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

October 1, 1982

Bill G. Yung Design
8225 E. 35th Street North
Wichita, Kansas 67226

Re: S/D 82-56 - Preliminary plat of Northbrook

Dear Mr. Yung:

At the regular meeting of the Subdivision Committee of the Metropolitan Area Planning Commission on September 30, 1982, the above-captioned case was considered. The action of the Subdivision Committee was to approve the plat subject to the following:

A. Prior to or at the time of submitting a final plat, the applicant shall submit a drainage plan for the entire area of the Northbrook Community Unit Plan. Prior to preparation of this drainage plan, the applicant or his agent shall meet with City Engineering to discuss the particulars of the required drainage study for this property. Should the drainage information that is submitted not coincide with the design of this preliminary plat, a revised preliminary plat will be required.

B. The applicant shall guarantee extension of sanitary sewer to serve all the lots being platted.

C. The applicant shall guarantee extension of municipal water to serve all the lots being platted.

D. The applicant shall guarantee the paving of the interior streets and the decel lane on Woodlawn.

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

F. 40th Street North shall be labeled on the final plat as 39th Street North and Tray and Tray Circle shall be labeled as 40th Street North and 40th Street North Circle.

G. In accordance with the City's sidewalk ordinance and the Subdivision Regulations, sidewalks will be guaranteed on both sides of 39th Street North, the east side of Cranberry, the north side of 40th Street North,

and the west side of Bayberry.

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

I. A covenant providing for 4 off-street parking spaces per dwelling unit for Lots 53 thru 61 shall be submitted for recording. Since these are duplex lots, 8 parking spaces per lot will be required if duplexes are built.

J. The final plat shall specify the purposes of the proposed reserves and who is to own and maintain them. The applicant shall submit a restrictive covenant providing for the ownership and continued maintenance of the Reserves. The covenant shall contain a provision which gives the City the authority to maintain the reserves and charge the costs to the owner(s) in the event the owner(s) fail to maintain them.

K. Some access to the large reserve needs to be provided. It is recommended that the 50-foot pipeline easement between Lots 47 and 48 become a part of the reserve. The area between Lots 36 and 37 where existing drainage water flow may also need to be a part of the reserve. This will depend upon the drainage plan and proposed drainage improvements.

L. Prior to submitting a final plat, the applicant or his agent shall meet with the Planning Department regarding access to the unplatted tract adjacent to the north line of Lots 25-29, Block 1.

M. It is recommended that Lot 20, Block 2 be redesigned to provide more access to the utility easement.

N. Where building setbacks are designated on a C. U.P., they usually are not platted. If the applicant wishes to plat the setbacks, his agent should contact the Planning Department prior to preparing the final plat.

O. The applicant shall provide proof, by letter from the pipeline company or by copy of the pipeline easement agreement, that a dedication of street right-of-way over a portion of the pipeline easement, and the platting of a 50-foot building setback from the center of the easement, is acceptable. Any relocation or lowering of the pipeline within the easement will not be at the expense of the City or County.

P. 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.

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

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

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

Sincerely,

Forrest L. Nagley

Forrest L. Nagley
Junior Planner

FLN:bh

cc: Ken Bengston, Mid-Kansas Engineering Consultants, 260 N. Rock Rd., Suite 245, 67206
William L. Oliver, Jr., 8 Lakeside Blvd., 67207
Land Office, Attention: Phil Snodgrass, 6416 E. Central, 67206
Mike Lindebak, City Engineering

October 28, 1982

Mr. R. W. Bruggeman, P.E.
Director of Engineering
City of Wichita
455 North Main
Wichita, Kansas 67202

Re: Northbrook Drainage

Dear Mr. Bruggeman:

Enclosed herewith is a brief report on the hydrologic design considerations for Northbrook C.U.P. as requested in the Subdivision Committee meeting of the Metropolitan Area Planning Commission of September 30, 1982.

As stated in the report we will be following up with a detailed grading and drainage plan for Northbrook prior to submitting the final plat.

Should you or your staff have any questions regarding the enclosed material please feel free to call on us.

Very truly yours,

Mid-Kansas Engineering Consultants

Kenneth H. Bengtson
President

cc: Mike Lindebak
Chris Breitenstein

MID-KANSAS ENGINEERING CONSULTANTS PA
682-6561
260 N. ROCK ROAD SUITE 2
WICHITA, KANSAS 67

HYDROLOGY STUDY FOR NORTHBROOK

The purpose of this study is to show the hydrologic impact of the east fork of Chisholm Creek on the planned development of Northbrook as illustrated in the approved C.U.P. and to set forth reasons for why a detention facility need not be constructed as part of the improvements guaranteed with the platting of the land encompassed by said C.U.P.

The routing of a flood through a detention reservoir changes the pattern of flow with time without changing the quantity of water. The purpose then is to reduce and delay the peak flow from any given storm event.

In a drainage basin such as illustrated in figure "A" a large percentage of the land remains undeveloped and in essence has a "natural" detention system built in because of farm ponds and undersized culverts under roads and railroad beds such as the MOPAC. As the basin develops, the most logical placement of detention facilities would be in the upper regions for drainage subbasins of one square mile or less. Otherwise, the size and cost of the detention facility becomes prohibitive. Also, if the policy of detention is practiced or required through the basin without extreme care, the net effect could be to actually increase the impact of a storm on the downstream user. A case in point would be Northbrook; any detention on such a small tract of land in relationship to the large contributing basin of which it is a part would only cause the peak discharge of Northbrook to be added to a rising flow for the entire basin.

Though we feel the material following adequately answers the hydrologic questions regarding Northbrook we would recommend that the following be done for the east fork of Chisholm Creek:

1. Detention be practiced in the upper regions of the subbasin for areas of less than one square mile.

2. That an area down stream of significant size be designated for a detention reservoir if any meaningfull impact be established for this branch of Chisholm Creek.

3. That a study of the entire basin be considered for the final configuration and use of the flood prone areas.

Design Criteria for Northbrook:

The following criteria was used to establish the C.U.P. and preliminary plat for Northbrook:

1. FEMA Peak Discharge for 100-year storm event.

2. Existing flow quantity (and control structures) from the north would be unchanged.

3. No "detention" facilities would be constructed as a part of Northbrook.

4. Increased runoff from improvements with the Northbrook C.U.P. would be monitored by the existing or an improved structure under 37th Street North.

Scope:

Develop Water Surface Profile through the land proposed to be developed.

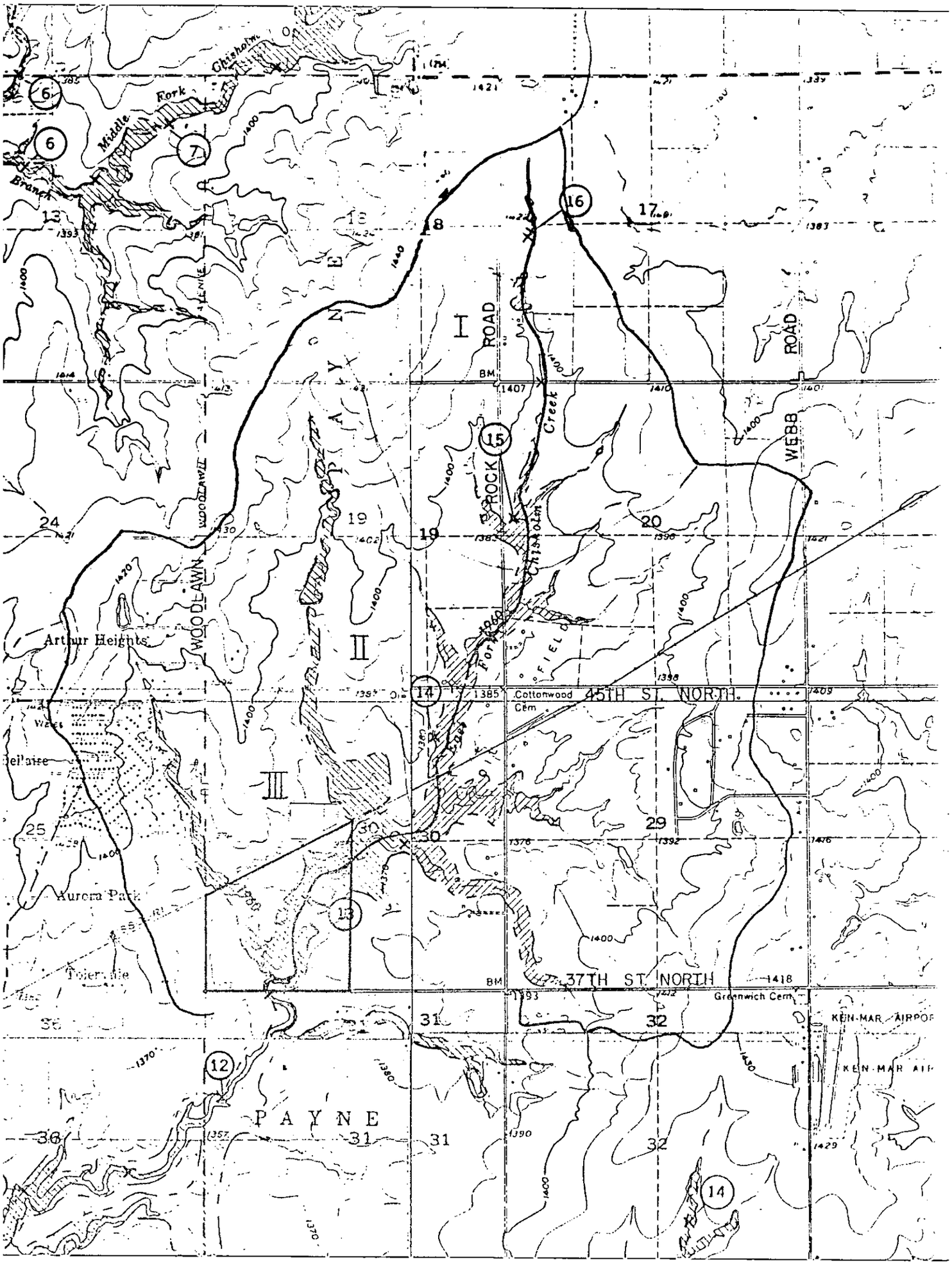
Develop rough grading plan for Northbrook

Discussion of Scope:

The water surface profile for the east branch of Chisholm Creek was developed using the HEC-2 Water Surface Profile computer program developed by the U.S. Army Corp of Engineers. The existing profile was made available to us through the Sedgwick County Department of Public Works and has been copied "as is" in appendix "A". We have also included a copy of the output data discription for easy reference.

In early 1981 Mr. M.S. Mitchell plotted the regulatory flood on cross sections at various intervals through the proposed C.U.P. The improvements shown on the section reflect areas that can be cut and filled and still comply with federal regulations regarding the limitations of work within a flood plain and not changing the water surface profile by more than one foot.

The preliminary plat for Northbook uses reserves and floodways to protect the regulatory floodways. A grading plan with pad elevations will be submitted with the final plat to be used as an adminstrative tool to guide future builders in establishing home sites and finished lot grades.


Middle Fork
Branch
Chisholm Creek
WOODLAWN AVENUE
PAYNE AVENUE
ROCK ROAD
WEBB ROAD
I
II
III
Arthur Heights
Aurora Park
Cottonwood Cem.
45TH ST. NORTH
37TH ST. NORTH
Greenwich Cem.
KEN-MAR AIRPORT
PAYNE
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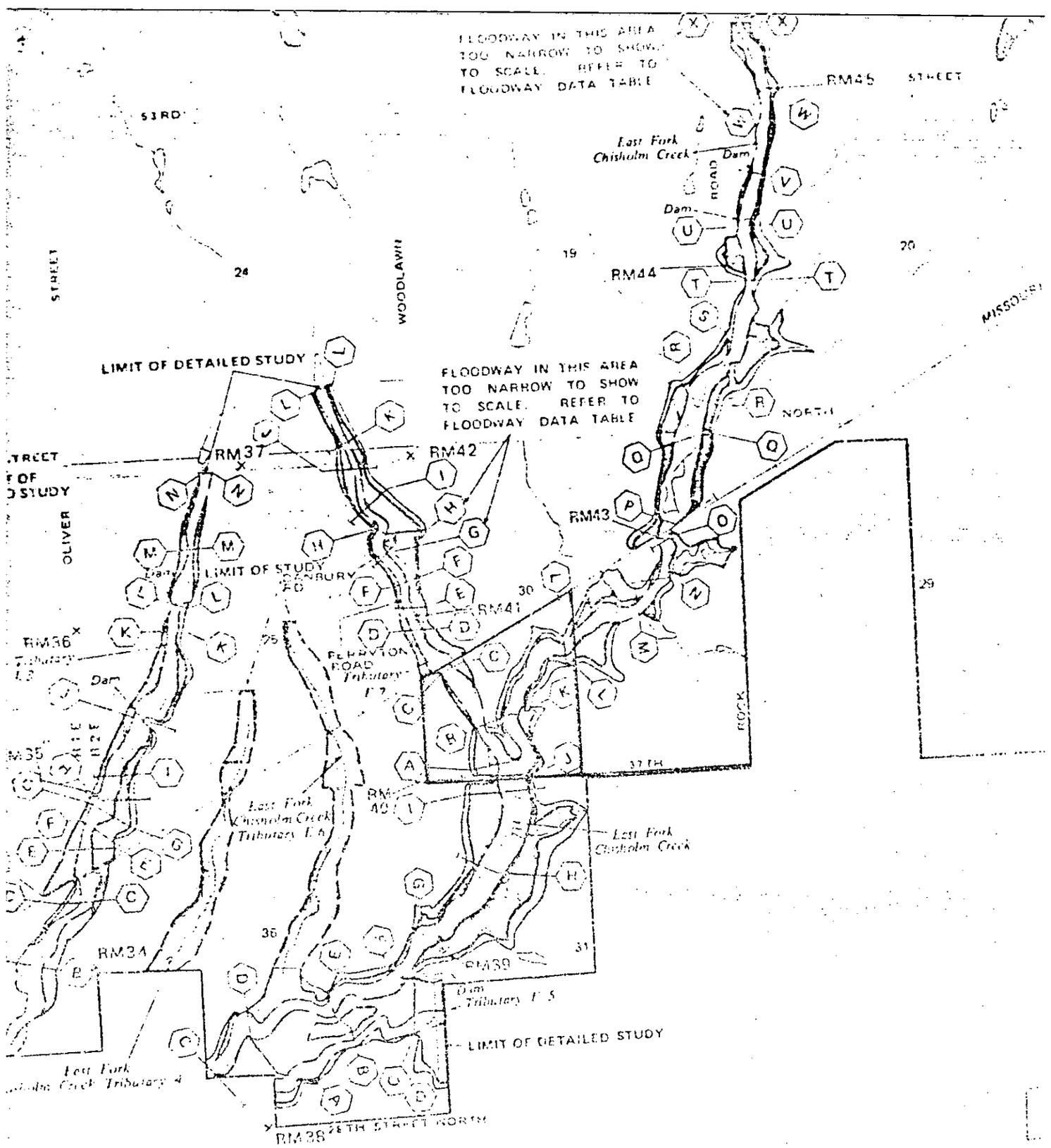
APPENDIX A


FLOODWAY IN THIS AREA TOO NARROW TO SHOW TO SCALE. REFER TO FLOODWAY DATA TABLE
RM45
53RD STREET
East Fork Chisholm Creek Dam
ROAD
Dam
RM44
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LIMIT OF DETAILED STUDY
FLOODWAY IN THIS AREA TOO NARROW TO SHOW TO SCALE. REFER TO FLOODWAY DATA TABLE
RM37
RM42
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RM41
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PERRYTON ROAD Tributary
RM35
East Fork Chisholm Creek Tributary
RM40
East Fork Chisholm Creek
37TH
ROCK
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RM34
RM39
Dam Tributary
LIMIT OF DETAILED STUDY
RM38
28TH STREET NORTH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
EAST FORK CHISOLM CREEK								
A	8.98	1160	3351	1.8	1339.5	1339.5	1340.4	0.9
B	9.13	1150	3710	1.6	1340.1	1340.1	1340.7	0.6
C	10.67	180	767	4.9	1349.9	1349.9	1349.9	0.0
D	10.90	292	1595	2.3	1351.9	1351.9	1352.1	0.2
E	11.24	186	1088	3.2	1353.3	1353.3	1353.7	0.4
F	11.56	242	1463	2.4	1354.7	1354.7	1355.2	0.5
G	11.72	386	1391	2.5	1356.9	1356.9	1357.8	0.9
H	12.02	472	2199	1.6	1359.9	1359.9	1360.5	0.6
I	12.32	403	1781	1.9	1361.0	1361.0	1361.5	0.5
J	12.38	399	2652	1.3	1362.1	1362.1	1362.6	0.5
K	12.61	250	1681	1.6	1362.3	1362.3	1362.9	0.6
L	12.97	147	864	3.3	1363.2	1363.2	1363.5	0.3
M	13.31	87	543	5.1	1365.7	1365.7	1366.2	0.5
N	13.43	168	959	2.9	1366.9	1366.9	1367.4	0.5
O	13.60	117	613	4.5	1367.7	1367.7	1368.2	0.5
P	13.69	475	4280	0.6	1376.2	1376.2	1376.7	0.5
Q	13.99	504	3285	0.3	1376.2	1376.2	1376.7	0.5
R	14.14	368	1843	0.5	1376.3	1376.3	1376.8	0.5
S	14.29	187	638	1.5	1376.4	1376.4	1376.9	0.5
T	14.62	61	156	6.1	1378.2	1378.2	1378.8	0.6
U	14.62	151	401	2.4	1383.3	1383.3	1383.4	0.1
V	15.00	133	366	2.6	1388.9	1388.9	1389.6	0.7
W	15.28	54	115	8.3	1394.5	1394.5	1394.8	0.3
X	15.53	80	131	7.3	1401.9	1401.9	1402.4	0.5

