3) The 20 foot drainage and utility easement should be separated. Preferably this should be a 20 foot drainage and access easement and a 10 foot utility easement.

4) A 15 foot access and maintenance easement should be shown around the perifery of the detention pond.

5) To eliminate the proposed spillway, a request was previous[ly] contact the property owners to the north to see if [per]mission be acquired to construct a transition between th[e] north and the proposed channel in subject plat. [If] still be made in this area.

RECEIVED
AUG 13 1980
Traffic Engineering Division

268-4591

August 12, 1980

Baughman Company
530 Laura
Wichita, Kansas 67211

Attn: John Lundblade

Subject: Lifetime Addition - S/D 80-16

Dear Mr. Lundblade:

In reference to subject plat, the following is offered in addition to the requirements of the Subdivision Committee per letter dated August 3, 1980:

1) Minimum Pad Requirements - same to be shown on face of plat.

Block	Lot(s)	Minimum Pad
2	9 - 24	
1	15, 16, 23 - 30, 34 - 39, and 44	177
1	22, 31 - 33, 40 and 42	177 176.5

2) The required maintenance covenant for the detention pond and drainage channel should also address the drainage system, swale and/or backbone accepting runoff from the North Oliver Industrial Park Addition into the detention pond.

3) The 20 foot drainage and utility easement should be separated. Preferably this should be a 20 foot drainage and access easement and a 10 foot utility easement.

4) A 15 foot access and maintenance easement should be shown around the periphery of the detention pond.

5) To eliminate the proposed spillway, a request was previously made to contact the property owners to the north to see if permission could be acquired to construct a transition between the Floodway to the north and the proposed channel in subject plat. Attempts should still be made in this area.

6) Due to extensive fill in certain areas, side slopes should be no greater than 4 on 1 to provide maintenance capabilities. Fill areas should be seeded and mulched to both stabilize the area and lessen the effect of erosion.

If there are any further questions or if discussion is desired, please advise.

Yours truly,

Paul Johnston,
Acting Director
Flood Control and Landfill Division

PJ/glm

cc: Lifetime Addn. Plat File
North Oliver Industrial Park Addn. Plat File
Louise Olivarez/MAPD
Paul Graves/Chief Engineer/Design Div.

5) Due to extensive fill in certain areas, side slopes should be no greater than 4 on 1 to provide maintenance capabilities. Fill areas should be seeded and mulched to both stabilize the area and lessen the effect of erosion.

If there are any further questions or if discussion is desired, please advise.

Yours truly,

Paul Johnston,
Acting Director
Flood Control and Landfill Division

PJ\gln

cc: Lifetime Addn. Plat File
North Oliver Industrial Park Addn. Plat File
Louise Olivarez/MAPD
Paul Chavez/Chief Engineer/Design Div.

Revised
Final plat

SUBDIVISION REPORT

SUBDIVISION COMMITTEE
METROPOLITAN AREA
PLANNING COMMISSION

S/D NO. 80-16 Name Lifetime Addition
Date Application Rec'd. 12-12-80 Preliminary Approval 12-22-80
Scheduled S/D Meeting 1-22-81

DESCRIPTION

General Location East side of Oliver approximately 1/2 mile south of 37th St. North
Owner Jesse L. Graham
Surveyor/Engineer Baughman Company, P.A.
Address 330 Laura, 67211 Phone 262-7271

1. Gross Acreage of Plat 24.8 acres
2. Number of Lots:
   - Residential 104
   - Commercial
   - Industrial
   - Other
   - Total Number of Lots 104
3. Minimum Lot Frontage *50 ft.
4. Minimum Lot Area 6,000 sq. ft.
5. Existing Zoning AA
6. Proposed Zoning AA

7. Lineal Feet of New Streets:
   - a. 64 R/W 3500 ft.
   - b. R/W ft.
   - c. R/W ft.
   - d. R/W ft.
   - e. R/W ft.
   - TOTAL 3500 ft.
8. Sidewalk adjacent to all streets? yes X no

9. Public Water Supply Yes (Yes-No), Name City of Wichita
10. Public Sanitary Sewer Yes (Yes-No), Name City of Wichita
11. Health Department Approval (where applicable) (Yes-No)
12. City of Wichita X : Three-Mile Area

STAFF COMMENTS:

A. At the time of preliminary plat consideration, the Subdivision Committee's action was to authorize preparation of a final plat with a 50/50 mixture of lots with 50-foot and 55-foot frontages. This final plat shows approximately 64% of the lots with 50-foot frontages. Approximately 27% are shown with 54-foot frontages and the remaining 9% of the lots typically have frontages which measure between 50 and 54 feet. The applicant shall be prepared to discuss this proposed lotting with the Committee and explain why half the lots are not being platted with 55-foot frontages.

