Yash

PROFESSIONAL
ENGINEERING
CONSULTANTS
PROFESSIONAL ASSOCIATION

February 22, 1980

Mr. Dean Sellers, P.E.
Acting City Engineer
City Hall - Seventh Floor
455 N. Main
Wichita, Kansas 67202

RE: Oak Cliff Estates - Drainage Concept
PEC File No. 30-79283-1120

Dear Mr. Sellers:

Enclosed please find the drainage concept and supportive calculations for Oak Cliff Estates, proposed addition to Wichita, which is located at the northwest corner of Maple Street and Maize Road. The preliminary plat of this addition will be filed with MAPD on Friday, February 22, 1980, to be scheduled for hearing at the March 6, 1980, meeting of the MAPC - Subdivision Committee.

The calculations enclosed pertain to the southeast portion of the plat and are submitted at this time at the request of the Flood Control Office and the Sedgwick Department of Public Works to assure that the proposed commercial and multi-family usage in this area will not generate runoff in excess of the downstream channel capacity.

At the time Maple Gardens was platted, the Flood Control Office determined the capacity of the existing 7'x3' RCBC on Maize Road to be 210 c.f.s without overtopping the roadway. The open-channel system of Maple Gardens was then designed on the assumption that no more than 210 c.f.s. would enter that system from west of Maize Road (that area now proposed as Oak Cliff Estates).

To attempt to limit the flow rate from the southeast portion of Oak Cliff Estates to an amount not in excess of the previously established maximum of 210 c.f.s., the proposed street grades have been designed so as to drain as much area as possible to the existing natural channels in the southwest and northeast areas of the plat. Also, a storm sewer system is proposed which will convey the two-year frequency runoff from the residential areas and the five-year frequency runoff from the commercial area directly to Cowskin Creek. This storm sewer system is proposed to be installed along the north side of Maple Street within the 75 feet granted on Maple Gardens Addition for road right-of-way and drainage easement.

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Should any clarification of the drainage concept be needed or if additional data is necessary, please contact the undersigned.

Cordially,

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

Chris Brennenstuhl, P.E.
Project Manager

Enclosure

cc: Phil Dietrich
Paul Johnston
Yash Desai
Mike Lindebak
Louise Olivarez

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DUGAN OAK CLIFF (SE CORNER) FEBUARY 18, 1980
URBAN HYDROLOGY AND HYDRAULICS
PROJECT NO. 79283 2 YEAR FREQUENCY