[1]MILES ABOVE MOUTH

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

COUNTY OF SEDGWICK, KS
(UNINCORPORATED AREAS)

FLOODWAY DATA

EAST FORK CHISHOLM CREEK

TABLE 2: SUMMARY OF DISCHARGES (continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
PARK CITY TRIBUTARY					
Interstate Highway 135	0.8	490	720	830	1,090
Above mouth of Tributary P2	0.2	320	460	540	780
TRIBUTARY P2					
At confluence with Park City Tributary	0.5	300	440	510	670
WEST FORK CHISHOLM CREEK					
At confluence with Chisholm Creek	8.3	2,710	4,930	6,040	9,250
MIDDLE FORK CHISHOLM CREEK					
Broadway	13.4	3,280	5,000	5,000	5,000
Above mouth of Tributary M1	11.7	2,990	5,280	6,190	8,920
53rd Street North	9.5	2,580	4,570	5,360	7,720
TRIBUTARY M1					
At confluence with Middle Fork Chisholm Creek	1.6	1,160	2,110	2,580	3,900
Hydraulic Avenue	1.1	950	1,740	2,120	3,230
EASTFORK CHISHOLM CREEK					
Below Cross Section D	6.2	1,820	3,200	3,740	5,500
Above Cross Section D	5.5	1,670	2,940	3,440	5,060
Above confluence with Tributary E7	4.0	1,350	2,370	2,770	4,070
45th Street North	1.6	460	810	950	1,390

TABLE 2: SUMMARY OF DISCHARGES (continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
TRIBUTARY E1					
33rd Street North	1.4	1,110	2,010	2,460	3,700
Hillside Avenue	1.0	890	1,610	1,970	3,000
TRIBUTARY E3					
At confluence with East Fork Chisholm Creek	1.0	890	1,610	1,970	3,000
37th Street North	0.5	610	1,120	1,360	2,100
TRIBUTARY E5					
At confluence with East Fork Chisholm Creek	3.0	1,110	1,940	2,280	3,340
TRIBUTARY E7					
At confluence with East Fork Chisholm Creek	0.6	720	1,300	1,580	2,400
Perryton Street	0.4	600	1,090	1,320	2,000
MIDDLE BRANCH GYPSUM CREEK					
City of Wichita corporate limits	3.2	1,690	3,070	3,750	5,700
FOURMILE CREEK					
County line	12.6	3,380	5,100	5,920	7,900
Above mouth of Brookhaven Creek	8.4	2,370	3,540	4,100	5,400
Above mouth of West Fork Fourmile Creek	2.2	940	1,410	1,630	2,180

...ON BER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE %CFS<	CWSEL	TQ	EG	TOPWID	STENCL	STENCR	WSELK	
11.79	62.00	0.0	0.0	1348.60	3440.00	1359.42	1606.31	1359.48	563.60	0.0	0.0	0.0	
11.79	62.00	0.0	0.0	1348.60	3440.00	1360.06	1661.14	1360.12	321.95	10342.79	10670.00	1359.42	
11.79	62.00	0.0	0.0	1348.60	3440.00	1360.32	1681.07	1360.39	283.86	10381.93	10670.00	1359.42	
11.79	62.00	0.0	0.0	1348.60	3440.00	1360.63	1721.95	1360.70	256.93	10410.07	10670.00	1359.42	
12.02	1230.00	0.0	0.0	1348.40	3440.00	1359.92	1922.02	1359.96	983.68	0.0	0.0	0.0	Min Elev 1348.4 @
12.02	1230.00	0.0	0.0	1348.40	3440.00	1360.53	1961.50	1360.57	471.62	9803.38	10275.00	1359.92	10135
12.02	1230.00	0.0	0.0	1348.40	3440.00	1360.79	1981.51	1360.83	395.10	9879.90	10275.00	1359.92	90' Rt 381.62 LT
12.02	1230.00	0.0	0.0	1348.40	3440.00	1361.08	2014.33	1361.13	338.12	9936.88	10275.00	1359.92	
12.12	520.00	0.0	0.0	1349.60	3440.00	1360.12	1232.29	1360.22	786.51	0.0	0.0	0.0	
12.12	520.00	0.0	0.0	1349.60	3440.00	1360.72	1244.44	1360.83	214.73	10060.27	10275.00	1360.12	
12.12	520.00	0.0	0.0	1349.60	3440.00	1360.97	1249.80	1361.09	150.00	10125.00	10275.00	1360.12	
12.12	520.00	0.0	0.0	1349.60	3440.00	1361.26	1318.09	1361.36	150.00	10125.00	10275.00	1360.12	
12.22	520.00	0.0	0.0	1350.80	3440.00	1360.60	931.81	1360.76	545.39	0.0	0.0	0.0	
12.22	520.00	0.0	0.0	1350.80	3440.00	1361.17	1020.90	1361.32	150.00	10125.00	10275.00	1360.60	
12.22	520.00	0.0	0.0	1350.80	3440.00	1361.41	1073.76	1361.55	150.00	10125.00	10275.00	1360.60	
12.22	520.00	0.0	0.0	1350.80	3440.00	1361.65	1128.48	1361.78	150.00	10125.00	10275.00	1360.60	
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.00	1989.61	1361.07	938.70	0.0	0.0	0.0	Min Elev
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.53	1997.48	1361.60	403.15	10128.00	10531.15	1361.00	1351.70 @ 10,208
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.73	1999.63	1361.82	339.30	10128.00	10467.30	1361.00	323.15 Rt 80' LT
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.95	2006.11	1362.04	305.39	10128.00	10433.39	1361.00	
12.35	191.00	0.0	0.0	1350.70	3440.00	1361.08	3308.25	1361.11	969.27	0.0	0.0	0.0	
12.35	191.00	0.0	0.0	1350.70	3440.00	1361.62	3344.97	1361.65	695.20	10629.63	11324.82	1361.08	
12.35	191.00	0.0	0.0	1350.70	3440.00	1361.84	3218.51	1361.87	608.13	10630.00	11238.13	1361.08	
12.35	191.00	0.0	0.0	1350.70	3440.00	1362.06	3223.27	1362.09	536.54	10630.00	11166.54	1361.08	
12.35	90.00	0.0	0.0	1350.70	3440.00	1362.12	4763.08	1362.13	1183.77	0.0	0.0	0.0	
12.35	90.00	0.0	0.0	1350.70	3440.00	1362.65	4808.64	1362.67	750.89	10620.78	11371.68	1362.12	
12.35	90.00	0.0	0.0	1350.70	3440.00	1362.88	4654.12	1362.89	705.25	10630.00	11335.25	1362.12	
12.35	90.00	0.0	0.0	1350.70	3440.00	1363.09	4663.70	1363.11	643.49	10630.00	11273.49	1362.12	
12.38	44.00	0.0	0.0	1351.00	3440.00	1362.11	2727.58	1362.14	597.91	0.0	0.0	0.0	Min Elev 1351 @ 10,296
12.38	44.00	0.0	0.0	1351.00	3440.00	1362.65	2730.02	1362.68	398.61	10243.00	10641.61	1362.11	345.61 Rt 53 LT
12.38	44.00	0.0	0.0	1351.00	3440.00	1362.87	2738.27	1362.91	371.46	10243.00	10614.46	1362.11	
12.38	44.00	0.0	0.0	1351.00	3440.00	1363.09	2742.76	1363.13	346.54	10243.00	10589.54	1362.11	
12.43	280.00	0.0	0.0	1352.30	2770.00	1362.17	2360.26	1362.19	1126.37	0.0	0.0	0.0	
12.43	280.00	0.0	0.0	1352.30	2770.00	1362.70	2378.69	1362.72	371.71	10000.00	10377.96	1362.17	
12.43	280.00	0.0	0.0	1352.30	2770.00	1362.93	2387.19	1362.95	324.46	10000.00	10330.46	1362.17	
12.43	280.00	0.0	0.0	1352.30	2770.00	1363.14	2395.98	1363.17	291.55	10000.00	10297.30	1362.17	
12.61	950.00	0.0	0.0	1353.00	2770.00	1362.34	1555.95	1362.39	438.04	0.0	0.0	0.0	
12.61	950.00	0.0	0.0	1353.00	2770.00	1362.66	1764.72	1362.90	250.00	10200.00	10450.00	1362.34	Min Elev 1353 @ 10,285
12.61	950.00	0.0	0.0	1353.00	2770.00	1363.07	1857.73	1363.11	250.00	10200.00	10450.00	1362.34	167' Rt 83' LT
12.61	950.00	0.0	0.0	1353.00	2770.00	1363.29	1951.74	1363.33	250.00	10200.00	10450.00	1362.34	

1354.400	10165.000	1349.400	10215.000	1350.400	10225.000	1352.400	10140.000	1351.100	10150.000
1354.400	10265.000	1356.400	10275.000	1357.400	10300.000	1358.400	10315.000	1353.400	10265.000
1360.400	10370.000	1361.400	10420.000	1362.400	10475.000	1363.400	10495.000	1359.400	10320.000
1365.400	10545.000	1366.400	10625.000	1367.400	10695.000	0.0	0.0	1364.400	10515.000
								0.0	0.0
12.120	0.0	0.0	0.0	490.000	430.000	520.000	0.0	1.200	0.0
12.220	0.0	0.0	0.0	490.000	430.000	520.000	0.0	1.200	0.0
0.045	0.045	0.035	0.300	0.500	0.0	0.0	0.0	0.0	0.0
12.320	29.000	10128.000	10249.000	490.000	430.000	520.000	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1367.400	9620.000	1366.400	9690.000	1365.400	9750.000	1364.400	9780.000	1363.400	9900.000
1362.500	9950.000	1362.500	10000.000	1362.100	10100.000	1360.900	10128.000	1356.000	10155.000
1355.500	10170.000	1351.800	10178.000	1351.700	10208.000	1352.000	10233.000	1360.400	10249.000
1360.500	10264.000	1357.900	10284.000	1357.600	10438.000	1359.200	10522.000	1359.600	10700.000
1359.600	11000.000	1360.400	11040.000	1361.400	11080.000	1362.400	11115.000	1363.400	11180.000
1364.400	11250.000	1365.400	11320.000	1366.400	11370.000	1367.400	11420.000	0.0	0.0
12.353	17.000	10630.000	10679.000	191.000	191.000	191.000	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	0.0	0.0	1359.100	1359.100	0.0
1366.400	10072.000	1365.400	10142.000	1364.400	10202.000	1363.400	10232.000	1362.400	10352.000
1361.500	10402.000	1361.100	10552.000	1359.900	10580.000	1355.000	10607.000	1354.500	10622.000
1350.700	10630.000	1350.700	10679.000	1356.900	10701.000	1356.600	10890.000	1358.200	10974.000
1358.600	11452.000	1370.000	11772.000	0.0	0.0	0.0	0.0	0.0	0.0
1.250	1.600	2.700	0.0	32.000	10.000	252.000	1.020	0.0	0.0
12.355	0.0	0.0	0.0	90.000	90.000	90.000	0.0	0.0	0.0
0.0	0.0	1.000	1359.000	1359.300	0.0	0.0	0.0	0.0	0.0
10.000	0.0	0.0	0.0	0.0	0.0	0.0	1359.300	1360.000	0.0
15.000	10072.000	1365.400	0.0	10142.000	1365.400	0.0	10202.000	1364.400	0.0
10232.000	1363.400	0.0	10352.000	1362.400	0.0	10402.000	1361.500	0.0	10552.000
1361.100	0.0	10580.000	1359.900	0.0	10607.000	1359.300	0.0	10622.000	1359.600
0.0	10630.000	1360.000	0.0	10679.000	1360.000	0.0	10701.000	1360.600	0.0
10890.000	1362.500	0.0	10974.000	1363.300	0.0	11452.000	1369.000	0.0	0.0
0.055	0.060	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.380	33.000	10243.000	10326.000	44.000	44.000	44.000	0.0	0.0	0.0
1366.400	9490.000	1367.400	9520.000	1366.400	9590.000	1365.400	9740.000	1364.400	9840.000
1364.400	10000.000	1363.200	10100.000	1361.500	10200.000	1360.300	10243.000	1352.900	10263.000
1351.000	10296.000	1352.100	10314.000	1357.400	10326.000	1355.700	10436.000	1356.900	10486.000
1356.900	10695.000	1359.600	10709.000	1360.200	10740.000	1362.900	10770.000	1363.600	10800.000
1364.600	11009.000	1364.700	11060.000	1364.900	11120.000	1365.500	11171.000	1366.000	11296.000
1365.500	11302.000	1365.500	11320.000	1366.300	11417.000	1367.200	11425.000	1369.900	11520.000
1370.700	11693.000	1373.300	11708.000	1374.200	11720.000	0.0	0.0	0.0	0.0
0.050	0.060	0.060	0.100	0.300	0.0	0.0	0.0	0.0	0.0
4.000	1350.000	2370.000	2770.000	4070.000	0.0	0.0	0.0	0.0	0.0
12.430	21.000	10000.000	10207.000	290.000	260.000	280.000	0.0	0.0	0.0
1373.400	9880.000	1372.400	9710.000	1370.400	9820.000	1369.400	9880.000	1368.400	9945.000
1356.200	10000.000	1355.000	10015.000	1352.700	10018.000	1352.300	10045.000	1352.700	10074.000
1354.100	10085.000	1353.500	10110.000	1352.300	10182.000	1359.900	10206.000	1359.900	10207.000
1357.700	10211.000	1359.100	10330.000	1358.800	10430.000	1361.400	10515.000	1361.400	11080.000
1367.400	11500.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.045	0.045	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE %CFS<	CWSEL	TQ	EG	TOPWID	STENCL	STENCR	WSELK	
	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.17	877.53	1363.30	277.80	0.0	0.0	0.0	
L	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.55	843.35	1363.72	147.18	10287.82	10435.00	1363.17	Min 1352.8 @ 10,409
	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.70	849.81	1363.88	137.13	10297.88	10435.00	1363.17	28' Rt 121.19 Lt
	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.87	834.96	1364.06	125.71	10309.29	10435.00	1363.17	
	13.31	1800.00	0.0	0.0	1356.90	2770.00	1365.70	518.07	1366.02	249.73	0.0	0.0	0.0	
M	13.31	1800.00	0.0	0.0	1356.90	2770.00	1366.16	523.07	1366.57	86.80	10232.88	10319.68	1365.70	Min 1356.9 @ 10,291
	13.31	1800.00	0.0	0.0	1356.90	2770.00	1366.34	509.54	1366.77	80.98	10236.96	10317.94	1365.70	28.49 Rt 58.12 Lt
	13.31	1800.00	0.0	0.0	1356.90	2770.00	1366.56	512.45	1367.00	76.08	10240.79	10316.88	1365.70	
	13.43	630.00	0.0	0.0	1358.70	2770.00	1366.86	914.37	1366.95	302.61	182.50			
N	13.43	630.00	0.0	0.0	1358.70	2770.00	1367.37	915.73	1367.50	168.29	0.0	0.0	0.0	
	13.43	630.00	0.0	0.0	1358.70	2770.00	1367.58	913.72	1367.72	156.13	10064.00	10246.50	1366.86	Min 1358.70 @ 10,190
	13.43	630.00	0.0	0.0	1358.70	2770.00	1367.80	916.09	1367.95	146.32	10064.00	10233.75	1366.86	56.5' Rt 126' Lt
	13.60	900.00	0.0	0.0	1359.40	2770.00	1367.71	558.97	1368.01	191.55	10064.00	10223.33	1366.86	
O	13.60	900.00	0.0	0.0	1359.40	2770.00	1368.22	570.05	1368.57	116.80	0.0	0.0	0.0	
	13.60	900.00	0.0	0.0	1359.40	2770.00	1368.44	564.99	1368.81	108.73	10257.69	10374.49	1367.71	Min 1359.4 @ 10,220
	13.60	900.00	0.0	0.0	1359.40	2770.00	1368.65	567.95	1369.04	101.65	10262.21	10370.94	1367.71	51.99 Rt 62.31 Lt
											10265.80	10367.46	1367.71	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1367.75	383.48	1368.21	173.59	0.0	0.0	0.0	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1368.23	381.60	1368.80	105.48	10236.88	10342.36	1367.75	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1368.45	384.88	1369.04	96.36	10242.51	10338.87	1367.75	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1368.66	385.64	1369.28	88.60	10247.00	10335.60	1367.75	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1376.17	6234.41	1376.18	1295.05	0.0	0.0	0.0	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1376.65	6223.83	1376.66	633.13	9851.50	10484.63	1376.17	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1376.87	6247.07	1376.88	575.91	9880.04	10455.95	1376.17	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1377.08	6244.16	1377.08	530.34	9903.59	10433.93	1376.17	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1376.17	6228.23	1376.18	1294.32	0.0	0.0	0.0	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1376.65	6217.49	1376.66	631.46	9852.29	10483.75	1376.17	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1376.87	6241.48	1376.88	574.55	9880.71	10455.27	1376.17	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1377.08	6232.77	1377.08	529.17	9904.18	10433.35	1376.17	
	13.69	400.00	0.0	0.0	1363.80	2770.00	1376.18	5382.54	1376.18	839.11	0.0	0.0	0.0	
P	13.69 ✓	400.00	0.0	0.0	1363.80	2770.00	1376.66	5352.44	1376.66	474.89	9968.87	10443.76	1376.18	Min Elev @ 10,380
	13.69	400.00	0.0	0.0	1363.80	2770.00	1376.88	5362.89	1376.88	440.47	9985.71	10426.19	1376.18	1362.9
	13.69	400.00	0.0	0.0	1363.80	2770.00	1377.08	5312.02	1377.09	418.27	10001.73	10420.00	1376.18	63.76 Rt 411.19 Lt
	13.71	110.00	0.0	0.0	1366.50	2770.00	1376.17	3173.69	1376.19	775.44	0.0	0.0	0.0	
	13.71	110.00	0.0	0.0	1366.50	2770.00	1376.65	3154.48	1376.67	406.30	9944.40	10350.70	1376.17	
	13.71	110.00	0.0	0.0	1366.50	2770.00	1376.87	3168.50	1376.89	372.11	9958.47	10330.58	1376.17	
	13.71	110.00	0.0	0.0	1366.50	2770.00	1377.07	3163.63	1377.10	346.88	9970.38	10317.26	1376.17	
	13.99 ✓	1480.00	0.0	0.0	1364.90	950.00	1376.23	3517.58	1376.23	834.29	0.0	0.0	0.0	
Q	13.99	1480.00	0.0	0.0	1364.90	950.00	1376.72	3501.99	1376.72	503.89	10074.89	10578.78	1376.23	Min Elev @ 10,302
	13.99	1480.00	0.0	0.0	1364.90	950.00	1376.94	3517.41	1376.94	460.05	10097.37	10557.42	1376.23	1264.9
					1364.90	950.00	1377.14	3525.79	1377.15	428.79	10110.24	10539.04	1376.23	226.7 Rt 227.1 Lt