B. City Engineering has approved the applicant's revised drainage plan subject to the following conditions:

   1. The obtaining of a temporary construction easement from the Great Plains Business Park to the north for grading purposes.

   2. The obtaining of a permanent drainage easement from the Park Board to the south for an outfall structure from the detention pond.

   3. Minimum building pads for Lots 11-18, Block 1 to be 175.0 and minimum building pads for Lots 19-24, Block 1 and Lots 1-5, Block 2 to be 177.0 City datum.

   The representatives from City Engineering shall be prepared to advise the Committee regarding the status of the applicant's final drainage plan in light of these conditions of approval.

C. The applicant shall submit a restrictive covenant providing for the ownership and continued maintenance of the reserve. The covenant shall contain a provision which gives the City of Wichita authority to maintain the reserve and charge the costs to the owner(s) in the event the owner(s) fail to maintain the reserve.

D. At the time of preliminary plat approval, the Subdivision Committee recommended approval of a zero side-yard setback on one

(Over)

side of each lot with either a 12-foot maintenance easement or a 12-foot side yard setback being platted on the side opposite the zero setback. The final plat was to have clearly indicated the zero setback along with the 12-foot separation. The 12-foot separation has been indicated but, the notation on the face of the plat regarding the zero setback and appropriate language in the plattor's text has been omitted. In addition, it is the Planning Department's recommendation that a drawing of a typical lot be included on the face of the plat which calls out the zero setback of the 12-foot separation. Regarding the 12-foot separation, as it is shown now, it is being granted as a 12-foot public utility easement. The representatives from the various utility companies and City Engineering should be prepared to discuss the desirability of this arrangement and the acceptability of extending private service lines in a public easement.

E. The applicant shall obtain written approval from the Central Inspection Division that the proposed modular homes meet the building code for structures to be placed on permanent foundations. Written approval from C.I.D. shall be provided to the Planning Department prior to the scheduling of this plat before the Board of City Commissioners.

F. If the modular homes meet the building code, the applicant shall file a covenant which restricts development in this subdivision to the use of modular homes. Said covenant shall be submitted to the Planning Department for review and approval prior to being recorded with the Register of Deeds.

G. The applicant shall guarantee the extension of City water to serve all lots.

H. The applicant shall guarantee the extension of sanitary sewer to serve all lots.

I. The applicant shall guarantee the paving of 33rd Street North and Edgemoor, including a sidewalk on one side.

J. If improvements are guaranteed by petition, a notarized certificate listing the petitions shall be submitted to the Planning Department for recording.

K. The plattor's text shall be amended to include a statement about who will own and maintain the reserve and to include a reference to the 12-foot maintenance easements.

L. The north 20 feet of the 12-foot drainage easement on Lots 21-22 in Block 2 shall be labeled as a drainage and utility easement.

M. Recording of the plat within 30 days after approval by the Board of City Commissioners.

Revised Preliminary Plat

SUBDIVISION REPORT

SUBDIVISION COMMITTEE
METROPOLITAN AREA
PLANNING COMMISSION

S/D NO. 80-16 Name Lifetime Addition
Date Application Rec'd. 12-12-80 Preliminary Approval
Scheduled S/D Meeting 12-22-80

DESCRIPTION

General Location East side of Oliver approximately 1/2 mile of 37th St. North
Owner Jesse L. Graham
Surveyor/Engineer Baughman Company, P.A.
Address 330 Laura, Wichita, Ks. 67211 Phone 262-7271

1. Gross Acreage of Plat 24.8 acres
2. Number of Lots:
   Residential 104
   Commercial
   Industrial
   Other
   Total Number of Lots 104
3. Minimum Lot Frontage *50 ft.
4. Minimum Lot Area 6,000 sq. ft. ft.
5. Existing Zoning AA
6. Proposed Zoning AA

*At building setback

7. Lineal Feet of New Streets:
   a. 64 R/W 3500 ft.
   b. R/W ft.
   c. R/W ft.
   d. R/W ft.
   e. R/W ft.
   TOTAL 3500 ft.
8. Sidewalk adjacent to all streets? yes X no

9. Public Water Supply Yes (Yes-No), Name City of Wichita
10. Public Sanitary Sewers Yes (Yes-No), Name City of Wichita
11. Health Department Approval (where applicable) (Yes-No)
12. City of Wichita X : Three-Mile Area

STAFF COMMENTS:

Note: The applicant's request for "G" zoning has been denied. He now intends to develop a single-family residential subdivision utilizing prefabricated modular homes.