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HHH   HHH  YYY   YYY  DDDDDDD    RRRRRRR    000000   LLL          000000    GGGGGGG   YYY   YYY
HHH   HHH   YYY YYY   DDDDDDDD   RRRRRRRR  00000000  LLL         00000000  GGGGGGGGG   YYY YYY
HHH   HHH    YYYYY    DDD   DDD  RRR  RRR  000  000  LLL         000  000  GGG   GGG    YYYYY
HHHHHHHHH     YYY     DDD   DDD  RRRRRRRR  000  000  LLL         000  000  GGG          YYY
HHHHHHHHH     YYY     DDD   DDD  RRRRRRR   000  000  LLL         000  000  GGG  GGGG    YYY
HHH   HHH     YYY     DDD   DDD  RRR RRR   000  000  LLL         000  000  GGG   GGG    YYY
HHH   HHH     YYY     DDDDDDDD   RRR  RRR  00000000  LLLLLLLLL   00000000  GGGGGGGGG   YYY
HHH   HHH     YYY     DDDDDDD    RRR   RRR  000000   LLLLLLLLL    000000    GGGGGGG    YYY
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TRIBUTARY AREA									HYDROLOGY SUMMATION					CONDUIT DATA				
POINT	TO POINT	C	AREA (AC)	SLOPE (%)	LEN (FT)	TC(0) (MIN)	I(0) (IN/HR)	Q(0) (CFS)	TC (MIN)	I (IN/HR)	Q (CFS)	SUM Q (CFS)	SUM A (AC)	SIZE	VELOCITY (FT/SEC)	LENGTH (FT)	TT (MIN)	TT + TC (MIN)
204	205	.80	1.66	.65	310	15.0	4.06	6.9	15.0	4.06	6.9	6.9	1.7	15"	5.64	145	.4	15.4
205	207	.80	2.20	.44	340	15.0	4.06	9.2	15.4	4.01	9.1	16.0	3.9	24"	5.09	130	.4	15.9
206	207	.80	.60	.67	150	15.0	4.06	2.5	15.0	4.06	2.5	2.5	.6	15"	2.04	145	1.2	16.2
207	209	.80	.87	.44	225	15.0	4.06	3.6	15.9	3.97	3.6	22.0	5.3	27"	5.53	135	.4	16.3
208	209	.80	.92	1.11	180	15.0	4.06	3.8	15.0	4.06	3.8	3.8	.9	15"	3.13	145	.8	15.8
209	210	.80	1.20	.63	240	15.0	4.06	5.0	16.3	3.93	4.9	30.7	7.4	30"	6.24	85	.2	16.5
210	201	0.	0.	0.	0	0.	0.	0.	16.5	3.91	0.	30.7	7.4	30"	6.24	440	1.2	17.7
203	202	.80	1.34	.30	330	15.0	4.06	5.6	15.0	4.06	5.6	5.6	1.3	15"	4.56	105	.4	15.4
202	201	.80	1.21	.23	310	15.0	4.06	5.1	15.4	4.02	5.0	10.6	2.5	18"	5.99	105	.3	15.7
201	200	.80	.99	.16	310	15.0	4.06	4.1	17.7	3.81	3.9	44.6	11.0	36"	6.31	320	.8	18.5
302	301	.80	2.57	.68	370	15.0	4.06	10.7	15.0	4.06	10.7	10.7	2.6	18"	6.07	180	.5	15.5
301	300	.80	1.73	.50	310	15.0	4.06	7.2	15.5	4.01	7.1	17.9	4.3	21"	7.43	150	.3	15.8
406	405	.70	.99	.42	240	15.0	4.06	2.8	15.0	4.06	2.8	2.8	1.0	15"	2.28	350	2.6	17.6
407	405	.70	1.82	.37	270	15.0	4.06	5.2	15.0	4.06	5.2	5.2	1.8	18"	2.94	270	1.5	16.5
405	404	.70	1.39	.48	310	15.0	4.06	3.9	17.6	3.82	3.7	11.5	4.2	21"	4.00	250	.9	18.4
404	402	.70	2.35	.36	550	15.0	4.06	6.7	18.4	3.75	6.2	17.7	6.5	24"	5.64	160	.5	18.9
403	402	.70	1.16	.30	330	15.0	4.06	3.3	15.0	4.06	3.3	3.3	1.2	15"	2.69	250	1.5	16.5