	1370.000	9480.000	1362.400	10000.000	1362.200	10100.000	1361.800	10200.000	1357.400	10230.000
	1354.200	10273.000	1353.500	10280.000	1353.000	10283.000	1353.500	10286.000	1354.300	10289.000
	1354.900	10355.000	1356.600	10425.000	1362.000	10450.000	1363.400	10530.000	1367.400	10650.000
	4.000	0.045	10300.000	0.050	10402.000	0.045	10435.000	0.050	10890.000	0.0
	12.970	16.000	10402.000	10435.000	1400.000	1900.000	1900.000	0.0	0.0	0.0
	1370.000	10030.000	1364.800	10100.000	1362.000	10200.000	1359.600	10300.000	1356.300	10402.000
	1354.000	10465.000	1352.800	10409.000	1354.000	10412.000	1356.100	10415.000	1356.800	10425.000
	1363.000	10435.000	1364.600	10443.000	1364.400	10530.000	1364.000	10630.000	1366.600	10730.000
	1370.000	10890.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.050	0.050	0.055	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.310	15.000	10286.000	10294.000	1620.000	1800.000	1800.000	0.0	0.0	0.0
	1370.300	10000.000	1369.400	10095.000	1368.300	10180.000	1361.500	10235.000	1359.200	10286.000
	1357.200	10289.000	1356.900	10291.000	1357.200	10292.000	1357.600	10294.000	1358.600	10301.000
	1365.300	10340.000	1365.600	10395.000	1365.800	10495.000	1366.600	10595.000	1370.000	10670.000
	0.040	0.050	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	13.430	12.000	10064.000	10117.000	740.000	540.000	630.000	0.0	0.0	0.0
	1372.500	10000.000	1372.400	10054.000	1372.400	10064.000	1362.500	10092.000	1359.900	10105.000
	1359.100	10108.000	1358.700	10109.000	1359.000	10110.000	1360.800	10117.000	1361.900	10218.000
	1366.800	10380.000	1370.000	10510.000	0.0	0.0	0.0	0.0	0.0	0.0
	0.050	0.050	0.045	0.300	0.500	0.0	0.0	0.0	0.0	0.0
	13.600	18.000	10310.000	10340.000	630.000	570.000	900.000	0.0	0.0	0.0
	1374.400	9800.000	1373.400	9830.000	1372.400	9890.000	1371.400	9960.000	1370.400	9980.000
	1369.600	10000.000	1368.600	10100.000	1367.700	10212.000	1364.500	10257.000	1363.600	10310.000
	1361.300	10312.000	1359.400	10320.000	1360.600	10325.000	1363.000	10340.000	1362.800	10373.000
	1369.300	10412.000	1371.600	10520.000	1373.000	10620.000	0.0	0.0	0.0	0.0
	13.609	18.000	10286.000	10295.000	36.000	36.000	36.000	0.0	0.0	0.0
	10.000	0.0	0.0	0.0	0.0	0.0	0.0	1365.200	1365.200	0.0
	1360.000	9200.000	1370.500	9970.000	1369.500	10070.000	1368.600	10182.000	1365.400	10227.000
	1364.500	10280.000	1362.200	10282.000	1362.200	10286.000	1360.300	10286.000	1360.300	10295.000
	1361.500	10295.000	1363.900	10310.000	1363.700	10343.000	1370.200	10382.000	1372.500	10490.000
	1373.900	10590.000	1375.000	10680.000	1376.700	10860.000	0.0	0.0	0.0	0.0
	0.0	1.500	2.500	0.0	9.000	0.0	45.000	0.0	1360.300	1360.300
	13.612	0.0	0.0	0.0	20.000	20.000	20.000	0.0	0.0	0.0
	0.0	0.0	1.000	1365.100	1375.000	0.0	0.0	0.0	0.0	0.0
	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18.000	9200.000	1380.000	1380.000	9970.000	1375.600	1370.500	10070.000	1375.000	0.0
	10182.000	1375.000	1365.600	10227.000	1375.000	1365.400	10280.000	1375.000	1375.900	1369.500
	1375.000	1362.200	10286.000	1375.000	1360.300	10286.000	1375.000	1364.500	1364.500	10282.000
	1365.100	10295.000	1375.000	1360.300	10310.000	1375.000	1363.900	10343.000	1375.000	1363.700
	10382.000	1375.000	1370.200	10490.000	1375.000	1372.500	10590.000	1375.000	1373.900	10680.000
	1375.000	1375.000	10860.000	1379.900	1376.700	0.0	0.0	0.0	0.0	0.0
	13.612	0.0	0.0	0.0	9.000	9.000	9.000	0.0	0.0	0.0
	0.050	0.050	0.055	0.100	0.300	0.0	0.0	0.0	0.0	0.0
	13.690	14.000	10230.000	10420.000	40.000	300.000	400.000	0.0	0.0	0.0
	1360.000	9680.000	1369.900	10000.000	1370.000	10100.000	1367.900	10200.000	1366.400	10230.000
	1364.500	10237.000	1364.000	10260.000	1364.500	10272.000	1365.200	10284.000	1364.700	10300.000
	1368.800	10380.000	1370.300	10420.000	1373.500	10500.000	1370.000	10840.000	0.0	0.0

EXHIBIT 9

OUTPUT DATA DESCRIPTION

A. All variables discussed below apply to the cross section identified by SECNO.

Variable	Description
*SECNO	Identifying cross section number. Equal to the number in first field of card X1.
*DEPTH	Depth of flow.
*CWSEL	Computed water surface elevation.
*CRIWS	Critical water surface elevation.
*WSELK	Known water surface elevation from high water mark.
*EG	Mean energy gradient elevation across the entire cross section which is equal to the computed water surface elevation CWSEL plus the mean velocity head HV.
*HV	Mean velocity head across the entire cross section.
*HL	Energy loss due to friction.
*OLOSS	Energy loss due to minor losses such as transition losses.
*Q	Total flow in the cross section.
*QLOB	Amount of flow in the left overbank.
*QCH	Amount of flow in the channel.
*QROB	Amount of flow in the right overbank.
ALOB	Cross section area of the left overbank.
*ACH	Cross section area of the channel.
AROB	Cross section area of the right overbank.

*Variables that can be printed in the summary.

Variable	Description
*VOL	Cumulative volume of water in the river since the first cross section.
TWA	Cumulative top width of the river since the first cross section.
*TIME	Travel time from the first cross section to the present cross section in hours.
VLOB	Mean velocity in the left overbank.
*VCH	Mean velocity in the channel.
VROB	Mean velocity in the right overbank.
**XNL	Manning's "n" for the left overbank area.
**XNCH	Manning's "n" for the channel area.
**XNR	Manning's "n" for the right overbank area.
**WTN	Weighted value of Manning's "n" for the channel based on the distance between cross sections and channel flow from the first cross section. Used when computing Manning's "n" from high water marks.
*ELMIN	Minimum elevation in the cross section.
*SLOPE	Slope of the energy grade line. (The summary printout value has been multiplied by 10,000.)
XLOBL	Distance in the left overbank between the previous cross section and the current cross section.
*XLCH	Distance in the channel between the previous cross section and the current cross section.
XLOBR	Distance in the right overbank between the previous cross section and the current cross section.
ITRIAL	Number of trials required to balance the assumed and computed water surface elevations.

** The summary printout value has been multiplied by 1,000.

Variable	Description
IDC	Number of trials required to determine critical depth.
ICONT	Number of trials to determine the water surface elevation by the slope area method or the number of trials to balance the energy gradient in the special bridge routine.
CORAR	Area of the bridge deck subtracted from the total cross sectional area in the normal bridge routine.
*TOPWID	Cross section width at the assumed water surface elevation.
EGPRS	The energy grade line elevation computed assuming pressure flow.
EGLWC	The energy grade line elevation computed assuming low flow control.
H3	Drop in water surface elevation from upstream to downstream sides of the bridge computed using Yarnell's equation assuming Class A low flow.
QWEIR	Total weir flow at the bridge.
QPR	Total pressure flow at the bridge.
BAREA	Net area of the bridge opening below the low chord. Equals BAREA entered on Card SB.
*ELLC	Elevation of the bridge low chord. Equals ELLC entered on card X2 if used, otherwise it equals the maximum low chord in the BT table.
*ELTRD	Elevation of the top of roadway. Equals ELTRD entered on card X2 if used, otherwise it equals the maximum low chord in the BT table.
CLASS	The controlling type of flow is identified using the following coded values for this variable: 1. Low Flow - Class A 2. Low Flow - Class B 3. Low Flow - Class C 10. Pressure Flow Alone 11. Weir Flow (Overbank) and Class A Low Flow (Bridge) 12. Weir Flow (Overbank) and Class B Low Flow (Bridge) 13. Weir Flow (Overbank) and Class C Low Flow (Bridge) 30. Weir Pressure Flow (Bridge)

Variable	Description
SSTA	The station on the GR cards where the water surface intersects the ground on the left side.
STEND	The station on the GR cards where the water surface intersects the ground on the right side.
*XLBEL	Left bank elevation.
*RBEL	Right bank elevation.

B. The following variables can be printed out with the summary printout option along with those variables from the previous list that have an asterisk (*):

Variable	Desctiption
*CASE	A variable indicating how the water surface elevation was computed. Values of -1, -2, and 0 indicate assumptions of critical depth, minimum difference or a balance between the computed and assumed water surface elevations.
STCHL	Station of the left bank.
STCHR	Station of the right bank.
STENCL	The station of the left encroachment.
STENCR	The station of the right encroachment.
CLSTA	The centerline station of the trapezoidal excavation.
BW	The bottom width of the trapezoidal excavation.

October 28, 1982

Mr. R. W. Bruggeman, P.E.
Director of Engineering
City of Wichita
455 North Main
Wichita, Kansas 67202

Re: Northbrook Drainage

Dear Mr. Bruggeman:

Enclosed herewith is a brief report on the hydrologic design considerations for Northbrook C.U.P. as requested in the Subdivision Committee meeting of the Metropolitan Area Planning Commission of September 30, 1982.

As stated in the report we will be following up with a detailed grading and drainage plan for Northbrook prior to submitting the final plat.

Should you or your staff have any questions regarding the enclosed material please feel free to call on us.

Very truly yours,

Mid-Kansas Engineering Consultants

Kenneth H. Bengtson
President

cc: Mike Lindebak
Chris Breitenstein

RWB

MID-KANSAS ENGINEERING CONSULTANTS PA
682-6561

260 N. ROCK ROAD SUITE 245
WICHITA, KANSAS 67206

HYDROLOGY STUDY FOR NORTHBROOK

The purpose of this study is to show the hydrologic impact of the east fork of Chisholm Creek on the planned development of Northbrook as illustrated in the approved C.U.P. and to set forth reasons for why a detention facility need not be constructed as part of the improvements guaranteed with the platting of the land encompassed by said C.U.P.

The routing of a flood through a detention reservoir changes the pattern of flow with time without changing the quantity of water. The purpose then is to reduce and delay the peak flow from any given storm event.

In a drainage basin such as illustrated in figure "A" a large percentage of the land remains undeveloped and in essence has a "natural" detention system built in because of farm ponds and undersized culverts under roads and railroad beds such as the MOPAC. As the basin develops, the most logical placement of detention facilities would be in the upper regions for drainage subbasins of one square mile or less. Otherwise, the size and cost of the detention facility becomes prohibitive. Also, if the policy of detention is practiced or required through the basin without extreme care, the net effect could be to actually increase the impact of a storm on the downstream user. A case in point would be Northbrook; any detention on such a small tract of land in relationship to the large contributing basin of which it is a part would only cause the peak discharge of Northbrook to be added to a rising flow for the entire basin.

Though we feel the material following adequately answers the hydrologic questions regarding Northbrook we would recommend that the following be done for the east fork of Chisholm Creek:

1. Detention be practiced in the upper regions of the subbasin for areas of less than one square mile.

2. That an area down stream of significant size be designated for a detention reservoir if any meaningfull impact be established for this branch of Chisholm Creek.

3. That a study of the entire basin be considered for the final configuration and use of the flood prone areas.

Design Criteria for Northbrook:

The following criteria was used to establish the C.U.P. and preliminary plat for Northbrook:

1. FEMA Peak Discharge for 100-year storm event.

2. Existing flow quantity (and control structures) from the north would be unchanged.

3. No "detention" facilities would be constructed as a part of Northbrook.

4. Increased runoff from improvements with the Northbrook C.U.P. would be monitored by the existing or an improved structure under 37th Street North.

Scope:

Develop Water Surface Profile through the land proposed to be developed.