A. Approval of this plat will require a waiver of the recommended 60-foot minimum lot frontage and the recommended lot width-to-depth ratio. Planning staff is concerned about the 50-foot lot widths. Although they may be adequate for the proposed 16' x 70' modular homes, they may not be adequate to also allow a two-car detached garage, nor would they be adequate for most conventional type homes.

B. If a lot width of less than 60 feet is approved, it is recommended that the applicant obtain written approval from the Central Inspection Division that his proposed modular homes meet the building code. If they do not meet code and cannot be utilized, 50-foot lot widths should not be approved. This review by C.I.D. should be obtained prior to submission of the final plat.

C. If a 50-foot lot width is approved and the modular homes meet the building code, it is recommended that a covenant be filed which restricts development in this subdivision to the use of these modular homes.

D. Lot 63, Block 1 and Lot 21, Block 2 do not have enough buildable area for the proposed 70' x 16' modular homes and, therefore, should be altered in size before the final plat is submitted. Lot 63 also has less than 6,000 square feet total area.

E. It is noted that the drainage area in the southeast corner is now designated as "floodway" rather than a "reserve" for detention pond purposes as shown on the previous plat. The City Engineer's representative shall be prepared to comment on the applicant's revised drainage plan and state what drainage improvements need to be guaranteed.

(Over)

F. The applicant is requesting a zero side yard setback on one side of each lot with an adjacent 6-foot maintenance easement on the adjoining lot. If this zero side yard setback is approved, it shall be clearly indicated on the final plat. In order to assure the required 12-foot separation between buildings, it is recommended that the maintenance easement be 12-feet wide OR a 12-foot side yard setback should be platted on the side opposite the zero setback.

G. The applicant shall guarantee the extension of City water to serve all lots.

H. The applicant shall guarantee the extension of sanitary sewer to serve all lots.

I. The applicant shall guarantee the paving of 33rd Street North and Edgemoor including a sidewalk on one side.

J. If improvements are guaranteed by petition, a notarized certificate listing the petitions shall be submitted to the Planning Department for recording.

K. The applicant shall install or guarantee the installation of all utilities and facilities which are applicable and described in Article 8 of the MAPC Subdivision Regulations.

L. Requirements for a final plat (see pages 20-25, Part 4, Article 5 of the MAPC Subdivision Regulations).

WICHITA – SEDGWICK COUNTY
W.S.C.
METROPOLITAN AREA PLANNING DEPARTMENT
CITY HALL – TENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4561

December 23, 1980

Baughman Company
330 Laura
Wichita, Ks. 67211

Re: S/D 80-16 - Preliminary plat of Lifetime Addition

Gentlemen:

At the regular meeting of the Subdivision Committee of the Metropolitan Area Planning Commission, December 22, 1980, the above captioned plat was considered. The action of the Committee was to approve the preliminary plat and authorize preparation of the final plat, subject to the following:

A. The final plat shall indicate a 50/50 mixture of lots within 50-foot and 55-foot frontages.

B. The applicant shall obtain written approval from the Central Inspection Division that the proposed modular homes meet the building code for structures to be placed on permanent foundations. Written approval from C.I.D. shall be provided to the Planning Department prior to the scheduling of this plat before the Board of City Commissioners.

C. If the modular homes meet the building code, the applicant shall file a covenant which restricts development in this subdivision to the use of modular homes. Said covenant shall be submitted to the Planning Department for review and approval prior to its recording with the Register of Deeds.

D. The final plat shall indicate revised lot lines for Lot 63, Block 1 and Lot 21, Block 2. This is necessary to insure adequate buildable area and a minimum of 6,000 square feet.

E. The final plat shall indicate the drainage area in the southeast corner of the plat as a "reserve" rather than as a "floodway."

F. Prior to submitting a final plat, the applicant shall meet with City Engineering regarding approval of a final drainage plan for this addition.

G. The Subdivision Committee recommends approval of a zero side-yard setback on one side of each lot with either a 12-foot maintenance easement or a 12-foot side yard setback being platted on the side opposite the zero setback. The final plat

shall clearly indicate the zero setback along with either the 12-foot easement or setback.

H. Prior to submitting a final plat, the applicant shall meet with City Engineering regarding an acceptable utility easement network for this subdivision.

I. The applicant shall guarantee the extension of City water to serve all lots.

J. The applicant shall guarantee the extension of sanitary sewer to serve all lots.

K. The applicant shall guarantee the paving of 33rd Street North and Edgemoor including a sidewalk on one side.

L. If improvements are guaranteed by petition, a notarized certificate listing the petitions shall be submitted to the Planning Department for recording.