402	401	.70	1.71	.52	325	15.0	4.06	4.9	18.9	3.71	4.5	25.3	9.4	24"	8.07	310	.6	19.5
401	400	.70	1.16	.42	240	15.0	4.06	3.3	19.5	3.66	3.0	28.3	10.6	24"	9.01	50	.1	19.6
513	512	.50	4.52	.33	910	15.0	4.06	9.2	15.0	4.06	9.2	9.2	4.5	15"	7.50	50	.1	15.1
512	510	.50	.76	.32	280	15.0	4.06	1.5	15.1	4.05	1.5	10.7	5.3	21"	4.45	410	1.5	16.6
511	510	.50	1.55	.33	420	15.0	4.06	3.1	15.0	4.06	3.1	3.1	1.5	15"	2.53	50	.3	15.3
510	507	.50	1.31	.34	410	15.0	4.06	2.7	16.6	3.90	2.6	16.3	8.1	24"	5.19	250	.8	17.5
509	508	.50	1.44	.41	460	15.0	4.06	2.9	15.0	4.06	2.9	2.9	1.4	15"	2.36	50	.4	15.4
508	507	.50	4.70	.45	1190	15.0	4.06	9.5	15.0	4.06	9.5	12.3	6.1	24"	3.93	410	1.7	16.7
507	506	.50	1.72	.36	415	15.0	4.06	3.5	17.5	3.83	3.3	31.7	16.0	30"	6.46	50	.1	17.6
506	503	.50	1.30	.37	430	15.0	4.06	2.6	17.6	3.82	2.4	34.2	17.3	30"	6.96	250	.6	18.2
503	501	.50	1.55	.41	370	15.0	4.06	3.1	18.2	3.77	2.9	37.0	18.8	30"	7.55	50	.1	18.3
505	504	.50	1.91	.35	400	15.0	4.06	3.9	15.0	4.06	3.9	3.9	1.9	15"	3.18	50	.3	15.3
504	501	.50	.52	.37	380	15.0	4.06	1.1	15.3	4.03	1.1	5.0	2.4	18"	2.83	360	2.1	17.4
502	501	.50	3.44	1.03	770	15.0	4.06	7.0	15.0	4.06	7.0	7.0	3.4	18"	3.96	50	.2	15.2
501	500	.50	1.04	.33	360	15.0	4.06	2.1	18.3	3.76	1.9	50.4	25.8	36"	7.13	210	.5	18.8
500	400	0.	0.	0.	0	0.	0.	0.	18.8	3.72	0.	50.4	25.8	36"	7.13	430	1.0	19.8
400	300	0.	0.	0.	0	0.	0.	0.	19.8	3.64	0.	78.6	36.3	48"	6.26	420	1.1	20.9
300	200	0.	0.	0.	0	0.	0.	0.	20.9	3.57	0.	94.7	40.6	54"	5.95	320	.9	21.8
200	105	0.	0.	0.	0	0.	0.	0.	21.8	3.51	0.	136.5	51.6	60"	6.95	675	1.6	23.4
105	100	0.	0.	0.	0	0.	0.	0.	23.4	3.41	0.	136.5	51.6	60"	6.95	675	1.6	25.0

DUGAN OAK CLIFF (SE CORNER) FEBUARY 18, 1980
URBAN HYDROLOGY AND HYDRAULICS
PROJECT NO. 79283 2 YEAR FREQUENCY

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 HHH   HHH  YYY    YYY  DDDDDDD    RRRRRRR    AAAAAA   UUU   UUU  LLL        IIIIIII   CCCCCC    SSSSSS
 HHH   HHH   YYY YYY   DDDDDDDD   RRRRRRRR   AAAAAAAA  UUU   UUU  LLL        IIIIIII  CCCCCCCC  SSSSSSSS
 HHH   HHH    YYYYY    DDD   DDD  RRR   RRR  AAA  AAA  UUU   UUU  LLL          III    CCC  CCC  SSS
 HHHHHHHHH     YYY     DDD   DDD  RRR   RRR  AAA  AAA  UUU   UUU  LLL          III    CCC       SSSSSSS
 HHHHHHHHH     YYY     DDD   DDD  RRRRRRR   AAAAAAAAA  UUU   UUU  LLL          III    CCC        SSSSSSS
 HHH   HHH     YYY     DDD   DDD  RRR RRR   AAAAAAAAA  UUU   UUU  LLL          III    CCC  CCC       SSS
 HHH   HHH     YYY     DDDDDDDD  RRR  RRR  AAA  AAA  UUUUUUUUU  LLLLLLLLL  IIIIIII  CCCCCCCC  SSSSSSSS
 HHH   HHH     YYY     DDDDDDD   RRR   RRR AAA  AAA   UUUUUU   LLLLLLLLL  IIIIIII   CCCCCC    SSSSSS
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POINT	HYD-SLOPE (FT/FT)	FRICTION (FT)	BEND (FT)	TRANSITION (FT)	MANHOLE (FT)	DEFLECTION (FT)	JUNCTION (FT)	TOTAL (FT)	HYD-GL ELEVATION	DESIRED ELEVATION	DIFF. (FT)
201	.00448	1.4330	0.	.0014	0.	0.	.4952	1.9296	1316.40	1319.00	2.60
202	.01016	1.0673	0.	.0236	0.	0.	.8340	1.9248	1318.32	1320.50	2.18
203	.00749	.7863	0.	0.	0.	0.	0.	.7863	1319.11	1322.50	3.39
204	.01148	1.6640	0.	0.	0.	0.	0.	1.6640	1324.51	1325.50	.99
205	.00500	.6503	0.	.0182	0.	.2469	.6460	1.5614	1322.85	1325.50	2.65
206	.00150	.2172	0.	0.	0.	0.	0.	.2172	1321.50	1323.00	1.50
207	.00505	.6813	0.	.0073	0.	0.	.3771	1.0656	1321.28	1324.50	3.22
208	.00353	.5124	0.	0.	0.	0.	0.	.5124	1320.73	1321.00	.27
209	.00558	.4746	0.	.0130	0.	0.	.5144	1.0020	1320.22	1322.00	1.78
301	.01270	1.9056	0.	.0284	0.	0.	1.0639	2.9979	1318.39	1323.20	4.81
302	.01043	1.8782	0.	0.	0.	0.	0.	1.8782	1320.27	1323.50	3.23
401	.01567	.7835	0.	.0251	0.	0.	.5742	1.3829	1318.51	1324.50	5.99
402	.01255	3.8902	0.	.0516	0.	.0715	1.0940	5.1073	1323.62	1325.50	1.88
403	.00261	.6524	0.	0.	0.	0.	0.	.6524	1324.27	1326.50	2.23
404	.00614	.9829	0.	.0137	0.	.1369	.5294	1.6628	1325.28	1325.80	.52
405	.00531	1.3277	0.	.0023	0.	.0438	.5273	1.9211	1327.20	1327.20	-.00
406	.00188	.6576	0.	0.	0.	0.	0.	.6576	1327.86	1328.30	.44
407	.00245	.6617	0.	0.	0.	0.	0.	.6617	1327.86	1328.30	.44