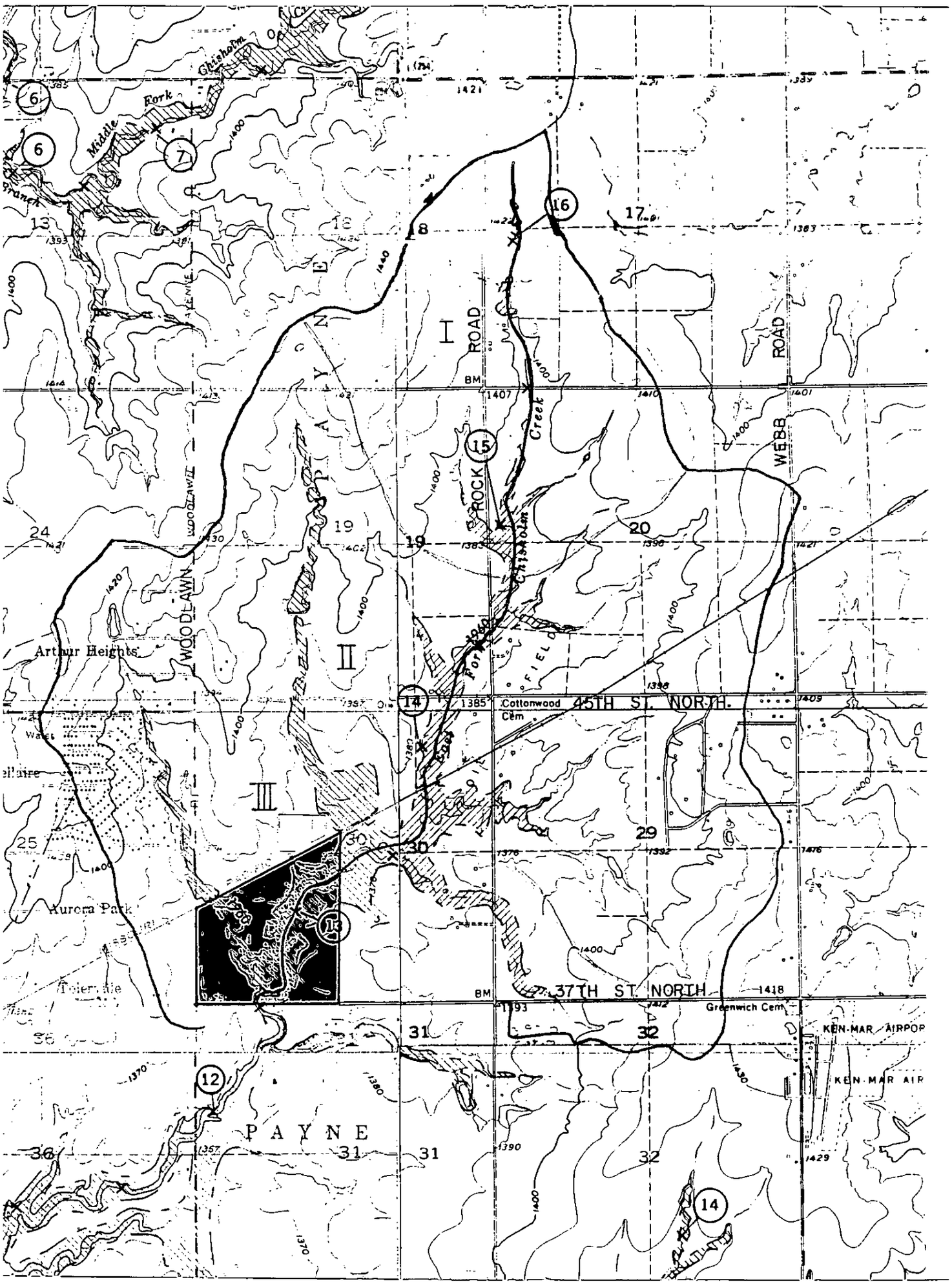
Develop rough grading plan for Northbrook

Discussion of Scope:

The water surface profile for the east branch of Chisholm Creek was developed using the HEC-2 Water Surface Profile computer program developed by the U.S. Army Corp of Engineers. The existing profile was made available to us through the Sedgwick County Department of Public Works and has been copied "as is" in appendix "A". We have also included a copy of the output data discription for easy reference.

In early 1981 Mr. M.S. Mitchell plotted the regulatory flood on cross sections at various intervals through the proposed C.U.P. The improvements shown on the section reflect areas that can be cut and filled and still comply with federal regulations regarding the limitations of work within a flood plain and not changing the water surface profile by more than one foot.

The preliminary plat for Northbook uses reserves and floodways to protect the regulatory floodways. A grading plan with pad elevations will be submitted with the final plat to be used as an adminstrative tool to guide future builders in establishing home sites and finished lot grades.


Chisholm Creek
Middle Fork
Granite
WOODLAWN AVENUE
PARALLEL PARKWAY
I ROAD
ROCK
Chisholm Creek
WEBB ROAD
Arthur Heights
WOODLAWN
Fork
FIELD
45TH ST. NORTH
Cottonwood Cem
Aurora Park
37TH ST. NORTH
Greenwich Cem
KEN-MAR AIRPOR
KEN-MAR AIR
PAYNE
I
II
III
BM 1407
BM 1393
1385
1418
1429
13
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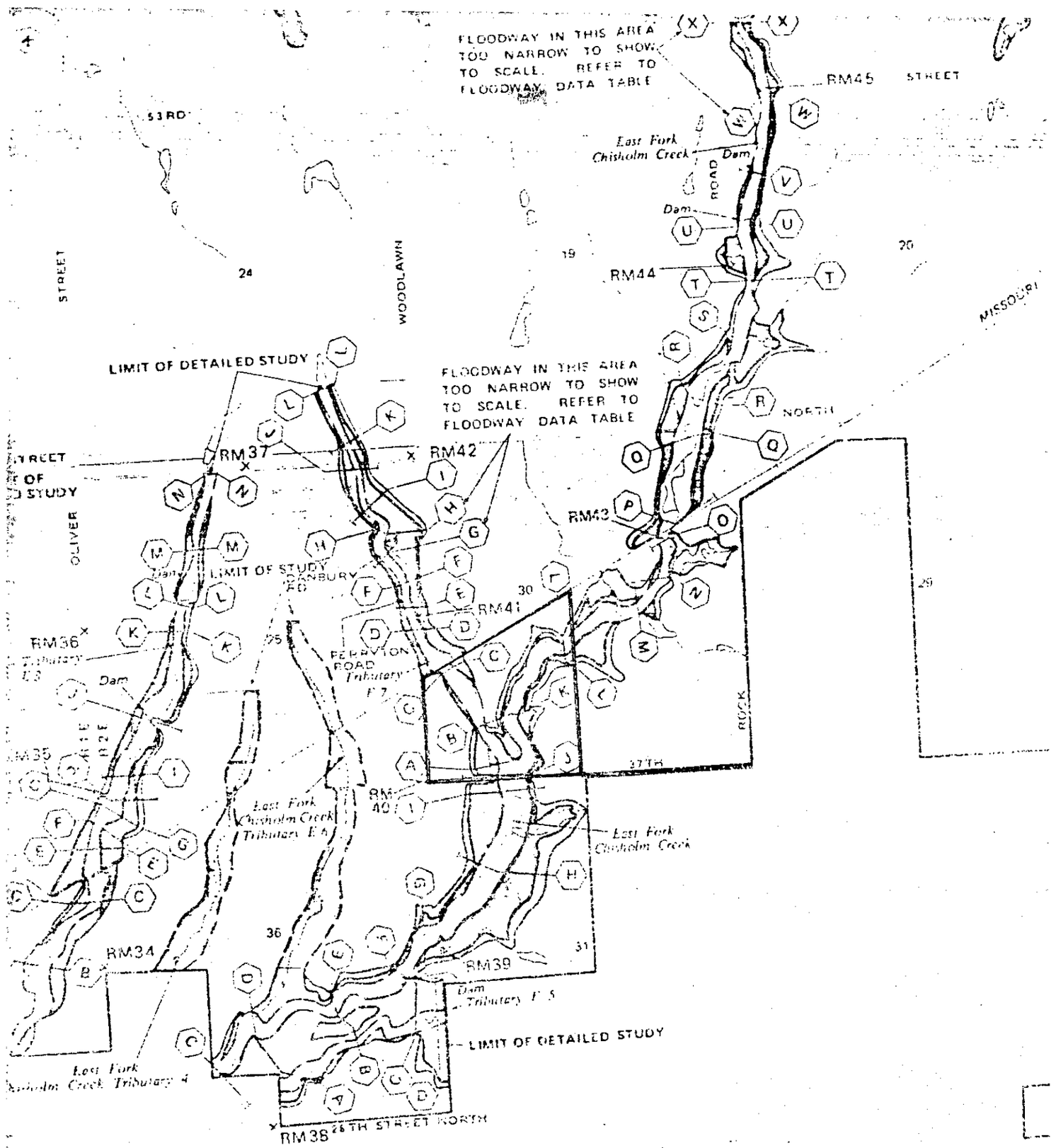
12

APPENDIX A


FLOODWAY IN THIS AREA TOO NARROW TO SHOW TO SCALE. REFER TO FLOODWAY DATA TABLE
RM45
53RD
STREET
East Fork Chisholm Creek
Dam
ROAD
Dam
WOODLAWN
24
19
20
RM44
STREET
MISSOURI
LIMIT OF DETAILED STUDY
FLOODWAY IN THIS AREA TOO NARROW TO SHOW TO SCALE. REFER TO FLOODWAY DATA TABLE
RM37
RM42
NORTH
RM43
OLIVER
LIMIT OF STUDY
DANBURY
RD
30
RM41
29
RM36
Tributary
E3
Dam
FERRYTON ROAD
Tributary
E7
25
ROCK
37TH
RM35
RM40
East Fork Chisholm Creek Tributary E4
East Fork Chisholm Creek
36
31
RM34
RM39
Dam
Tributary E5
LIMIT OF DETAILED STUDY
East Fork Chisholm Creek Tributary 4
RM38
28TH STREET NORTH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
EAST FORK CHISOLM CREEK								
A	8.98	1160	3351	1.8	1339.5	1339.5	1340.4	0.9
B	9.13	1150	3710	1.6	1340.1	1340.1	1340.7	0.6
C	10.67	180	767	4.9	1349.9	1349.9	1349.9	0.0
D	10.90	292	1595	2.3	1351.9	1351.9	1352.1	0.2
E	11.24	186	1088	3.2	1353.3	1353.3	1353.7	0.4
F	11.56	242	1463	2.4	1354.7	1354.7	1355.2	0.5
G	11.72	386	1391	2.5	1356.9	1356.9	1357.8	0.9
H	12.02	472	2199	1.6	1359.9	1359.9	1360.5	0.6
I	12.32	403	1781	1.9	1361.0	1361.0	1361.5	0.5
J	12.38	399	2652	1.3	1362.1	1362.1	1362.6	0.5
K	12.61	250	1681	1.6	1362.3	1362.3	1362.9	0.6
L	12.97	147	864	3.3	1363.2	1363.2	1363.5	0.3
M	13.31	87	543	5.1	1365.7	1365.7	1366.2	0.5
N	13.43	168	959	2.9	1366.9	1366.9	1367.4	0.5
O	13.60	117	613	4.5	1367.7	1367.7	1368.2	0.5
P	13.69	475	4280	0.6	1376.2	1376.2	1376.7	0.5
Q	13.99	504	3285	0.3	1376.2	1376.2	1376.7	0.5
R	14.14	368	1843	0.5	1376.3	1376.3	1376.8	0.5
S	14.29	187	638	1.5	1376.4	1376.4	1376.9	0.5
T	14.62	61	156	6.1	1378.2	1378.2	1378.8	0.6
U	14.82	151	401	2.4	1383.3	1383.3	1383.4	0.1
V	15.00	133	366	2.6	1388.9	1388.9	1389.6	0.7
W	15.28	54	115	8.3	1394.5	1394.5	1394.8	0.3
X	15.53	80	131	7.3	1401.9	1401.9	1402.4	0.5

[1]MILES ABOVE MOUTH

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

COUNTY OF SEDGWICK, KS
(UNINCORPORATED AREAS)

FLOODWAY DATA

EAST FORK CHISHOLM CREEK

TABLE 2: SUMMARY OF DISCHARGES (continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
PARK CITY TRIBUTARY					
Interstate Highway 135	0.8	490	720	830	1,090
Above mouth of Tributary P2	0.2	320	460	540	780
TRIBUTARY P2					
At confluence with Park City Tributary	0.5	300	440	510	670
WEST FORK CHISHOLM CREEK					
At confluence with Chisholm Creek	8.3	2,710	4,930	6,040	9,250
MIDDLE FORK CHISHOLM CREEK					
Broadway	13.4	3,280	5,000	5,000	5,000
Above mouth of Tributary M1	11.7	2,990	5,280	6,190	8,920
53rd Street North	9.5	2,580	4,570	5,360	7,720
TRIBUTARY M1					
At confluence with Middle Fork Chisholm Creek	1.6	1,160	2,110	2,580	3,900
Hydraulic Avenue	1.1	950	1,740	2,120	3,230
EASTFORK CHISHOLM CREEK					
Below Cross Section D	6.2	1,820	3,200	3,740	5,500
Above Cross Section D	5.5	1,670	2,940	3,440	5,060
Above confluence with Tributary E7	4.0	1,350	2,370	2,770	4,070
45th Street North	1.6	460	810	950	1,390

TABLE 2: SUMMARY OF DISCHARGES (continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
TRIBUTARY E1					
33rd Street North	1.4	1,110	2,010	2,460	3,700
Hillside Avenue	1.0	890	1,610	1,970	3,000
TRIBUTARY E3					
At confluence with East Fork Chisholm Creek	1.0	890	1,610	1,970	3,000
37th Street North	0.5	610	1,120	1,360	2,100
TRIBUTARY E5					
At confluence with East Fork Chisholm Creek	3.0	1,110	1,940	2,280	3,340
TRIBUTARY E7					
At confluence with East Fork Chisholm Creek	0.6	720	1,300	1,580	2,400
Perryton Street	0.4	600	1,090	1,320	2,000
MIDDLE BRANCH GYPSUM CREEK					
City of Wichita corporate limits	3.2	1,690	3,070	3,750	5,700
FOURMILE CREEK					
County line	12.6	3,380	5,100	5,920	7,900
Above mouth of Brookhaven Creek	8.4	2,370	3,540	4,100	5,400
Above mouth of West Fork Fourmile Creek	2.2	940	1,410	1,630	2,180

RUN NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE %CFS<	CWSEL	TQ	EG	TOPWID	STENCL	STENCR	WSELK	
11.79	62.00	0.0	0.0	1348.60	3440.00	1359.42	1606.31	1359.48	563.60	0.0	0.0	0.0	
11.79	62.00	0.0	0.0	1348.60	3440.00	1360.06	1661.14	1360.12	321.95	10342.79	10670.00	1359.42	
11.79	62.00	0.0	0.0	1348.60	3440.00	1360.32	1681.07	1360.39	283.86	10381.93	10670.00	1359.42	
11.79	62.00	0.0	0.0	1348.60	3440.00	1360.63	1721.95	1360.70	256.93	10410.07	10670.00	1359.42	
12.02	1230.00	0.0	0.0	1348.40	3440.00	1359.92	1922.02	1359.96	983.68	0.0	0.0	0.0	Min Elev 1348.4 @
12.02	1230.00	0.0	0.0	1348.40	3440.00	1360.53	1961.50	1360.57	471.62	9803.38	10275.00	1359.92	10185
12.02	1230.00	0.0	0.0	1348.40	3440.00	1360.79	1981.51	1360.83	395.10	9879.90	10275.00	1359.92	
12.02	1230.00	0.0	0.0	1348.40	3440.00	1361.08	2014.33	1361.13	338.12	9936.88	10275.00	1359.92	90' Rt 381.62' LT
12.12	520.00	0.0	0.0	1349.60	3440.00	1360.12	1232.29	1360.22	786.51	0.0	0.0	0.0	
12.12	520.00	0.0	0.0	1349.60	3440.00	1360.72	1244.44	1360.83	214.73	10060.27	10275.00	1360.12	
12.12	520.00	0.0	0.0	1349.60	3440.00	1360.97	1249.83	1361.09	150.00	10125.00	10275.00	1360.12	
12.12	520.00	0.0	0.0	1349.60	3440.00	1361.26	1318.09	1361.36	150.00	10125.00	10275.00	1360.12	
12.22	520.00	0.0	0.0	1350.80	3440.00	1360.60	931.81	1360.76	545.39	0.0	0.0	0.0	
12.22	520.00	0.0	0.0	1350.80	3440.00	1361.17	1020.90	1361.32	150.00	10125.00	10275.00	1360.60	
12.22	520.00	0.0	0.0	1350.80	3440.00	1361.41	1073.76	1361.55	150.00	10125.00	10275.00	1360.60	
12.22	520.00	0.0	0.0	1350.80	3440.00	1361.65	1128.48	1361.78	150.00	10125.00	10275.00	1360.60	
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.00	1989.61	1361.07	938.70	0.0	0.0	0.0	Min Elev
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.53	1997.48	1361.60	403.15	10128.00	10531.15	1361.00	1351.70 @ 10,208
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.73	1999.63	1361.82	339.30	10128.00	10467.30	1361.00	323.15 Rt 80' LT
12.32	520.00	0.0	0.0	1351.70	3440.00	1361.95	2006.11	1362.04	305.39	10128.00	10433.39	1361.00	
12.35	191.00	0.0	0.0	1350.70	3440.00	1361.08	3308.25	1361.11	969.27	0.0	0.0	0.0	
12.35	191.00	0.0	0.0	1350.70	3440.00	1361.62	3344.97	1361.65	695.20	10629.63	11324.82	1361.08	
12.35	191.00	0.0	0.0	1350.70	3440.00	1361.84	3218.51	1361.87	608.13	10630.00	11238.13	1361.08	
12.35	191.00	0.0	0.0	1350.70	3440.00	1362.06	3223.27	1362.09	536.54	10630.00	11166.54	1361.08	
12.35	90.00	0.0	0.0	1350.70	3440.00	1362.12	4763.08	1362.13	1183.77	0.0	0.0	0.0	
12.35	90.00	0.0	0.0	1350.70	3440.00	1362.65	4808.64	1362.67	750.89	10620.78	11371.68	1362.12	
12.35	90.00	0.0	0.0	1350.70	3440.00	1362.88	4654.12	1362.89	705.25	10630.00	11335.25	1362.12	
12.35	90.00	0.0	0.0	1350.70	3440.00	1363.09	4663.70	1363.11	643.49	10630.00	11273.49	1362.12	
12.38	44.00	0.0	0.0	1351.00	3440.00	1362.11	2727.58	1362.14	597.91	0.0	0.0	0.0	Min Elev 1351 @ 10,296
12.38	44.00	0.0	0.0	1351.00	3440.00	1362.65	2730.02	1362.68	398.61	10243.00	10641.61	1362.11	345.61 Rt 53 LT
12.38	44.00	0.0	0.0	1351.00	3440.00	1362.87	2738.27	1362.91	371.46	10243.00	10614.46	1362.11	
12.38	44.00	0.0	0.0	1351.00	3440.00	1363.09	2742.76	1363.13	346.54	10243.00	10589.54	1362.11	
12.43	280.00	0.0	0.0	1352.30	2770.00	1362.17	2360.28	1362.19	1126.37	0.0	0.0	0.0	
12.43	280.00	0.0	0.0	1352.30	2770.00	1362.70	2378.69	1362.72	371.71	10000.00	10377.96	1362.17	
12.43	280.00	0.0	0.0	1352.30	2770.00	1362.93	2387.19	1362.95	324.46	10000.00	10330.46	1362.17	
12.43	280.00	0.0	0.0	1352.30	2770.00	1363.14	2395.98	1363.17	291.55	10000.00	10297.30	1362.17	
12.61	950.00	0.0	0.0	1353.00	2770.00	1362.34	1555.95	1362.39	438.04	0.0	0.0	0.0	
12.61	950.00	0.0	0.0	1353.00	2770.00	1362.86	1764.72	1362.90	250.00	10200.00	10450.00	1362.34	Min Elev 1353 @ 10,283
12.61	950.00	0.0	0.0	1353.00	2770.00	1363.07	1857.73	1363.11	250.00	10200.00	10450.00	1362.34	167' Rt 83' LT
12.61	950.00	0.0	0.0	1353.00	2770.00	1363.29	1951.74	1363.33	250.00	10200.00	10450.00	1362.34	