M. The applicant shall install or guarantee the installation of all utilities and facilities which are applicable and described in Article 8 of the MAPC Subdivison Regulations.

N. Requirements for a final plat (see pages 20-25, Part 4, Article 5 of the MAPC Subdivision Regulations).

Enclosed herewith is the "marked" copy of the preliminary plat for your information and files.

If you should have any questions concerning this matter, please call.

Sincerely,

Forrest L. Nagley

Forrest L. Nagley
Junior Planner

FLN:bh

cc: Paul Treadwell, 11051 E. Kellogg, 67207
Jesse L. Graham, 1403 Harding, 67208
Clark Nelson, Attorney, 200 W. Douglas, 67202
Mike Lindebak, City Engineering
Larry Dean, Great Plains Ventures, Inc., 1711 Longfellow Lane, 67207

LIFETIME ADD - DRAINAGE

Small Areas: $T_c = 15$ min; $I_2 = 4.06$ in/hr

$I_5 = 6.08$ in/hr $I_{100} = 8.98$ in/hr

Res $C = 0.5$; Ind. $= 0.9$

DRAIN A

Area A-1

DA = 0.5 Ac

$Q_2 = 0.5 \times 4.06 \times 0.5 = 1.0$ cfs

Area A-2

DA = 5.9 Ac

$Q_2 = 0.5 \times 4.06 \times 5.9 = 12.0$ cfs

Area A-3

DA = 0.5 Ac

$Q_2 = 0.5 \times 4.06 \times 0.5 = 1.0$ cfs

Area A-4

DA = 2.8 Ac

$Q_2 = 0.5 \times 4.06 \times 2.8 = 5.7$ cfs

DRAIN B

Area B-1

DA = 0.4 Ac

$Q_2 = 0.5 \times 4.06 \times 0.4 = 0.8$ cfs

$Q_{100} = 0.5 \times 8.98 \times 0.4 = 1.8$ cfs

Area B-2

DA = 2.5 Ac

$Q_2 = 0.5 \times 4.06 \times 2.5 = 5.1$ cfs

$Q_{100} = 0.5 \times 8.98 \times 2.5 = 11.2$ cfs

Area B-3

DA = 0.8 Ac $Q_2 = 0.5 \times 4.06 \times 0.8 = 1.6$ cfs

$Q_{100} = 0.5 \times 8.98 \times 0.8 = 3.6$ cfs

Area B-4

DA = 3.9 Ac

$Q_2 = 0.5 \times 4.06 \times 3.9 = 7.9$ cfs

$Q_{100} = 0.5 \times 8.98 \times 3.9 = 17.5$ cfs

Area B-5

DA = 6.3 Ac

$Q_2 = 0.9 \times 4.06 \times 6.3 = 23.0$ cfs

$Q_{100} = 0.9 \times 8.98 \times 6.3 = 50.9$ cfs

Area B-6

DA = 2.2 Ac

$Q_{100} = 0.5 \times 8.98 \times 2.2 = 9.9$ cfs

DRAIN C

Area C-1

DA = 0.3 Ac

$Q_2 = 0.5 \times 4.06 \times 0.3 = 0.6$ cfs

Area C-2

DA = 4.2 Ac

$Q_2 = 0.5 \times 4.06 \times 4.2 = 8.5$ cfs

$Q_{100} = 0.5 \times 8.98 \times 4.2 = 18.9$ cfs

Street Section (34' Pvmt)

Area = 1/2 (0.503 x 15.9167) = 4.02 sf

WP = 16.4197

$R = \frac{4.02}{16.4197} = 0.24$ $\quad R^{2/3} = 0.386$

$V = \frac{1.486}{0.016} \times 0.386 \times S^{1/2} = 35.85 \times S^{1/2}$

Slope	V (fps)	Q cfs
0.32 %	2.03	8.16
0.72 %	3.04	12.22
1.00 %	3.59	14.43
1.10 %	3.76	15.12
1.15 %	3.84	15.44
1.30 %	4.09	16.44
1.42 %	4.27	17.17
1.48 %	4.36	17.53
2.16 %	5.27	21.19

Inlet I-1A

Area A-2 + A-4 = 12.0 + 5.7 = 17.7 cfs

Use 3 inlets - Outlet = Use 24" @ 0.6%

Inlet I-2A

Area A-1 + A-3 = 1.0 + 1.0 = 2.0 cfs

Use 1 inlet

Outlet = 17.7 + 2.0 = 19.7 cfs

Use 27" @ 0.4%

Inlet I-1B

Q_5 = 34.5 cfs - Use Bee Hive Drop inlet slotted on 3 sides with 21" Pipe @ 2.0 % = 24 cfs

Curry balance of Q_{100} (50.9 - 24.0) = 26.9 in swale to 33rd St.