501	.00571	1.1990	0.	.0190	0.	.2992	.4434	1.9606	1322.01	1326.00	3.99
502	.00444	.2220	0.	0.	0.	0.	0.	.2220	1322.23	1326.00	3.77
503	.00816	.4078	0.	.0132	0.	.0770	.3023	.8003	1322.81	1326.00	3.19
504	.00226	.8132	0.	.0066	0.	.0463	.0503	.9164	1322.92	1327.20	4.28
505	.00364	.1822	0.	0.	0.	0.	0.	.1822	1323.11	1327.30	4.19
506	.00694	1.7348	0.	.0104	0.	0.	.2403	1.9855	1324.79	1327.60	2.81
507	.00598	.2991	0.	.0231	0.	0.	.9598	1.2820	1326.07	1327.60	1.53
508	.00297	1.2186	0.	.0153	0.	.0267	.6045	1.8650	1327.94	1329.10	1.16
509	.00202	.1008	0.	0.	0.	0.	0.	.1008	1328.04	1329.10	1.06
510	.00519	1.2963	0.	.0110	0.	.1535	.3506	1.8114	1327.89	1330.10	2.21
511	.00230	.1151	0.	0.	0.	0.	0.	.1151	1328.00	1330.10	2.10
512	.00456	1.8682	0.	.1131	0.	.3450	-.3045	2.0218	1329.91	1331.50	1.59
513	.02028	1.0142	0.	0.	0.	0.	0.	1.0142	1330.92	1331.50	.58
500	.00571	2.4550	0.	0.	.0395	.3947	.0286	2.9178	1320.05	1323.50	3.45
400	.00300	1.2585	0.	.0363	0.	0.	.4422	1.7370	1317.13	1321.00	3.87
300	.00232	.7414	0.	.0116	0.	0.	.1692	.9222	1315.39	1319.60	4.21
200	.00275	1.8549	0.	.0201	0.	0.	.6884	2.5634	1314.47	1315.50	1.03
210	.00558	2.4569	0.	0.	.0303	.3027	.0280	2.8178	1319.22	1320.50	1.28
105	.00275	1.8549	0.	0.	.0375	0.	.0138	1.9062	1311.91	1312.80	.89
100	0.	0.	0.	0.	0.	0.	0.	0.	1310.00	1310.00	0.