	1348.400	10185.000	1349.400	10215.000	1350.400	10225.000	1352.400	10140.000	1351.100	10150.000
GR	1354.400	10265.000	1356.400	10275.000	1357.400	10300.000	1358.400	10315.000	1359.400	10320.000
GR	1360.400	10370.000	1361.400	10420.000	1362.400	10475.000	1363.400	10495.000	1364.400	10515.000
GR	1365.400	10545.000	1366.400	10625.000	1367.400	10695.000	0.0	0.0	0.0	0.0
X1	12.120	0.0	0.0	0.0	490.000	430.000	520.000	0.0	1.200	0.0
X1	12.220	0.0	0.0	0.0	490.000	430.000	520.000	0.0	1.200	0.0
NC	0.045	0.045	0.035	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	12.320	29.000	10128.000	10249.000	490.000	430.000	520.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	1367.400	9620.000	1366.400	9690.000	1365.400	9750.000	1364.400	9780.000	1363.400	9900.000
GR	1362.500	9950.000	1362.500	10000.000	1362.100	10100.000	1360.900	10128.000	1356.000	10155.000
GR	1355.500	10170.000	1351.800	10178.000	1351.700	10208.000	1352.000	10233.000	1360.400	10249.000
GR	1360.500	10264.000	1357.900	10284.000	1357.600	10438.000	1359.200	10522.000	1359.600	10700.000
GR	1359.600	11000.000	1360.400	11040.000	1361.400	11080.000	1362.400	11115.000	1363.400	11180.000
GR	1364.400	11250.000	1365.400	11320.000	1366.400	11370.000	1367.400	11420.000	0.0	0.0
X1	12.353	17.000	10630.000	10679.000	191.000	191.000	191.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	1366.400	10072.000	1365.400	10142.000	1364.400	10202.000	1363.400	10232.000	1362.400	10352.000
GR	1361.500	10402.000	1361.100	10552.000	1359.900	10580.000	1355.000	10607.000	1354.500	10622.000
GR	1350.700	10630.000	1350.700	10679.000	1356.900	10701.000	1356.600	10890.000	1358.200	10974.000
GR	1358.600	11452.000	1370.000	11772.000	0.0	0.0	0.0	0.0	0.0	0.0
SB	1.250	1.600	2.700	0.0	32.000	10.000	252.000	1.020	0.0	0.0
X1	12.355	0.0	0.0	0.0	90.000	90.000	90.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	1359.000	1359.300	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	1359.300	1360.000	0.0
GT	16.000	10072.000	1366.400	0.0	10142.000	1365.400	0.0	10202.000	1364.400	0.0
GT	10232.000	1363.400	0.0	10352.000	1362.400	0.0	10402.000	1361.500	0.0	10552.000
GT	1361.100	0.0	10580.000	1359.900	0.0	10607.000	1359.300	0.0	10622.000	1359.600
GT	0.0	10630.000	1360.000	0.0	10679.000	1360.000	0.0	10701.000	1360.600	0.0
GT	10890.000	1362.500	0.0	10974.000	1363.300	0.0	11452.000	1369.000	0.0	0.0
NC	0.055	0.060	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	12.380	33.000	10243.000	10326.000	44.000	44.000	44.000	0.0	0.0	0.0
GR	1368.400	9490.000	1367.400	9520.000	1366.400	9590.000	1365.400	9740.000	1364.400	9840.000
GR	1364.400	10000.000	1363.200	10100.000	1361.500	10200.000	1360.300	10243.000	1352.900	10263.000
GR	1351.000	10296.000	1352.100	10314.000	1357.400	10326.000	1355.700	10436.000	1356.900	10486.000
GR	1356.900	10695.000	1359.600	10709.000	1360.200	10740.000	1362.900	10770.000	1363.600	10800.000
GR	1364.600	11009.000	1364.700	11060.000	1364.900	11120.000	1365.500	11171.000	1366.000	11296.000
GR	1365.500	11302.000	1365.500	11320.000	1366.300	11417.000	1367.200	11425.000	1369.900	11520.000
GR	1370.700	11693.000	1373.300	11708.000	1374.200	11720.000	0.0	0.0	0.0	0.0
NC	0.050	0.060	0.060	0.100	0.300	0.0	0.0	0.0	0.0	0.0
IT	4.000	1350.000	2370.000	2770.000	4070.000	0.0	0.0	0.0	0.0	0.0
X1	12.430	21.000	10000.000	10207.000	290.000	260.000	280.000	0.0	0.0	0.0
GR	1373.400	9580.000	1372.400	9710.000	1370.400	9820.000	1369.400	9880.000	1368.400	9945.000
GR	1368.200	10000.000	1355.000	10015.000	1352.700	10018.000	1352.300	10045.000	1352.700	10074.000
GR	1354.100	10085.000	1353.500	10110.000	1352.300	10182.000	1359.900	10206.000	1359.900	10207.000
GR	1357.700	10211.000	1359.100	10330.000	1358.800	10430.000	1361.400	10515.000	1361.400	11080.000
GR	1367.400	11500.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.045	0.045	0.050	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE %CFS<	CWSEL	TQ	EG	TOPWID	STENCL	STENCR	WSELK	
	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.17	877.53	1363.30	277.80	0.0	0.0	0.0	
L	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.55	843.35	1363.72	147.18	10287.82	10435.00	1363.17	Min 1352.8 @ 10,409
	12.97	1900.00	0.0	0.0	1352.80	2770.00	1363.70	849.81	1363.88	137.13	10297.88	10435.00	1363.17	26' Rt 121.19 Lt
	13.31	1800.00	0.0	0.0	1356.90	2770.00	1365.70	518.07	1366.02	249.73	0.0	0.0	0.0	
M	13.31	1800.00	0.0	0.0	1356.90	2770.00	1366.16	523.07	1366.57	86.80	10232.88	10319.68	1365.70	Min 1356.9 @ 10,291
	13.31	1800.00	0.0	0.0	1356.90	2770.00	1366.34	509.54	1366.77	80.98	10236.96	10317.94	1365.70	28.69 Rt 58.12 Lt
	13.31	1800.00	0.0	0.0	1356.90	2770.00	1366.56	512.45	1367.00	76.08	10240.79	10316.88	1365.70	
	13.43	630.00	0.0	0.0	1358.70	2770.00	1366.86	914.37	1366.95	302.61	182.50			
N	13.43	630.00	0.0	0.0	1358.70	2770.00	1367.37	915.73	1367.50	168.29	0.0	0.0	0.0	Min 1358.70 @ 10,190
	13.43	630.00	0.0	0.0	1358.70	2770.00	1367.58	913.72	1367.72	156.13	10064.00	10246.50	1366.86	56.5' Rt 126' Lt
	13.43	630.00	0.0	0.0	1358.70	2770.00	1367.80	916.09	1367.95	146.32	10064.00	10233.75	1366.86	
									159.75		10064.00	10223.33	1366.86	
	13.60	900.00	0.0	0.0	1359.40	2770.00	1367.71	558.97	1368.01	191.55	169.75			
O	13.60	900.00	0.0	0.0	1359.40	2770.00	1368.22	570.05	1368.57	116.80	0.0	0.0	0.0	Min 1359.4 @ 10,320
	13.60	900.00	0.0	0.0	1359.40	2770.00	1368.44	564.99	1368.81	108.73	10257.69	10374.49	1367.71	54.99 Rt 62.31 Lt
	13.60	900.00	0.0	0.0	1359.40	2770.00	1368.65	567.95	1369.04	101.65	10262.21	10370.94	1367.71	
											10265.80	10367.46	1367.71	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1367.75	383.48	1368.21	173.59	0.0	0.0	0.0	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1368.23	381.60	1368.80	105.48	10236.88	10342.36	1367.75	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1368.45	384.88	1369.04	96.36	10242.51	10338.87	1367.75	
	13.61	36.00	0.0	0.0	1360.30	2770.00	1368.66	385.64	1369.28	88.60	10247.00	10335.60	1367.75	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1376.17	6234.41	1376.18	1295.05	0.0	0.0	0.0	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1376.65	6223.83	1376.66	633.13	9851.50	10484.63	1376.17	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1376.87	6247.07	1376.88	575.91	9880.04	10455.95	1376.17	
	13.61	20.00	0.0	0.0	1360.30	2770.00	1377.08	6244.16	1377.08	530.34	9903.59	10433.93	1376.17	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1376.17	6228.23	1376.18	1294.32	0.0	0.0	0.0	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1376.65	6217.49	1376.66	631.46	9852.29	10483.75	1376.17	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1376.87	6241.48	1376.88	574.55	9880.71	10455.27	1376.17	
	13.61	9.00	0.0	0.0	1360.30	2770.00	1377.08	6232.77	1377.08	529.17	9904.18	10433.35	1376.17	
	13.69	400.00	0.0	0.0	1363.80	2770.00	1376.18	5382.54	1376.18	839.11	0.0	0.0	0.0	
P	13.69	400.00	0.0	0.0	1363.80	2770.00	1376.66	5352.44	1376.66	474.89	9968.87	10443.76	1376.18	Min Elev @ 10,380
	13.69	400.00	0.0	0.0	1363.80	2770.00	1376.88	5362.89	1376.88	440.47	9985.71	10426.19	1376.18	1363.9
	13.69	400.00	0.0	0.0	1363.80	2770.00	1377.08	5312.02	1377.09	418.27	10001.73	10420.00	1376.18	63.76 Rt 411.19 Lt
	13.71	110.00	0.0	0.0	1366.50	2770.00	1376.17	3173.69	1376.19	775.44	0.0	0.0	0.0	
	13.71	110.00	0.0	0.0	1366.50	2770.00	1376.65	3154.48	1376.67	406.30	9944.40	10350.70	1376.17	
	13.71	110.00	0.0	0.0	1366.50	2770.00	1376.87	3168.50	1376.89	372.11	9958.47	10330.58	1376.17	
	13.71	110.00	0.0	0.0	1366.50	2770.00	1377.07	3163.63	1377.10	346.88	9970.38	10317.26	1376.17	
	13.99	1480.00	0.0	0.0	1364.90	950.00	1376.23	3517.58	1376.23	834.29	0.0	0.0	0.0	
Q	13.99	1480.00	0.0	0.0	1364.90	950.00	1376.72	3501.99	1376.72	503.89	10074.89	10578.78	1376.23	Min Elev @ 10,302
	13.99	1480.00	0.0	0.0	1364.90	950.00	1376.94	3517.41	1376.94	460.05	10097.37	10557.42	1376.23	1364.9
							1377.14	3525.79	1377.15	428.79	10110.24	10539.04	1376.23	276 Rt 227 Lt

	1370.000	9480.000	1362.400	10000.000	1362.200	10100.000	1361.800	10200.000	1357.400	10230.000
GR	1354.200	10273.000	1353.500	10280.000	1353.000	10283.000	1353.500	10286.000	1354.300	10289.000
GR	1354.900	10355.000	1356.600	10425.000	1362.000	10450.000	1363.400	10530.000	1367.400	10650.000
NH	4.000	0.045	10300.000	0.050	10402.000	0.045	10435.000	0.050	10890.000	0.0
X1	12.970	16.000	10402.000	10435.000	1400.000	1900.000	1900.000	0.0	0.0	0.0
GR	1370.000	10030.000	1364.800	10100.000	1362.000	10200.000	1359.600	10300.000	1356.300	10402.000
GR	1354.000	10405.000	1352.800	10409.000	1354.000	10412.000	1356.100	10415.000	1356.800	10425.000
GR	1363.000	10435.000	1364.600	10443.000	1364.400	10530.000	1364.000	10630.000	1366.600	10730.000
GR	1370.000	10890.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.050	0.050	0.055	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	13.310	15.000	10286.000	10294.000	1620.000	1800.000	1800.000	0.0	0.0	0.0
GR	1370.300	10000.000	1369.400	10095.000	1368.300	10180.000	1361.500	10235.000	1359.200	10286.000
GR	1357.200	10289.000	1356.900	10291.000	1357.200	10292.000	1357.600	10294.000	1358.600	10301.000
GR	1365.300	10340.000	1365.600	10395.000	1365.800	10495.000	1366.600	10595.000	1370.000	10670.000
NC	0.040	0.050	0.045	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	13.430	12.000	10064.000	10117.000	740.000	540.000	630.000	0.0	0.0	0.0
GR	1372.500	10000.000	1372.400	10054.000	1372.400	10064.000	1362.500	10092.000	1359.900	10105.000
GR	1359.100	10108.000	1358.700	10109.000	1359.000	10110.000	1360.800	10117.000	1361.900	10218.000
GR	1366.800	10380.000	1370.000	10510.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.050	0.050	0.045	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	13.600	18.000	10310.000	10340.000	630.000	570.000	900.000	0.0	0.0	0.0
GR	1374.400	9800.000	1373.400	9830.000	1372.400	9890.000	1371.400	9960.000	1370.400	9980.000
GR	1369.600	10000.000	1368.600	10100.000	1367.700	10212.000	1364.500	10257.000	1363.600	10310.000
GR	1361.300	10312.000	1359.400	10320.000	1360.600	10325.000	1363.000	10340.000	1362.800	10373.000
GR	1369.300	10412.000	1371.600	10520.000	1373.000	10620.000	0.0	0.0	0.0	0.0
X1	13.609	18.000	10286.000	10295.000	36.000	36.000	36.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	1365.200	1365.200	0.0
GR	1380.000	9200.000	1370.500	9970.000	1369.500	10070.000	1368.600	10182.000	1365.400	10227.000
GR	1364.500	10280.000	1362.200	10282.000	1362.200	10286.000	1360.300	10286.000	1360.300	10295.000
GR	1361.500	10295.000	1363.900	10310.000	1363.700	10343.000	1370.200	10382.000	1372.500	10490.000
GR	1373.900	10590.000	1375.000	10680.000	1376.700	10860.000	0.0	0.0	0.0	0.0
SB	0.0	1.500	2.500	0.0	9.000	0.0	45.000	0.0	1360.300	1360.300
X1	13.612	0.0	0.0	0.0	20.000	20.000	20.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	1365.100	1375.000	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	1375.000	1375.000	0.0
3T	18.000	9200.000	1380.000	1380.000	9970.000	1375.600	1370.500	10070.000	1375.900	1369.500
3T	10182.000	1375.000	1368.600	10227.000	1375.000	1365.400	10280.000	1375.000	1364.500	10282.000
3T	1375.000	1362.200	10286.000	1375.000	1360.300	10286.000	1375.000	1365.100	10295.000	1375.000
3T	1365.100	10295.000	1375.000	1360.300	10310.000	1375.000	1363.900	10343.000	1375.000	1363.700
3T	10382.000	1375.000	1370.200	10490.000	1375.000	1372.500	10590.000	1375.000	1373.900	10680.000
3T	1375.000	1375.000	10860.000	1379.900	1376.700	0.0	0.0	0.0	0.0	0.0
X1	13.612	0.0	0.0	0.0	9.000	9.000	9.000	0.0	0.0	0.0
NC	0.050	0.050	0.055	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	13.690	14.000	10230.000	10420.000	40.000	300.000	400.000	0.0	0.0	0.0
GR	1380.000	9680.000	1369.900	10000.000	1370.000	10100.000	1367.900	10200.000	1366.400	10230.000
GR	1364.500	10237.000	1364.000	10260.000	1364.500	10272.000	1365.200	10284.000	1364.700	10300.000
GR	1363.800	10380.000	1370.300	10420.000	1373.500	10500.000	1380.000	10840.000	0.0	0.0
NH	4.000	0.050	10000.000	0.040	10170.000	0.040	10360.000	0.045	10610.000	0.0

EXHIBIT 9

OUTPUT DATA DESCRIPTION

A. All variables discussed below apply to the cross section identified by SECNO.

Variable	Description
*SECNO	Identifying cross section number. Equal to the number in first field of card X1.
*DEPTH	Depth of flow.
*CWSEL	Computed water surface elevation.
*CRIWS	Critical water surface elevation.
*WSELK	Known water surface elevation from high water mark.
*EG	Mean energy gradient elevation across the entire cross section which is equal to the computed water surface elevation CWSEL plus the mean velocity head HV.
*HV	Mean velocity head across the entire cross section.
*HL	Energy loss due to friction.
*OLOSS	Energy loss due to minor losses such as transition losses.
*Q	Total flow in the cross section.
*QLOB	Amount of flow in the left overbank.
*QCH	Amount of flow in the channel.
*QROB	Amount of flow in the right overbank.
ALOB	Cross section area of the left overbank.
*ACH	Cross section area of the channel.
AROB	Cross section area of the right overbank.