Inlet I-2B

Q_2 = Area B-2, 4, 5 = 5.1 + 7.9 + 24.0 = 37 cfs

Use 24" @ 3.0 %

Inlet I-3B

Q_2 = Area B-1 + B-3 + Above = 0.8 + 1.6 + 37 = 39.4 cfs

Q_{100} = Areas B-1, 2, 3, 4, 5 = 85 cfs

Use 30" Pipe @ 1.0 % = 40 cfs

Carry balance in swale to detention pond = 45 cfs

DETENTION POND

Inlet I-4B

Q_{100} = 40 cfs - Use 30" Pipe @ 0.87 %

SWALES

From Inlet I-1B

Q_{100} = 26.9 cfs ; Bottom = 5' ; Slopes = 4:1 ;

D = 0.9' ; S_o = 0.01 ft/ft

A = 7.78 sq ft ; R = 0.63 ; $R^{2/3}$ = 0.735

$$Q = \frac{1.486}{.03} \times 7.78 \times 0.735 \times 0.1 = 28.3 \text{ cfs}$$

From Inlet I-3B to Detention Pond

Q_{100} = 45 cfs ; Bottom = 5' ; Slopes = 4:1 ;

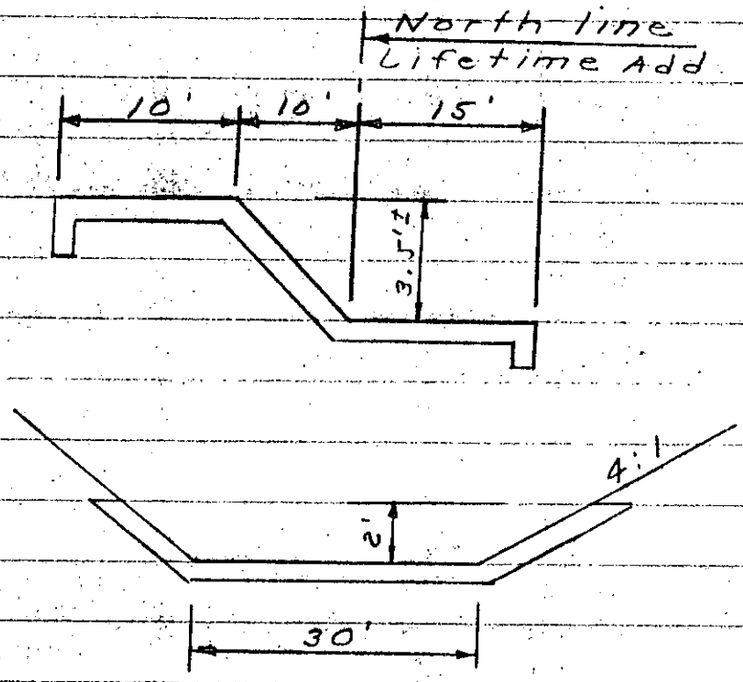
D = 1.2' ; S_o = 0.01 ft/ft

A = 11.76 ; R = 0.79 ; $R^{2/3}$ = 0.855

$$Q = \frac{1.486}{0.03} \times 11.76 \times 0.855 \times 0.1 = 47.8 \text{ cfs}$$

New Detention Pond will hold 3.8 Ac. Ft.

Lifetime Addition
Drainage Transition



Conc. Riprap

0.5 x 35 x 46 ÷ 27 = 30 C.Y.

30 C.Y. @ 150.00 = $4500

Excavation

Av. End Area = 80 SF x 10 ÷ 27 = 30 C.Y.

30 C.Y. @ $2.50 = $75

Total = $4575

Use = $4600

685-9631

THE CITY OF WICHITA

OFFICE OF ENGINEERING DEPARTMENT
Design

DATE December 30, 1980

TO Paul Johnston, Flood Control/Landfill Director

FROM Paul B. Graves, Chief Engineer

SUBJECT Lifetime Addition

This is to acknowledge your memo of December 23 regarding Lifetime Addition. I have reviewed your comments with Chris Breitenstein and he concurs in general with your suggestions. Thank you for your comments.