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Date FEB 18, 1980 Page 1 of 9

Project OAK CLIFF SOUTHEAST AREA

Item 100-YEAR FLOOD ROUTING

NODE TO NODE	C	AREA A (Ac)	TIME OF CONCENTRATN Tc (MIN)	100-YEAR INTENSITY i_{100} (IN/HR)	100-YEAR FLOWRATE Q_{100} (CFS)	ST. SWR FLOWRATE Q_{SS} (CFS)	OVERLAND FLOWRATE Q_{OVER} (CFS)
204 TO 205	0.8	1.66	15.0	9.0	11.9	6.9	5.0
205 TO 207	0.8	2.20	15.4	8.9	15.6	9.1	6.5
206 TO 207	0.8	0.60	15.0	9.0	4.3	2.5	1.8
207 TO 209	0.8	0.87	15.9	8.8	6.1	3.6	2.6
208 TO 209	0.8	0.92	15.0	9.0	6.6	3.8	2.8
209 TO 210	0.8	1.20	16.3	8.7	8.3	4.9	3.5
210 TO 201	MANHOLE		16.5	N/A	N/A	N/A	N/A
203 TO 202	0.8	1.34	15.0	9.0	9.6	5.6	4.0
202 TO 201	0.8	1.21	15.4	8.9	8.6	5.0	3.6
201 TO 200	0.8	0.99	17.7	8.4	6.7	3.9	2.8
						ΣQ_{OVER}	32.6

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Date _____ Page 2 of 9

Project _____

Item _____

NODE TO NODE	C	AREA A (Ac)	TIME OF CONCENTRATN T_c (MIN)	100-YEAR INTENSITY i_{100} (IN/HR)	100-YEAR FLOWRATE Q_{100} (CFS)	STORM FLOWRATE Q_{33} (CFS)	OVERLAND FLOWRATE Q_{over} (CFS)
302 TO 301	0.8	2.57	15.0	9.0	18.4	10.7	7.7
301 TO 300	0.8	1.73	15.5	8.9	12.3	7.1	5.1
						ΣQ_{over}	12.9
406 TO 405	0.7	0.99	15.0	9.0	6.2	2.8	3.4
407 TO 405	0.7	1.82	15.0	9.0	11.4	5.2	6.3
405 TO 404	0.7	1.39	17.6	8.4	8.2	3.7	4.5
404 TO 402	0.7	2.35	18.4	8.3	13.6	6.2	7.5
403 TO 402	0.7	1.16	15.0	9.0	7.3	3.3	4.0
402 TO 401	0.7	1.71	18.9	8.2	9.8	4.5	5.4
401 TO 400	0.7	1.16	19.5	8.1	6.6	3.0	3.6
						ΣQ_{over}	34.6

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WICHITA, KANSAS
ZIP CODE / 67211

Date _____ Page 3 of 9

Project _____

Item _____

NODE TO NODE	C	AREA A (Ac)	TIME OF CONCENTRATN Tc (MIN)	100-YEAR INTENSITY i_{100} (IN/HR)	100-YEAR FLOWRATE Q_{100} (CFS)	2 1/2 YR FLOWRATE $Q_{2.5}$ (CFS)	OVERLAND FLOW RATE Q_{OVER} (CFS)
513 TO 512	0.5	4.52	15.0	9.0	20.3	9.2	11.1
512 TO 510	0.5	0.76	15.1	8.9	3.4	1.5	1.9
511 TO 510	0.5	1.55	15.0	9.0	7.0	3.1	3.8
510 TO 507	0.5	1.31	16.6	8.6	5.6	2.6	3.1
509 TO 508	0.5	1.44	15.0	9.0	6.5	2.9	3.5
508 TO 507	0.5	4.70	15.0	9.0	21.1	9.5	11.5
507 TO 506	0.5	1.72	17.5	8.4	7.3	3.3	4.0
506 TO 503	0.5	1.30	17.6	8.4	5.5	2.4	3.0
503 TO 501	0.5	1.55	18.2	8.3	6.4	2.9	3.5
505 TO 504	0.5	1.91	15.0	9.0	8.6	3.9	4.7
504 TO 501	0.5	0.52	15.3	8.9	2.3	1.1	1.3
502 TO 501	0.5	3.44	15.0	9.0	15.4	7.0	8.5
501 TO 500	0.5	1.04	18.3	8.3	4.3	1.9	2.4