*Variables that can be printed in the summary.

Variable	Description
*VOL	Cumulative volume of water in the river since the first cross section.
TWA	Cumulative top width of the river since the first cross section.
*TIME	Travel time from the first cross section to the present cross section in hours.
VLOB	Mean velocity in the left overbank.
*VCH	Mean velocity in the channel.
VROB	Mean velocity in the right overbank.
**XNL	Manning's "n" for the left overbank area.
**XNCH	Manning's "n" for the channel area.
**XNR	Manning's "n" for the right overbank area.
**WTN	Weighted value of Manning's "n" for the channel based on the distance between cross sections and channel flow from the first cross section. Used when computing Manning's "n" from high water marks.
*ELMIN	Minimum elevation in the cross section.
*SLOPE	Slope of the energy grade line. (The summary printout value has been multiplied by 10,000.)
XLOBL	Distance in the left overbank between the previous cross section and the current cross section.
*XLCH	Distance in the channel between the previous cross section and the current cross section.
XLOBR	Distance in the right overbank between the previous cross section and the current cross section.
ITRIAL	Number of trials required to balance the assumed and computed water surface elevations.

** The summary printout value has been multiplied by 1,000.

Variable	Description
IDC	Number of trials required to determine critical depth.
ICONT	Number of trials to determine the water surface elevation by the slope area method or the number of trials to balance the energy gradient in the special bridge routine.
CORAR	Area of the bridge deck subtracted from the total cross sectional area in the normal bridge routine.
*TOPWID	Cross section width at the assumed water surface elevation.
EGPRS	The energy grade line elevation computed assuming pressure flow.
EGLWC	The energy grade line elevation computed assuming low flow control.
H3	Drop in water surface elevation from upstream to downstream sides of the bridge computed using Yarnell's equation assuming Class A low flow.
QWEIR	Total weir flow at the bridge.
QPR	Total pressure flow at the bridge.
BAREA	Net area of the bridge opening below the low chord. Equals BAREA entered on Card SB.
*ELLC	Elevation of the bridge low chord. Equals ELLC entered on card X2 if used, otherwise it equals the maximum low chord in the BT table.
*ELTRD	Elevation of the top of roadway. Equals ELTRD entered on card X2 if used, otherwise it equals the maximum low chord in the BT table.
CLASS	The controlling type of flow is identified using the following coded values for this variable: 1. Low Flow - Class A 2. Low Flow - Class B 3. Low Flow - Class C 10. Pressure Flow Alone 11. Weir Flow (Overbank) and Class A Low Flow (Bridge) 12. Weir Flow (Overbank) and Class B Low Flow (Bridge) 13. Weir Flow (Overbank) and Class C Low Flow (Bridge) 30. Weir Pressure Flow (Bridge)

Variable	Description
SSTA	The station on the GR cards where the water surface intersects the ground on the left side.
STEND	The station on the GR cards where the water surface intersects the ground on the right side.
*XLBEL	Left bank elevation.
*RBEL	Right bank elevation.

B. The following variables can be printed out with the summary printout option along with those variables from the previous list that have an asterisk (*):

Variable	Desctiption
*CASE	A variable indicating how the water surface elevation was computed. Values of -1, -2, and 0 indicate assumptions of critical depth, minimum difference or a balance between the computed and assumed water surface elevations.
STCHL	Station of the left bank.
STCHR	Station of the right bank.
STENCL	The station of the left encroachment.
STENCR	The station of the right encroachment.
CLSTA	The centerline station of the trapezoidal excavation.
BW	The bottom width of the trapezoidal excavation.

Final plat

SUBDIVISION REPORT

SUBDIVISION COMMITTEE
METROPOLITAN AREA
PLANNING COMMISSION

S/D No. 82-56 Name Northbrook
Date Application Rec'd. 9-17-82 Preliminary Approval 9-30-82
Scheduled S/D Meeting 2-17-83

DESCRIPTION

General Location East of Woodlawn in an area north of 37th St. North

Owner William L. Oliver, Jr.
Surveyor/Engineer Mid-Kansas Engineering Consultants (Ken Bengtson)
Address 240 N. Rock Rd., #130, Wichita, Ks Zip Code 67206 Phone 682-6562

1. Gross Acreage of Plat 55.7±
2. Number of Lots :
   Residential 83
   Commercial
   Industrial
   Other
   Total Number of Lots 83
3. Minimum Lot Frontage 60 ft.
4. Minimum Lot Area 8,400 sq. ft.
5. Existing Zoning AA and R-5 w/C.U.P. (DP-119)
6. Proposed Zoning Same
7. Lineal Feet of New Street
   a. 100 R/W 215 ft.
   b. 66 R/W 3230 ft.
   c. 64 R/W 920 ft.
   d. 58 R/W 400 ft.
   e. R/W ft.
   TOTAL 4755 ft.
8. Sidewalk adjacent to all streets yes X no

9. Is public water available X Yes No, Name City of Wichita
10. Is sanitary sewer available X Yes No, Name City of Wichita
11. Has Health Dept. approval been obtained (where applicable) Yes No
12. City of Wichita X 3-Mile Area Outside of 3-Mile Area

STAFF COMMENTS:

Note: This plat is subject to the provisions of the Northbrook residential C.U.P. (DP-119) and represents the platting of Parcels 1, 2, 6, 7 and 8. Lots 1 and 62 in Block 1 are proposed for multi-family development; Lots 2 thru 47 in Block 1 and all of Block 2 are proposed for single-family development; Lots 48 thru 61 in Block 1 are proposed for duplex development.

A. A requirement of Provision #10 of the associated Community Unit Plan and a requirement of preliminary plat approval was the submission of an hydrology study for the entire area of the Northbrook Community Unit Plan prior to submitting a final plat. The representative from City Engineering should be prepared to comment on the acceptability of the drainage plan for the property within the boundaries of the Northbrook Community Unit Plan and state if the platting of this property is in agreement with the drainage plan.

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

C. The applicant shall guarantee extension of sanitary sewer to serve all the lots being platted.

D. The applicant shall guarantee extension of municipal water to serve all the lots being platted.

E. The applicant shall guarantee the paving of the interior streets and the decel lane on Woodlawn.

F. On the final plat tracing, the street name "Trey" shall be changed to "Cranberry", the name approved on the preliminary plat.

G. In accordance with the City's sidewalk ordinance and the Subdivision Regulations, sidewalks shall be guaranteed on both sides of 39th Street North, the east side of Cranberry, the north side of 40th Street North and the west side of Bayberry.

T9-303

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

I. A covenant providing for 4 off-street parking spaces per dwelling unit for Lots 53 thru 61 shall be submitted for recording. Since these are duplex lots, 8 parking spaces per lot will be required if duplexes are built.

J. The wording in the plattor's text shall be revised to read: "The reserves shall be owned and maintained by the homeowners' association. No structure shall be constructed..." The applicant shall either form the association prior to recording the plat or shall submit a covenant stating when the association will be formed and when the reserves will be deeded to the association. The covenant shall also specify who is to own and maintain the reserves prior to the association taking over these responsibilities. Since the reserves are mainly for drainage purposes and must be adequately maintained in order to function properly, the covenant shall contain a provision which gives the City the authority to maintain the reserves and charge the costs to the owners in the event the owners fail to properly maintain them.

K. The applicant shall attempt to obtain by separate instrument the dedication of the additional right-of-way necessary for the cul-de-sac terminating 40th Street North Circle.

L. On the final plat tracing there shall be a note on the face of the plat and in the plattor's text stating that "building setbacks are per the provisions of the Northbrook Community Unit Plan (DP-119)."

M. The applicant has obtained a letter from Farmland Industries stating that roads and utility lines may be constructed over the Cooperative Refinery Easement if done in accordance with federal regulations. Any lowering or relocation of the pipeline will be at the developer's expense. Still needed is a verification that the 50-foot building setback from centerline of the easement is adequate.

N. Closure computations shall be submitted with the final plat tracing.

O. The centerline of the 50-foot pipeline easement and the centerline of the proposed 20-foot drainage easements in Block 1 shall be indicated on the final plat tracing.

P. On the final plat tracing, the point of beginning of the legal description shall be indicated.

Q. A legend indicating the types of irons set with this survey shall be added to the plat beneath the scale.

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

Preliminary plat

SUBDIVISION REPORT

SUBDIVISION COMMITTEE
METROPOLITAN AREA
PLANNING COMMISSION

S/D No. 82-56 Name Northbrook
Date Application Rec'd. 9-17-82 Preliminary Approval
Scheduled S/D Meeting 9-30-82

DESCRIPTION

General Location East of Woodlawn in an area north of 37th St. North

Owner William L. Oliver, Jr.
Surveyor/Engineer Bill G. Yung Design
Address 8225 E. 35th North, Wichita Zip Code 67226 Phone 683-5567

1. Gross Acreage of Plat 55.7+
2. Number of Lots :
   - Residential 83
   - Commercial
   - Industrial
   - Other
   - Total Number of Lots 83
3. Minimum Lot Frontage 60 ft.
4. Minimum Lot Area 8,400 sq. ft.
5. Existing Zoning AA and R-5 w/C.U.P. (DP-119)
6. Proposed Zoning Same
7. Lineal Feet of New Street

a.	100	R/W	215	ft.
b.	66	R/W	3230	ft.
c.	64	R/W	920	ft.
d.	58	R/W	400	ft.
e.		R/W		ft.
TOTAL	4755			ft.

8. Sidewalk adjacent to all streets ____ yes __X__ no

9. Is public water available __X__ Yes ____ No, Name City of Wichita
10. Is sanitary sewer available __X__ Yes ____ No, Name City of Wichita
11. Has Health Dept. approval been obtained (where applicable) ____ Yes ____ No
12. City of Wichita __X__ 3-Mile Area ____ Outside of 3-Mile Area ____

STAFF COMMENTS:

Note: This plat is subject to the provisions of the Northbrook residential C.U.P. (DP #-119) and represents the platting of Parcels 1, 2, 6, 7 and 8. Lots 1 and 62 in Block 1 are proposed for multi-family development; Lots 2 thru 47 in Block 1 and all of Block 2 are proposed for single-family development; Lots 48 thru 61 in Block 1 are proposed for duplex development.

A. Drainage in this area is of primary importance. General Provision #10 of the C.U.P. requires an hydrology study to be submitted at the time of platting. If this hydro-study and proposed drainage concept for this lot have not been submitted with sufficient time for review by the City Engineering staff, then this plat should not be considered by the Subdivision Committee on September 30th. The City Engineer's representative shall be prepared to comment on this matter.

B. The applicant shall guarantee extension of sanitary sewer to serve all the lots being platted.

C. The applicant shall guarantee extension of municipal water to serve all the lots being platted.

D. The applicant shall guarantee the paving of the interior streets and the decel lane on Woodlawn.

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

F. 40th Street North shall be labeled on the final plat as 39th Street North and Tray and Tray Circle shall be labeled as 40th Street North and 40th Street North Circle.

G. In accordance with the City's sidewalk ordinance and the Subdivision Regulations, sidewalks shall be guaranteed on both sides of 39th Street North, the east side of Cranberry, the north side of 40th Street North, and the west side of Bayberry.

(Over)

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

I. A covenant providing for 4 off-street parking spaces per dwelling unit for Lots 53 thru 61 shall be submitted for recording. Since these are duplex lots, 8 parking spaces per lot will be required if duplexes are built.

J. The final plat shall specify the purposes of the proposed reserves and who is to own and maintain them. The applicant shall submit a restrictive covenant providing for the ownership and continued maintenance of the Reserves. The covenant shall contain a provision which gives the City the authority to maintain the reserves and charge the costs to the owner(s) in the event the owner(s) fail to maintain them.

K. Some access to the large reserve needs to be provided. It is recommended that the 50-foot pipeline easement between Lots 47 and 48 become a part of the reserve. The area between Lots 36 and 37 where existing drainage waters flow may also need to be a part of the reserve. This will depend upon the drainage plan and proposed drainage improvements.

L. The applicant's agent shall be prepared to discuss the reason for the 20-foot access easement between Lots 27 and 28.

M. It is recommended that Lot 20, Block 2 be redesigned to provide more access to the utility easement.

N. Where building setbacks are designated on a C.U.P., they usually are not platted. If the applicant wishes to plat the setbacks, his agent should contact the Planning Department prior to preparing the final plat.

O. The applicant shall provide proof, by letter from the pipeline company or by copy of the pipeline easement agreement, that a dedication of street right-of-way over a portion of the pipeline easement, and the platting of a 50-foot building setback from the center of the easement, is acceptable. Any relocation or lowering of the pipeline within the easement will not be at the expense of the City or County.

P. 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.

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

ASPHALTIC CONCRETE

PAVING PETITION

To the Board of Commissioners
Wichita, Kansas

Dear Commissioners:

1. We, the undersigned owners of record as below designated, of lots, parcels and tracts of real property described as follows:

All lots and blocks in Northbrook, an addition to Wichita, Sedgwick County, Kansas.

do hereby petition, pursuant to the provisions of K.S.A. 1974 Supp. 12-6a01 et seq.; as follows:

(a) That there be constructed within the area described above:

(1) Pavement on 39th Street North from the east line of Woodlawn to the east line of Bayberry. That said pavement between aforesaid limits be constructed for a width of 32 feet from gutter line to gutter line, cement combined curb and gutter to be 2 feet and 6 inches in width, making a total roadway width of 36 feet; that said pavement shall consist of an asphaltic concrete base and an asphaltic concrete wearing surface, composed of stone, sand, mineral filler and asphalt according to Ordinance No. 36-572 with plans and specifications to be furnished by the City Engineer. Drainage to be installed where necessary.

(2) Pavement on 39th Street North from the east line of Bayberry to the common property line of Lot 50 and Lot 51, Block 1 extended to the south line of 40th Street North; Bayberry from the northerly right of way line of 39th Street North to the north line of Lot 6, Block 2 extended; 40th Street North from the northerly line of Lot 6, Block 2 to the west right of way line of Cranberry; 40th Street North Circle from the east right of way line of Cranberry to a point 14.58 feet north of the south line of Lot 28, Block 1, all within Northbrook. That said pavement between aforesaid limits be constructed for a width of 30 feet from gutter line to gutter line, cement combined curb and gutter to be 2 feet and 6 inches in width, making a total roadway of 34 feet; that said pavement shall consist of an asphaltic concrete base and an asphaltic concrete wearing surface, composed of stone, sand, mineral filler and asphalt according to Ordinance No. 36-572 with plans and specifications to be furnished by the City Engineer. Drainage to be installed where necessary.