Paul B. Graves
Chief Engineer

PBG:gf

cc: R. W. Bruggeman, Director of Engineering
Chris Breitenstein, Acting Drainage Engineer
David Stowe, Director of Operations and Maintenance
Louise Olivarez, Senior Planner

RWB

THE CITY OF WICHITA

OFFICE OF FLOOD CONTROL & LANDFILL DATE December 23, 1980

TO Paul Graves, Chief Engineer

FROM Paul Johnston, Director

SUBJECT Lifetime Addition

Having missed the subdivision meeting of Monday afternoon, December 22, the following comments are offered to cover the concerns of this office:

1. Due to experienced high water in subject area, channelization and minimum pad requirements will be necessary.

2. Additional floodway requirements may be necessary at the south edge of the property (see attachment 1) to provide the necessary transition between an approved channel and the existing topography of the property just south of subject plat.

3. Drainage easements by separate instrument should be secured from the industrial park to the north and the Park Department to the southeast to provide for both the inlet and outfall structures (attachment 2).

4. A maintenance covenant should be provided for the inlet and outfall structure discussed in item 3, the proposed detention pond and the floodway area.

5. A covenant should be required to insure that access to the inlet structure at the southeast corner of the industrial park is not blocked or fenced off from access.

6. The 30 foot combined drainage and utility easement shown between lots 20 and 21, Block 2, should be separated, preferably 20 foot drainage and access, 10 foot utility.

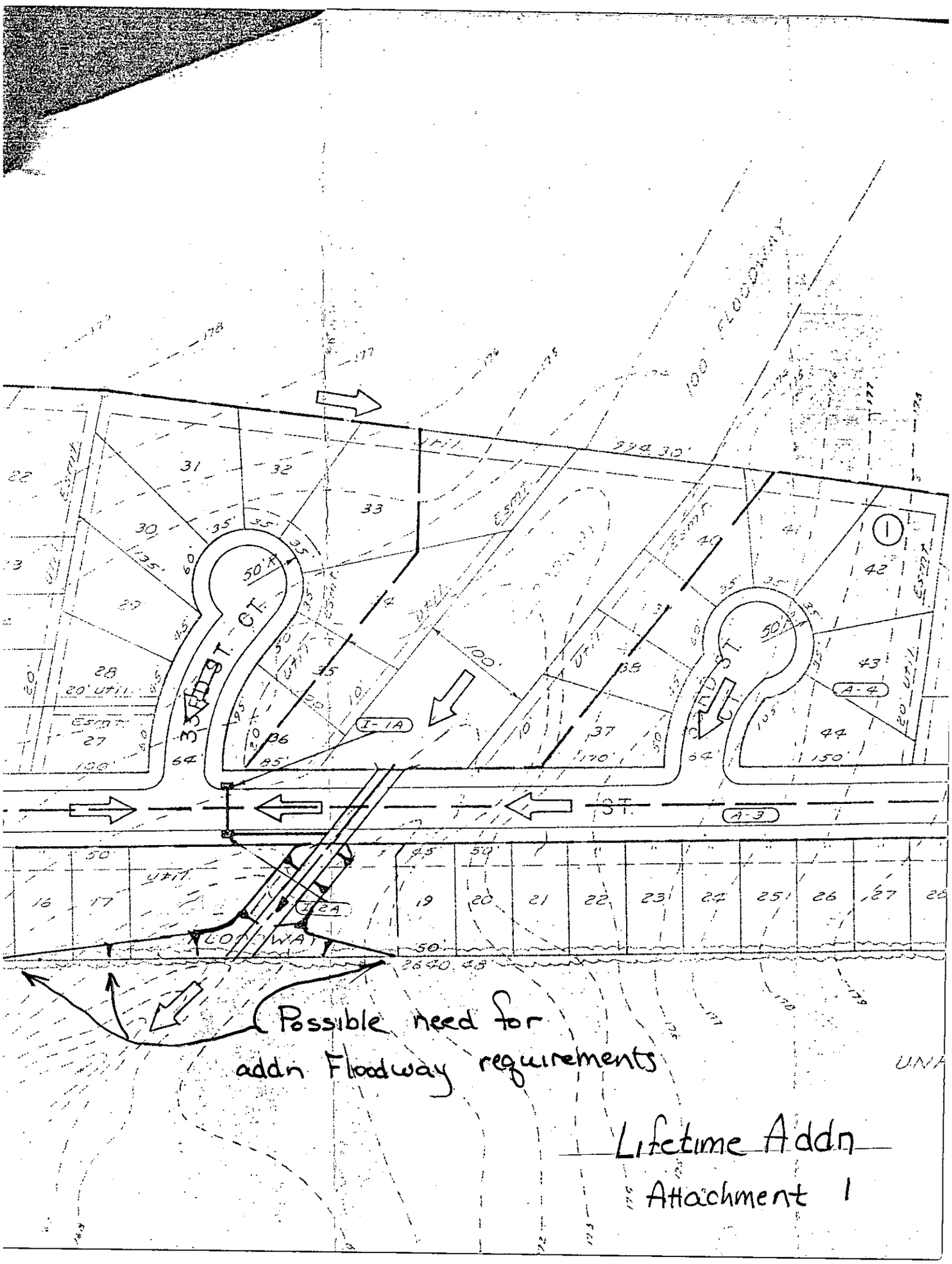
7. For maintenance and erosion purposes, the proposed cut and fill areas concerning the detention pond, channelization, etc. should be on a 4 on 1 slope with requirements for seeding and mulching of same unless rip rap or lining is proposed.