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Date _____ Page 4 of 9

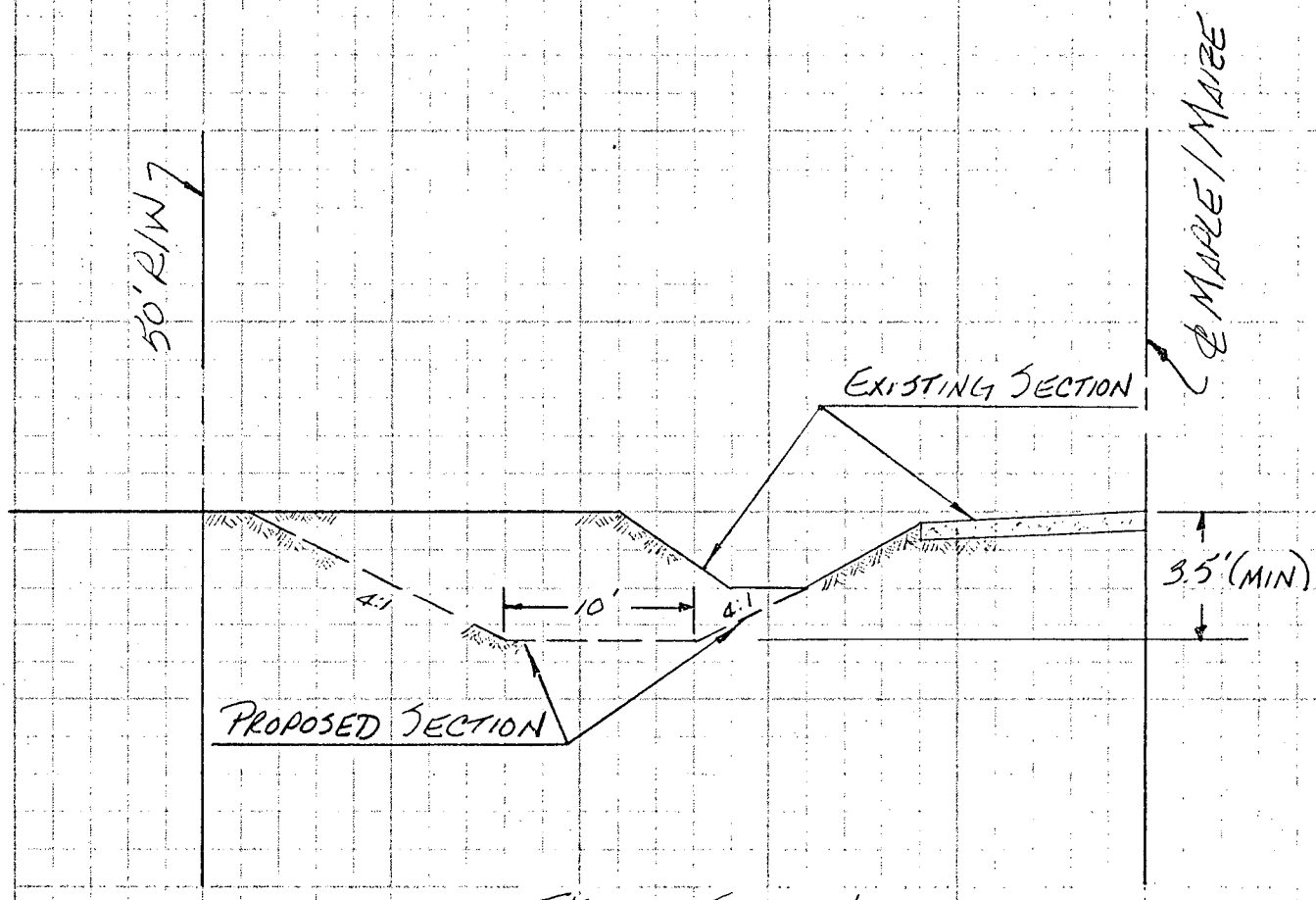
Project _____

Item _____

ΣQ OVER 62.3

DESIGN FLOW RATE IN ROAD DITCH

500 TO 400	62.3 CFS
400 TO 300	62.3 + 34.6 = 96.9 CFS
300 TO 200	96.9 + 12.9 = 109.8 CFS
200 TO CRC	109.8 + 32.6 = 142.4 CFS



TYPICAL SECTION

SCALE: H 1" = 10'
V 1" = 5'

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Date _____ Page 5 of 9

Project _____

Item _____

DEPTH OF FLOW IN ROAD DITCH (USING K&B HANDBOOK)

500 TO 400

$$S = \frac{1329.5 - 1326.0}{430} = 0.0058 \text{ FT/FT}$$

$B = 10.00 \text{ FT}$

$n = 0.035$

$$K' = \frac{Q_{DES}\, n}{b^{8/3}\, S^{1/2}} = \frac{(62.3)(0.035)}{(10.0)^{8/3}\,(0.0058)^{1/2}} = 0.0616$$

$D/b = 0.1303$

$D = (0.1303)(10.0) = 1.30 \text{ FT}$

400 TO 300

$$S = \frac{1326.0 - 1320.5}{420} = 0.0036 \text{ FT/FT}$$

$B = 10.0 \text{ FT}$

$n = 0.035$

$$K' = \frac{(96.9)(0.035)}{(10)^{8/3}\,(0.0036)^{1/2}} = 0.1223$$

$D/b = 0.1858$

$D = (0.1858)(10.0) = 1.86 \text{ FT}$

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WICHITA, KANSAS
ZIP CODE / 67211

Date _____ Page 6 of 9

Project _____

Item _____

300 TO 200

$$S = \frac{1320.5 - 1319.3}{320} = 0.0038$$

$B = 10.0$ FT

$n = 0.035$