(3) Pavement on Bayberry Circle from the south line of 39th Street North to and including cul-de-sac. That said pavement between aforesaid limits be constructed for a width of 24 feet from gutter line to gutter line, cement combined curb and gutter to be 2 feet and 6 inches in width, making a total roadway of 28 feet; that said pavement shall consist of an asphaltic concrete base and an asphaltic concrete wearing surface, composed of stone, sand, mineral filler and asphalt according to Ordinance No. 36-572 with plans and specifications to be furnished by the City Engineer. Drainage to be installed where necessary.

(4) Sidewalk on both sides of 39th Street North, the east side of Cranberry, the north side of 40th Street North and 40th Street North Circle, and the west side of Bayberry. That said sidewalk between aforesaid limits be constructed for a width of 4 feet and a thickness of 4 inches and be composed of concrete according to the specifications of the City Engineer.

(b) That the estimated and probable cost of the foregoing improvement being _____. Said estimated cost as above set forth is hereby increased at the pro-rata rate of 1 1/2 percent per month from and after the date of approval of this petition.

(c) That the land or area above described be constituted as an improvement district against which shall be assessed 100% of the total cost of the improvements for which the improvement district is liable.

(d) That the method of assessment of all costs for the improvements for which the improvement district shall be liable shall be

LAND OFFICE
DEVELOPMENT

PHIL SNODGRASS

November 8, 1982

Mr. R. W. Bruggeman, P.E.
Director of Engineering
City of Wichita Department of Engineering
455 North Main
Wichita, Kansas 67202

Re: Northbrook

Dear Mr. Bruggeman:

I met with Mr. Lindebak on Thursday morning, November 4, 1982 regarding the desire of my client to enter into a three party agreement with the firm of Mid Kansas Engineering Consultants, P.A. to "fast track" the proposed development.

The positive changes in the housing market and the specific interest in this project by home builders make it imperative that finished lots be made available as soon as possible. I have spoken with Mr. Bengtson regarding the possibility of his firm expediting this project and am fully satisfied that they are most capable of handling the desired time schedule.

I have addressed this same question with Mr. Don Anderson who has assured me of his support. Your attention and help regarding this matter is most appreciated.

Very truly yours,

Phil Snodgrass

PS/kb

cc: Bill Oliver, Jr.
Mike Lindebak
Don Anderson
Ken Bengtson

6416 East Central ● Wichita, Kansas 67203 ● (316) 686-5753

RWB

November 12, 1982

Mr. Phil Snodgrass
Land Office Development
6416 East Central
Wichita, Kansas 67203

Subject: Northbrook

Dear Mr.Snodgrass:

I have reviewed your letter of November 8, 1982 regarding a three-party agreement for the preparation of plans and specifications for improvements in the Northbrook Addition.

By copy of this letter, Mr. Bengtson is authorized to prepare three-party agreements for the preparation of plans for storm sewers, sanitary sewers and pavement for the Northbrook Addition. The three-party agreements should be the standard City of Wichita agreements for providing consulting engineering services.

We will make every effort to expedite these agreements so that the improvements may be made within the owner's desired time schedule.

Yours truly,

RWB

R. W. Bruggeman, P.E.
Director of Engineering

RWB:gr

cc: Bill Oliver, Jr.
Ken Bengtson, Mid Kansas Engineering Consultants

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

February 18, 1983

Mr. Kenneth Bengtson
Mid-Kansas Engineering Consultants
240 N. Rock Road, Suite 130
Wichita, Kansas 67206

Re: S/D 82-56 - Final plat of Northbrook

Dear Mr. Bengtson:

At the regular meeting of the Subdivision Committee of the Metropolitan Area Planning Commission on Thursday, February 17, 1983, the above-captioned plat was considered. The action of the Committee was to recommend that this plat be approved subject to:

A. Access to Reserve A shall be provided by platting the reserve all the way out to the street rather than by 10 to 20 foot pedestrian access easements located on individual lots.

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

C. The applicant shall guarantee extension of sanitary sewer to serve all the lots being platted.

D. The applicant shall guarantee extension of municipal water to serve all the lots being platted.

E. The applicant shall guarantee the paving of the interior streets and the decel lane on Woodlawn.

F. On the final plat tracing, the street name "Trey" shall be changed to "Cranberry", the name approved on the preliminary plat.

G. In accordance with the City's sidewalk ordinance and the Subdivision Regulations, sidewalks shall be guaranteed on both sides of 39th Street North, the east side of Cranberry, the north side of 40th Street North and 40th Street North Circle, and the west side of Bayberry.

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

I. A covenant providing for 4 off-street parking spaces per dwelling unit for Lots 53 thru 61 shall be submitted for recording. Since these are duplex lots, 8 parking spaces per lot will be required if duplexes are built.

J. The wording in the plattor's text shall be revised to read: "The reserves shall be owned and maintained by the homeowners' association. No structure shall be constructed..." The applicant shall either form the association prior to recording the plat or shall submit a covenant stating when the association will be formed and when the reserves will be deeded to the association. The covenant shall also specify who is to own and maintain the reserves prior to the association taking over these responsibilities. Since the reserves are mainly for drainage purposes, and must be adequately maintained in order to function properly, the covenant shall contain a provision which gives the City the authority to maintain the reserves and charge the costs to the owners in the event the owners fail to properly maintain them.

K. The applicant shall attempt to obtain by separate instrument, or by plat, the dedication of the additional right-of-way necessary for the cul-de-sac terminating 40th Street North Circle.

L. On the final plat tracing there shall be a note on the face of the plat and in the plattor's text stating that "building setbacks are per the provisions of the Northbrook Community Unit Plan (DP-119)."

M. The applicant has obtained a letter from Farmland Industries stating that roads and utility lines may be constructed over the Cooperative Refinery Easement if done in accordance with federal regulations. Any lowering, relocation or encasement of the pipeline will be at the developer's expense. Still needed is a verification that the 50-foot building setback from centerline of the easement is adequate. (This setback is shown on the C.U.P.).

N. Closure computations shall be submitted with the final plat tracing.

O. The centerline of the 50-foot pipeline easement and the centerline of the proposed 20-foot drainage easements in Block 1 shall be indicated on the final plat tracing.

P. On the final plat tracing, the point of beginning of the legal description shall be indicated.

Q. A legend indicating the types of irons set with this survey shall be added to the plat beneath the scale.

R. 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. The certificate will be required if petitions are submitted. 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, February 24, 1983, at 1:30 p.m. If you have any questions concerning this matter, please call.

Sincerely,

Louise Olivarez

Louise Olivarez
Senior Planner

LO:bhh

cc: William L. Oliver, Jr., 8 Lakeside Blvd., 67207
Land Office, Attention: Phil Snodgrass, 6416 E. Central, 67206
Bill G. Yung Design, 8225 E. 35th St. North, 67226
Mike Lindebak, City Engineering

January 11, 1983

Mr. Kenneth Bengtson, P. E.
Mid-Kansas Engineering Consultants
260 North Rock Road, Suite 240
Wichita, Kansas 67206

Subject: Northbrook Addition Drainage

Dear Ken:

In proceeding with the drainage plan for the final plat of Northbrook Addition, using the FEMA Regulatory Floodway and flood plain, would seem to be an appropriate way to proceed.

It should be noted that while the entire C. U. P. is not being platted at this time, a drainage plan for the entire C. U. P. is required.

Sincerely,

Chris J. Breitenstein, P. E.
Drainage and Flood Control Engineer

CJB:gr

B. Gegen 2-9-90

Northbrook Meadow
Reassessment of Existing Special Taxes

Lot	B39220	J84215	K85154	M39180	TOTAL	Decrease or Increase
1.	3,234.83	154.64	148.49	583.13	#4,121.11	+236.64
2.	2,900.22	138.62	133.08	522.72	3,694.64	+663.11
3.	2,894.41	138.33	132.87	521.68	3,687.29	+670.46
4.	3,233.92	154.50	148.36	582.87	4,119.65	+238.10
5.	4,817.68	230.22	221.13	868.40	6,137.43	-1,779.68
6.	3,836.83	183.38	176.13	691.57	4,887.91	-530.16
7.	4,106.55	196.26	188.50	740.14	5,231.45	-873.70
8.	2,986.80	142.67	136.96	538.40	3,804.83	+552.92
9.	2,832.47	135.34	130.01	510.58	3,608.40	+749.35
10.	2,919.49	139.50	134.02	526.22	3,719.23	+656.52
11.	3,302.68	157.73	151.50	595.26	4,207.17	+150.58
12.	3,720.89	177.79	170.71	670.72	4,740.11	-382.36
13.	3,068.98	146.67	140.74	553.24	3,909.63	+448.12
14.	2,901.20	138.54	133.18	522.92	3,695.84	+661.91
15.	4,045.47	193.37	185.75	729.15	5,153.74	-795.99
16.	3,875.75	185.16	177.94	698.60	4,937.45	-579.70
17.	3,659.87	174.91	167.96	659.74	4,662.48	-304.73
~~18.~~	~~3,069.47~~	~~147.93~~	~~141.42~~	~~555.24~~	~~3,912.06~~	
~~19.~~	~~2,799.78~~	~~144.69~~	~~138.12~~	~~540.65~~	~~3,823.24~~	
20.	3,234.82	154.65	148.49	583.13	4,121.09	+236.66
	#61,572.86	2,942.30	2,825.82	11,098.47	#78,439.45 ÷ 18 = #4,357.75 Each	

AGREEMENT
BY AND BETWEEN

THE CITY OF WICHITA, KANSAS,
Party of the First Part

And

PORTER AND PLUMER HOMES
A Kansas General Partnership
Party of the Second Part

WHEREAS, Party of the First Part has constructed certain municipal improvements in the area of North of 37th Street North and East of Woodlawn Ave., within the City Limits of the City of Wichita; and

WHEREAS, Party of the Second Part is the landowner of all or part of the improvement district; and

WHEREAS, portion of the improvement district of said improvements has been platted and/or replatted; and

WHEREAS, Party of the Second Part desires that a reassessment be made to reflect the changes in platting; and

WHEREAS, the Party of the First Part and Party of the Second Part are both desirous of accomplishing such a reassessment.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, the parties agree as follows:

1. Lots 1 through 17, inclusive and Lot 20, all within, Block 1, Northbrook Meadow

was part of the improvement district for the following City project(s):

Main 9, SS#23

(Project No. 468-76-245-81002-000-000-001)

Said property was replatted as Northbrook Meadow.

2. The Parties agree to make a reassessment for said project in the following manner:

Lots 1 through 17 inclusive, and Lot 20 all within Block 1, Northbrook Meadow shall each pay 1/18 of the costs apportioned to the platted tracts described above.

3. The Party of the Second Part is the owner of the property described in section one above and said Party of the Second Part hereby waives the notice and hearing requirements of K.S.A. 12-6a12(b) with respect to the reassessment herein described.

4. The Party of the Second Part further waives his right to appeal the special assessments for the above mentioned projects (including this described reassessment) and agrees that no suit to set aside said assessment shall be brought by him nor shall he in any other way bring an action to question the validity of the proceedings taken by the Party of the First Part in constructing this project and levying the special assessments therefore.

5. The Party of the Second Part further agrees that he will indemnify the party of the First Part against any and all costs, expenses, claims and judgments for which the Party of the First Part is held responsible or which are entered against the Party of the First Part arising out of or as a result of the reassessment herein described.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement the _____ of _____, 19___.

THE CITY OF WICHITA, KANSAS

BY: _____
Mayor
Party of the First Part

Approved as to form:

_____
Director of Law

Attest:

_____
City Clerk

PORTER AND PLUMER HOMES,
a Kansas General Partnership

BY: _____
Marlo E. Porter
Party of the Second Part

BY: _____
Keith E. Plumer
Party of the Second Part

STATE OF KANSAS)
) ss:
SEDGWICK COUNTY)

BE IT REMEMBERED, that on this 19th day of February, 1990, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Porter and Plumer Homes, a Kansas general partnership by Marlo E. Porter and Keith E. Plumer, personally known to me to be the same persons who executed the foregoing instrument of writing and said person duly acknowledged the execution of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

VICKY S. BUCKINGHAM
Notary Public - State of Kansas
My Appt. Expires 10-4-93

_____
Notary Public

My Appointment Expires: 10-4-93

AGREEMENT
BY AND BETWEEN

THE CITY OF WICHITA, KANSAS,
Party of the First Part

And

PORTER AND PLUMER HOMES,
A Kansas General Partnership
Party of the Second Part

WHEREAS, Party of the First Part has constructed certain municipal improvements in the area of North of 37th Street North and East of Woodlawn Ave., within the City Limits of the City of Wichita; and

WHEREAS, Party of the Second Part is the landowner of all or part of the improvement district; and

WHEREAS, portion of the improvement district of said improvements has been platted and/or replatted; and

WHEREAS, Party of the Second Part desires that a reassessment be made to reflect the changes in platting; and

WHEREAS, the Party of the First Part and Party of the Second Part are both desirous of accomplishing such a reassessment.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, the parties agree as follows:

1. Lots 1 through 17, inclusive and Lot 20, all within Block 1, Northbrook Meadow.

was part of the improvement district for the following City project(s):
Paving 39th Street North, 40th Street North, Bayberry & Trey as platted in Northbrook addition.
(Project No. 472-76-245-81255-000-000-001)
Said property was replatted as Northbrook Meadow.

2. The Parties agree to make a reassessment for said project in the following manner:

Lots 1 through 17 inclusive and Lot 20, all within Block 1, Northbrook Meadow shall each pay 1/18 of the costs apportioned to the platted tracts described above.

3. The Party of the Second Part is the owner of the property described in section one above and said Party of the Second Part hereby waives the notice and hearing requirements of K.S.A. 12-6a12(b) with respect to the reassessment herein described.

4. The Party of the Second Part further waives his right to appeal the special assessments for the above mentioned projects (including this described reassessment) and agrees that no suit to set aside said assessment shall be brought by him nor shall he in any other way bring an action to question the validity of the proceedings taken by the Party of the First Part in constructing this project and levying the special assessments therefore.

5. The Party of the Second Part further agrees that he will indemnify the party of the First Part against any and all costs, expenses, claims and judgments for which the Party of the First Part is held responsible or which are entered against the Party of the First Part arising out of or as a result of the reassessment herein described.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement the _____ of _____, 19___.

THE CITY OF WICHITA, KANSAS

BY: _____
Mayor
Party of the First Part

Approved as to form:

_____
Director of Law

Attest:

_____
City Clerk

PORTER AND PLUMER HOMES,
A Kansas General Partnership

BY: _____
Marlo E. Porter
Party of the Second Part

BY: _____
Keith E. Plumer
Party of the Second Part

STATE OF KANSAS)
) ss:
SEDGWICK COUNTY)

BE IT REMEMBERED, that on this 19th day of February, 1990, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Porter and Plumer Homes, a Kansas General partnership by Marlo E. Porter and Keith E. Plumer, personally known to me to be the same person who executed the within instrument of writing and such person duly acknowledged the execution of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

VICKY S. BUCKINGHAM
Notary Public - State of Kansas
My Appt. Expires 10-4-93

_____
Notary Public

My Appointment Expires: 10-4-93

AGREEMENT
BY AND BETWEEN

THE CITY OF WICHITA, KANSAS,
Party of the First Part

And

PORTER AND PLUMER HOMES,
A Kansas General Partnership
Party of the Second Part

WHEREAS, Party of the First Part has constructed certain municipal improvements in the area of North of 37th Street North and East of Woodlawn Ave., within the City Limits of the City of Wichita; and

WHEREAS, Party of the Second Part is the landowner of all or part of the improvement district; and

WHEREAS, portion of the improvement district of said improvements has been platted and/or replatted; and

WHEREAS, Party of the Second Part desires that a reassessment be made to reflect the changes in platting; and

WHEREAS, the Party of the First Part and Party of the Second Part are both desirous of accomplishing such a reassessment.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, the parties agree as follows:

1. Lots 1 through 17, inclusive and Lot 20, all within Block 1, Northbrook Meadow.

was part of the improvement district for the following City project(s):
Water Distribution System in Woodlawn, 39th Street North, 40th Street North, Bayberry & Trey as platted in Northbrook addition.
(Project No. 448-76-245-81463-000-000-001)
Said property was replatted as Northbrook Meadow.

2. The Parties agree to make a reassessment for said project in the following manner:

Lots 1 through 17 inclusive and Lot 20, all within Block 1, Northbrook Meadow shall each pay 1/18 of the costs apportioned to the platted tracts described above.

3. The Party of the Second Part is the owner of the property described in section one above and said Party of the Second Part hereby waives the notice and hearing requirements of K.S.A. 12-6a12(b) with respect to the reassessment herein described.