8. The detention pond should have provision for a 15 foot access road around the perifery of same.

Paul Johnston

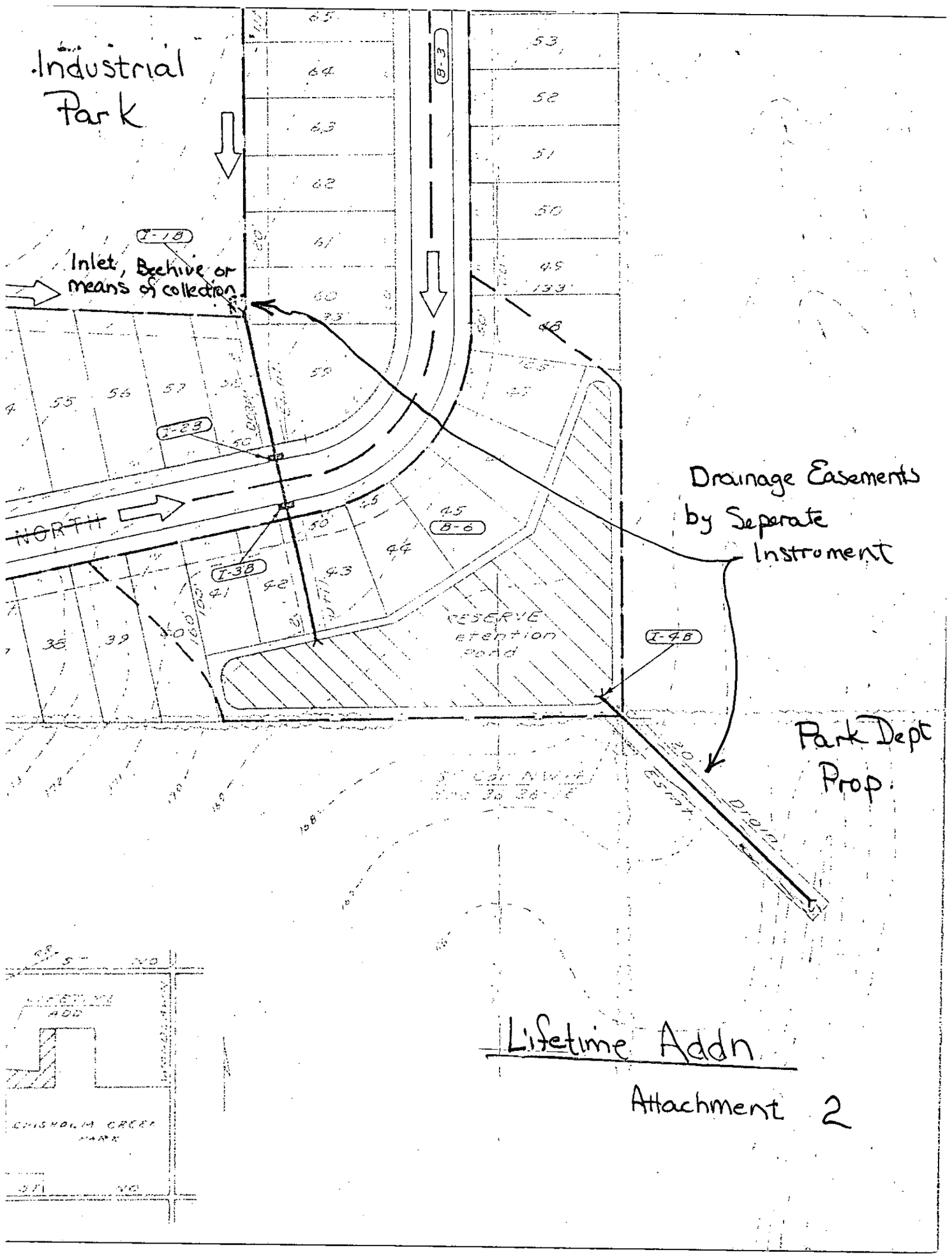
Paul Johnston, Director
Flood Control & Landfill