$$K' = \frac{(109.8)(0.035)}{(10.0)^{8/3}(0.0038)^{1/2}} = 0.1352$$

$D/b = 0.1955$

$D = (0.1955)(10.0) = 1.95$ FT

200 TO CRC

$$S = \frac{1319.3 - 1316.39}{400} = 0.0073$$

$B = 10.0$ FT

$n = 0.035$

$$K' = \frac{(142.4)(0.035)}{(10.0)^{8/3}(0.0073)^{1/2}} = 0.1815 \quad .1248$$

$D/b = 0.2266 \quad .188$

$D = (0.2266)(10.0) = 2.27$ FT $\quad 1.88$ FT

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1440 EAST ENGLISH
WICHITA, KANSAS
ZIP CODE / 67211

Date FEB 20, 1980 Page 7 of 9

Project OAK CLIFF SOUTH EAST AREA

Item 100-YEAR FLOOD ROUTING

SUB BASIN	COEFFICIENT OF RUNOFF C	DRAINAGE AREA A (AC)	FALL THRU SUBBASIN H (FT)	LENGTH OF SUBBASIN L (FT)	TIME OF CONCENTRATN * T_c (MIN)	INTENSITY 100YR i_{100} (IN/HR)	INTENSITY 2YR i_2 (IN/HR)	OVERLAND FLOWRATE ≠ Q_{OVER} (CFS)
1	0.5	2.31	3.61	920	8.10	13.66	6.19	8.69
2	0.5	1.14	1.61	350	5.64	13.14	5.91	4.12
3	0.5	0.91	1.33	360	6.27	12.61	5.67	3.16
4	0.5	1.70	1.07	300	5.59	13.19	5.93	6.17
5	0.5	1.29	1.09	300	5.59	13.19	5.93	4.68
6	0.5	2.22	2.09	550	8.60	11.15	5.01	6.22
7	0.5	1.97	2.09	550	8.60	11.15	5.01	6.05
8	0.5	1.70	1.50	900	6.76	12.24	5.51	5.72
9	0.6	0.67	1.50	900	6.76	12.24	5.51	2.71
10	0.5	0.93	0.55	130	2.72	17.96	7.86	2.06
11	0.5	1.66	2.50	280	3.68	15.52	6.98	7.09
12	0.4	3.16	2.40	950	6.97	12.96	5.60	8.67
						Σ Q_{OVER}		65.94

* $T_c = \left[\frac{11.9\left(\frac{L}{5280}\right)^3}{H}\right]^{0.385} (60)$

$I_2 = 11.6(T_c)^{-0.89}$

$I_{100} = 25.8(T_c)^{-0.89}$

≠ $Q_{OVER} = C(i_{100} - i_2)A$

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1440 EAST ENGLISH
WICHITA, KANSAS
ZIP CODE / 67211

Date Feb 20, 1980 Page 8 of 9

Project OAK CLIFF S.E. Area

Item 100-Yr FLOOD ROUTING

North Area to CRC

$Q_{over} = 65.99$

$S = \frac{20.5 - 16.39}{675} = .00609$ ~~.0039~~

$B = 10$ ft

$n = .035$

$K' = \frac{(65.94)(.035)}{(10.0)^{8/3}(.00609)^{1/2}} = .0647$ ~~.0475~~

$D/b = .499$ ~~.134~~

$D = (10.0)(.499) = 1.34$ ft ~~1.499 ft~~

$Q_{(over)TOT} = 208.34$ cfs

2x7 Box

$H_f/D = 1.98$

$H_f = 5.94$ ft ~6.0

1316.39 + 6.0 = 1322.39

1321.44 - 1316.39 = 5.05

$H_f/D = 1.7$

$Q/ND = 26.5$

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1440 EAST ENGLISH
WICHITA, KANSAS
ZIP CODE / 67211

Date _____ Page 9 of 9

Project _____

Item _____

$Q_{allowable} = (26.5)(7) = 185.5$

$Q_{excess} = 208.34 - 185.5 = 22.84$ cfs

Memo to file

2-26-80

Subject: Oakcliff Estates

Gen comments

1. Prior to topping intersection a: Maple & Maize, 7x3 box structure just north of Maple in Maize may pass only 133 cfs by inlet control

2. Based on field information obtained from county the existing ditch on the east side of Maize just north of Maple may pass 178 cfs

3. Apparently existing structures or utilities prevented the continuation of the ditch on the north side of Maple to reach Cowskin. As a corrective measure a majority of the flow is diverted south via a 48" culvert crossing Maple. This structure has a reverse grade of 0.4% however allowing for 1' freeboard it allows 115 cfs to pass

4. Was informed by Phil Dietrich of the county that he thinks a waterline is existing in the ditch north of Maple

5. A floodway should be designated for the SW corner of the plat

6. An additional 40 acres is being drained into the floodway conveyance system leaving Westlink Village 8th Addn via a 4'x4' RCBC crossing Maple

℄ Rd = 1331.17 − ℄ box 1325.03 = 6.14'
minus 1' freeboard = 5.14'

Oakcliff Estates (cont.)
structure crossing Maple just east of Westlink Village 18th
Allowing 30-75° wingwalls

HW/D = 5.14/4 = 1.28

Q/B = 31.5 ∴ Q = 31.5 (4) = 126 cfs

Previously the flow coming from Westlink Village 18th was not addressed or designed to pick up this addn 40 acres. What effect will result in Hidden Lakes. Need info on same

7. Due to existing problems in Maple Gardens, The Delf etc detention may be necessary

8. Due to flood hazard area in NE section addn mini. pond requirements are necessary.

9. Need info on drainage occurring in SWS in westerly section

10. Need info on subbasins called out

11. Unable to follow drainage scheme because over half of nodes are unnamed

12. No info provided on length, slope, flow line of Q2 storm sewer going east. May experience a problem in running storm water sewer to southern

13.

3/30/80 Copy to Yash DeSai