PJ:lw
Attachments (2)
cc: David Stowe, Director of Operations & Maintenance
Lifetime Addition Plat File
Louise Olivarez, Senior Planner, Planning Department
Bill Korber, Baughman Company
Memo File



Lifetime Addn

Attachment 1


Industrial Park
I-1B
Inlet, Beehive or means of collection
I-2B
I-3B
NORTH
B-3
B-6
RESERVE
retention
pond
I-4B
Drainage Easements by Separate Instroment
Park Dept Prop.
Lifetime Addn
Attachment 2

THE CITY OF WICHITA

OFFICE OF ENGINEERING DEPARTMENT
Design

DATE December 30, 1980

TO Paul Johnston, Flood Control/Landfill Director

FROM Paul B. Graves, Chief Engineer

SUBJECT Lifetime Addition

This is to acknowledge your memo of December 23 regarding Lifetime Addition. I have reviewed your comments with Chris Breitenstein and he concurs in general with your suggestions. Thank you for your comments.

Paul B. Graves
Chief Engineer

PBG:gf

cc: R. W. Bruggeman, Director of Engineering
Chris Breitenstein, Acting Drainage Engineer
David Stowe, Director of Operations and Maintenance
Louise Olivarez, Senior Planner

THE CITY OF WICHITA

OFFICE OF ENGINEERING DEPARTMENT
Design

DATE December 30, 1980

TO Tom Powell, Law Department

FROM Paul B. Graves, Chief Engineer

SUBJECT Sewage Lift Station and Force Main - The Mooring's Addition (Harley Miles)

During the development of this subdivision, one of the requirements was that the Applicant and/or Developer was to provide for disposal of sewage by means of a lift station and force main. This was accomplished by private contract utilizing private engineering services with all of the installation being accomplished within the public right-of-way and/or easements. The Developer paid all costs of the installation and upon completion of the lift station and force main it was apparently "turned over" to the City for operation and maintenance.

The question is "Does the City of Wichita own this facility?" or "Does the Developer still own the facility?"

Additional land development is occurring in this area and it appears that one way of providing sewer service is to utilize the facility as provided by the first Developer, Mr. Miles. Do we, the City, have any obligation to the Developer, Mr. Miles, or can we proceed to do with the facility as the City deems necessary? It is my understanding that Mr. Miles has been reported as indicating that no one would obtain a "free ride" from his sewer system that he paid for. Your earliest response will be appreciated.

Paul B. Graves
Chief Engineer

APPROVED:

R. W. Bruggeman
Director of Engineering

PBG:gf

cc: Mike Lindebak, Program Development Engineer
Darrell Brewer, Superintendent of Sewer Maintenance
Robert Lakin, Director of Planning Department
Jack Galbraith, Chief Planner

THE CITY OF WICHITA

OFFICE OF ENGINEERING DEPARTMENT DATE January 6, 1981

TO Jack Galbraith, Chief Planner

FROM Chris J. Breitenstein, Acting Drainage Engineer

SUBJECT Revised Drainage Plan - Lifetime Addition

The above referenced drainage plan is approved subject to the following conditions:

1. Temporary construction easement from Great Plains for grading purposes.

2. Permanent drainage easement from the Park Board for outfall structure from detention pond.

3. Minimum pads show on final plat as follows:
   Lots 11-18, Block 1 - elevation 175.0
   Lots 19-24, Block 1 - elevation 177.0
   Lots 1-5, Block 2 - elevation 177.0

4. Homeowners Association Agreement for maintenance of detention pond.

Chris J. Breitenstein
Acting Drainage Engineer

CJB:md
cc: Louise Olivarez
Baughman Company

WICHITA—SEDGWICK COUNTY
W-SC
METROPOLITAN AREA PLANNING DEPARTMENT
CITY HALL — TENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4561

January 23, 1981

Baughman Company, P.A.
330 Laura
Wichita, Ks. 67211

Re: Revised final plat of Lifetime Addition

Dear Bill:

At the applicant's request, this plat was deferred indefinitely. This plat will be rescheduled for review by the Subdivision Committee when so requested.

Sincerely,

Forrest L. Nagley
Junior Planner

FLN:bh

cc: Mike Lindebak, City Engineering

cc: Paul Treadwell, 11051 E. Kellogg, 67207
Jesse L. Graham, 1403 Harding, 67208
Clark Nelson, Attorney, 200 W. Douglas, 67202
Larry Dean, Great Plains Ventures, Inc., 1711 Longfellow Lane, 67207