4. The Party of the Second Part further waives his right to appeal the special assessments for the above mentioned projects (including this described reassessment) and agrees that no suit to set aside said assessment shall be brought by him nor shall he in any other way bring an action to question the validity of the proceedings taken by the Party of the First Part in constructing this project and levying the special assessments therefore.

5. The Party of the Second Part further agrees that he will indemnify the party of the First Part against any and all costs, expenses, claims and judgments for which the Party of the First Part is held responsible or which are entered against the Party of the First Part arising out of or as a result of the reassessment herein described.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement the _____ of _____, 19____.

THE CITY OF WICHITA, KANSAS

BY: _____
Mayor
Party of the First Part

Approved as to form:

_____
Director of Law

Attest:

_____
City Clerk

PORTER AND PLUMER HOMES,
A Kansas General Partnership

BY: Marlo E. Porter
Marlo E. Porter
Party of the Second Part

BY: Keith E. Plumer
Keith E. Plumer
Party of the Second Part

STATE OF KANSAS)
) ss:
SEDGWICK COUNTY)

BE IT REMEMBERED, that on this 19th day of February, 1990, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Porter and Plumer Homes, a Kansas General partnership by Marlo E. Porter and Keith E. Plumer, personally known to me to be the same person who executed the within instrument of writing and such person duly acknowledged the execution of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

VICKY S. BUCKINGHAM
Notary Public - State of Kansas
My Appt. Expires 10-4-93

Vicky S. Buckingham
Notary Public

My Appointment Expires: 10-4-93

AGREEMENT
BY AND BETWEEN

THE CITY OF WICHITA, KANSAS,
Party of the First Part

And

PORTER AND PLUMER HOMES,
A Kansas General Partnership
Party of the Second Part

WHEREAS, Party of the First Part has constructed certain municipal improvements in the area of North of 37th Street North and East of Woodlawn Ave., within the City Limits of the City of Wichita; and

WHEREAS, Party of the Second Part is the landowner of all or part of the improvement district; and

WHEREAS, portion of the improvement district of said improvements has been platted and/or replatted; and

WHEREAS, Party of the Second Part desires that a reassessment be made to reflect the changes in platting; and

WHEREAS, the Party of the First Part and Party of the Second Part are both desirous of accomplishing such a reassessment.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein contained, the parties agree as follows:

1. Lots 1 through 17, inclusive and Lot 20, all within Block 1, Northbrook Meadow.

was part of the improvement district for the following City project(s):

Lat. 3, Main 9, SS #23

(Project No. 468-76-245-81259-000-000-001)

Said property was replatted as Northbrook Meadow.

2. The Parties agree to make a reassessment for said project in the following manner:

Lots 1 through 17 inclusive and Lot 20, all wihtin Block 1, Northbrook Meadow shall each pay 1/18 of the costs apportioned to the platted tracts described above.

3. The Party of the Second Part is the owner of the property described in section one above and said Party of the Second Part hereby waives the notice and hearing requirements of K.S.A. 12-6a12(b) with respect to the reassessment herein described.

4. The Party of the Second Part further waives his right to appeal the special assessments for the above mentioned projects (including this described reassessment) and agrees that no suit to set aside said assessment shall be brought by him nor shall he in any other way bring an action to question the validity of the proceedings taken by the Party of the First Part in constructing this project and levying the special assessments therefore.

5. The Party of the Second Part further agrees that he will indemnify the party of the First Part against any and all costs, expenses, claims and judgments for which the Party of the First Part is held responsible or which are entered against the Party of the First Part arising out of or as a result of the reassessment herein described.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement the _____ of _____, 19___.

THE CITY OF WICHITA, KANSAS

BY: _____
Mayor
Party of the First Part

Approved as to form:

_____
Director of Law

Attest:

_____
City Clerk

PORTER AND PLUMER HOMES,
A Kansas General Partnership

BY: _____
Marlo E. Porter
Party of the Second Part

BY: _____
Keith E. Plumer
Party of the Second Part

STATE OF KANSAS)
) ss:
SEDGWICK COUNTY)

BE IT REMEMBERED, that on this 19th day of February, 1990, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Porter and Plumer Homes, a Kansas General partnership by Marlo E. Porter and Keith E. Plumer, personally known to me to be the same person who executed the within instrument of writing and such person duly acknowledged the execution of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

VICKY S. BUCKINGHAM
Notary Public - State of Kansas
My Appt. Expires 10-4-93

_____
Notary Public

My Appointment Expires: 10-4-93

MID-KANSAS ENGINEERING CONSULTANTS, P.A.
3500 N. Rock Road, #800
Wichita, KS 67226

LETTER OF TRANSMITTAL

PROJECT: Northbrook Meadow
Reassessment of existing specials

PROJECT #: _____ **DATE:** 2/19/90

TO: Bill Morris
City of Wichita
Engineering Department
455 N. Main, 7th Floor
Wichita, KS 67202

We are sending you the following items: X Attached
___Under separate cover via _____

___Prints ___Specifications ___Legal Descriptions

___Tracing ___Petitions ___Correspondence X Other

COMMENTS: Transmitted herewith are 4 agreements, signed by the property owner, requesting the reassessment of existing specials in the platted Northbrook Meadow Addition.

___For Your Approval
X For Your Use
___Approved as Noted
___As Requested
___For Your Files
___For Review and Comment

REMARKS:

RECEIVED
FEB 20 1990
ENGINEERING DIVISION

Signed: Benny Degen
Benny Degen

THE CITY OF WICHITA
OFFICE OF PUBLIC WORKS - ENGINEERING

DATE: March 15, 1990

TO: Doug Moshier, Senior Assistant City Attorney

FROM: Michael E. Lindebak, P.E., City Engineer

SUBJECT: Agreements to Respread Special Assessments: Northbrook Meadow Addition

Please review the attached documents as to legal form and return them to the City Engineer's office. The purpose of the agreements is to respread special assessments to reflect recent platting activity.

MEL/BM:wt
Attach.

THE CITY OF WICHITA

OFFICE OF **LAW DEPARTMENT** DATE: March 21, 1990

TO: Mike Lindebak, P.E., City Engineer

FROM: Douglas J. Moshier, Senior Assistant City Attorney

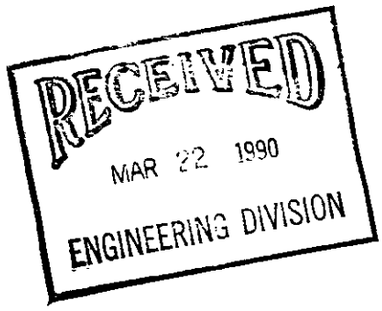
SUBJECT: Agreement for Respread Assessments

The attached Agreement for respreading assessments in Northbrook Meadow Addition is approved as to form.

Douglas J. Moshier
Senior Assistant City Attorney

DJM:cdh

Attachment



THE CITY OF WICHITA
OFFICE OF PUBLIC WORKS - ENGINEERING

TO: Twila Nelson, City Clerk's Office

DATE: March 22, 1990

FROM: Steve Lackey, Director of Public Works

SUBJECT: Agreements to Respread Special Assessments: Northbrook Meadow Addition

Please place the attached agreements on the Consent Agenda. The purpose of the agreements is to respread special assessments to reflect recent platting activity. The Law Department has approved the documents as to legal form.

Recommendation/Action: Approve the agreements and authorize the Mayor to sign.

SL/BM:wt
Attach.

Northbrook

Gene Rath
c/o City of Wichita Engineers Department
455 North Main
Wichita, KS 67202

June 20, 1990

re: Northbrook Bridge

Dear Mr. Rath,

The Northbrook Homeowners Association would like to build a bridge across the existing creek upon our common grounds. This bridge would provide access to the east side of our common grounds, thus enabling us to mow and maintain the land properly. Also, this bridge would provide an access to the playground located on the east side of our commons in which we share common use with the residents of Teal Cove.

We appreciate your time and consideration in helping us resolve this matter.

Sincerely,

Susan M. Schainost

Susan M. Schainost (687-9924)
President - Northbrook Homeowners Association

Les Aaby (265-8639 wk. or 687-3036)
Vice-President - Northbrook Homeowners Association
4018 Bayberry

MID-KANSAS ENGINEERING CONSULTANTS, P.A.
3500 N. Rock Road, #800
Wichita, KS 67226

PROJECT: Northbrook Pedestrian Bridge across East Fork Chisholm Creek

PROJECT #: _____ **DATE:** 06/13/90

TO: Northbrook Homeowners Association
4018 Bayberry
Wichita, KS 67226
Att: Les Aaby

---

100 year FEMA - FIS WSE = 1363 Feet (NGVD)

= 175.6 Feet (Wichita)

between FEMA - FIS X-Sections AJ & AK

FLOODWAY

X-Sec	Width	Section Area	Mean Velocity
AJ	250	1799	1.8
AK	150	935	3.5

Pedestrian Bridge length = 30'-0" (plus approaches total length = 84'-0")

W 14 X 27 = 13.91"

3" X 12" 2.50"

16.41" = 1.37' or 1' - 4 2/5"

Area Blocked by Bridge Superstructure

(30') X (1.37') = 41.1 FT^2 + approaches

(41.1)/(935) = 0.044 or 4.4% area reduction

(41.1)/(1799) = 0.0228 or 2.3% area reduction in FEMA - FIS (detail study) Floodway

Kansas D.W.R. permit for minor stream obstruction 15% area reduction of stream X-section or less (low-water crossings).

Stream - any water course - well-defined bed and banks and drainage area of 160 acres or greater.

This is the analysis but these items may be needed:

Stream Obstruction - plans and specifications

a.) Location map - location of obstruction
section lines
scale
north arrow
property lines w/names and addresses of -adjoining landowners
drainage area

b.) Detail plan view

c.) Stream profile - present elevation of stream bed and both banks, extending upstream to point where stream bed equals top of obstruction and extending downstream an equal distance.

d.) Elevation view showing obstruction on cross section of the stream and valley to project design flood elevation.

e.) At least one permanent bench mark referenced to National Geodetic Vertical Datum (NGVD) for all streams where detailed floodplain data available.

f.) Details on manner obstruction is tied into bed and banks of stream.

Mid-Kansas Engineering Consultants, P.A.

J. Neil Jednoralski

J. Neil Jednoralski, P.E.

JNJ/ta

THE CITY OF WICHITA

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION
CITY HALL — SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4501

FILE:
NORTHBROOK
PLAT FILE

612

Mr. Les Aaby
Northbrook Homeowners Association
4018 Bayberry
Wichita, Kansas 67226

Dear Mr. Aaby:

The City Engineer's Office does not object to the concept of the proposed pedestrian bridge. In order to proceed with the necessary local and state approvals and permits for this project, it will be necessary to provide a hydraulic analysis of the flood surface profile based on existing conditions and also based on the assumption that the bridge obstruction is in place. A significant increase in the flood elevation may be the cause for rejection of your request.

It will be necessary for you to obtain a permit to place fill in a flood area from the City's Central Inspection Division, and to also obtain a permit from the Kansas Division of Water Resources. I have enclosed a copy of the application form. You should submit the supporting hydraulic information with both the state application and with your requet for a fill permit from the City.

If you have any questions, please call me at 268-4288.

Sincerely,

Gene Rath

Gene Rath, P.E.
Assistant City Engineer

:wt
Encl.

THE STATE OF KANSAS

STATE BOARD OF AGRICULTURE
Sam Brownback, *Secretary*

DIVISION OF WATER RESOURCES
David L. Pope, *Chief Engineer*

APPLICATION

for
Permit to Construct
OBSTRUCTIONS IN STREAMS
K.S.A. 82a-301 to 305a

PLEASE USE INSTRUCTIONS ON REVERSE SIDE OF PAGE.

Application is hereby made for the written consent or permit of the Chief Engineer, Division of Water Resources, pursuant to K.S.A. 82a-301 *et seq.* by:

1. Applicant: _____ Telephone No.: _____

   Address: _____

2. Name of Stream or Watercourse: _____

3. Description of type and purpose of proposed construction: _____

   _____

   _____

   _____

   _____

   _____

4. Legal description of location:

   _____

   _____

   _____

5. Complete plans, maps, profiles, specifications, all papers and data shall be filed with this application and made a part thereof.

6. Copies of Environmental Reviews, Environmental Impact Statement, letters of comment and any other information pertinent to the requirements of K.S.A. 82a-325 through 82a-327, Water Projects Environmental Coordination Act, have/have not been conducted and are/are not attached and made a part hereof.

7. Signature of Applicant: _____

   Date: _____ Title: _____

DWR 2-100.00 (Rev. 7/88)

Instructions

1. The applicant may be an individual, partnership, corporation, municipality, state or federal agency, etc. The address should be the mailing address and the telephone number at which the applicant may be contacted during office hours.

2. The official name of the stream or watercourse should be entered. If the stream or watercourse is unnamed, please indicate what named stream it is tributary to.

3. The description should indicate what type of project is being considered, such as a dam, a bridge, sand plant, channel alteration, jetty, bank stabilization, or other stream obstruction. It should indicate the overall size of the project, for example: "A channel change is proposed and it will realign the channel, shortening it from a length of 420 feet to a length of 300 feet. The new channel will have a cross-section comprised of a bottom width of 10 feet and 3:1 side slope. A total of 1,200 cubic yards are to be excavated."

4. The legal description of the location (section, township, range) of the project should be to the nearest 10 acre-tract in which the centerline of the project intersects the centerline of the stream. The project location should be identified in feet North and West from the Southeast corner of the section. In case of a channel alteration within or along the stream each 40 acre tract in which the project is located shall be identified.

5. Plans shall be developed and submitted as provided by rules and regulations.

6. Copies of any Environmental reviews or Environmental Impact Statements (EISs) should be attached and made a part of the application. Submittal of EISs does not necessarily obviate the need for implementation of the Water Projects Environmental Coordination Act (ECA) and a mandatory 30 day comment period prior to final processing; however, in cases where the EISs satisfy the ECA the review process may be accelerated.

7. The signature of the applicant is required along with his or her title, if signing as an authorized agent or officer of a corporation, municipality, federal or state agency, etc.

October 10, 1986

Mr. Chris Breitenstein, P. E.
Engineering Department - 7th Floor
455 North Main
Wichita, Kansas 67202

Reference: Lot 30, Block 1, Northbrook

Dear Mr. Breitenstein:

This letter is written to certify that the referenced home site prior to any construction was above the FEMA flood insurance elevation of 1364.1.

We have street cross sections, the original aerial topography, field notes from the sanitary sewer profiles and the pre-construction topography of the lot prior to the home being started which support our conclusion. Fill of which range from 1364.5 - 1369.5.

The scale and accuracy of the FEMA flood boundary and floodway map, panel 15 of 40 (200328-0015) May 15, 1986, is not of sufficient quality to show this lot clearly. The map either needs to be corrected or a letter supplied to the owner that the lot is not in the flood plain.

Very truly yours,

MID-KANSAS ENGINEERING CONSULTANTS, P.A.

Kenneth H. Bengtson

Kenneth H. Bengtson,PE
President

KHB/kb

MID-KANSAS ENGINEERING CONSULTANTS PA
682-6561

3500 N. ROCK ROAD #800
WICHITA, KANSAS 67226

October 10, 1986

Mr. Chris Breitenstein, P. E.
Engineering Department - 7th Floor
455 North Main
Wichita, Kansas 67202

Reference: Lot 46, Block 1, Northbrook

Dear Mr. Breitenstein:

This letter is written to certify that the referenced home site prior to any construction was above the FEMA flood insurance elevation of 1363.3.

We have street cross sections, the original aerial topography, field notes from the sanitary sewer profiles and the pre-construction topography of the lot prior to the home being started which support our conclusion. Fill of which range from 1365 - 1370.

The scale and accuracy of the FEMA flood boundary and floodway map, panel 15 of 40 (200328-0015) May 15, 1986, is not of sufficient quality to show this lot clearly. The map either needs to be corrected or a letter supplied to the owner that the lot is not in the flood plain.

Very truly yours,

MID-KANSAS ENGINEERING CONSULTANTS, P.A.

Kenneth H. Bengtson

Kenneth H. Bengtson,PE
President

KHB/kb

MID-KANSAS ENGINEERING CONSULTANTS PA
682-6561

3500 N. ROCK ROAD #800
WICHITA, KANSAS 67226

MID-KANSAS ENGINEERING CONSULTANTS, P.A.
3500 N. Rock Road, #800
Wichita, KS 67226

PROJECT: Lot 17, Block 1, Northbrook Third Addition

PROJECT #: _____ **DATE:** 10/13/86

TO: Chris Breitenstein
Engineering Dept. - 7th Floor
455 North Main
Wichita, Kansas 67202

The above referenced lot has been filled so that it is now above the FEMA flood insurance elevation of 1362.5

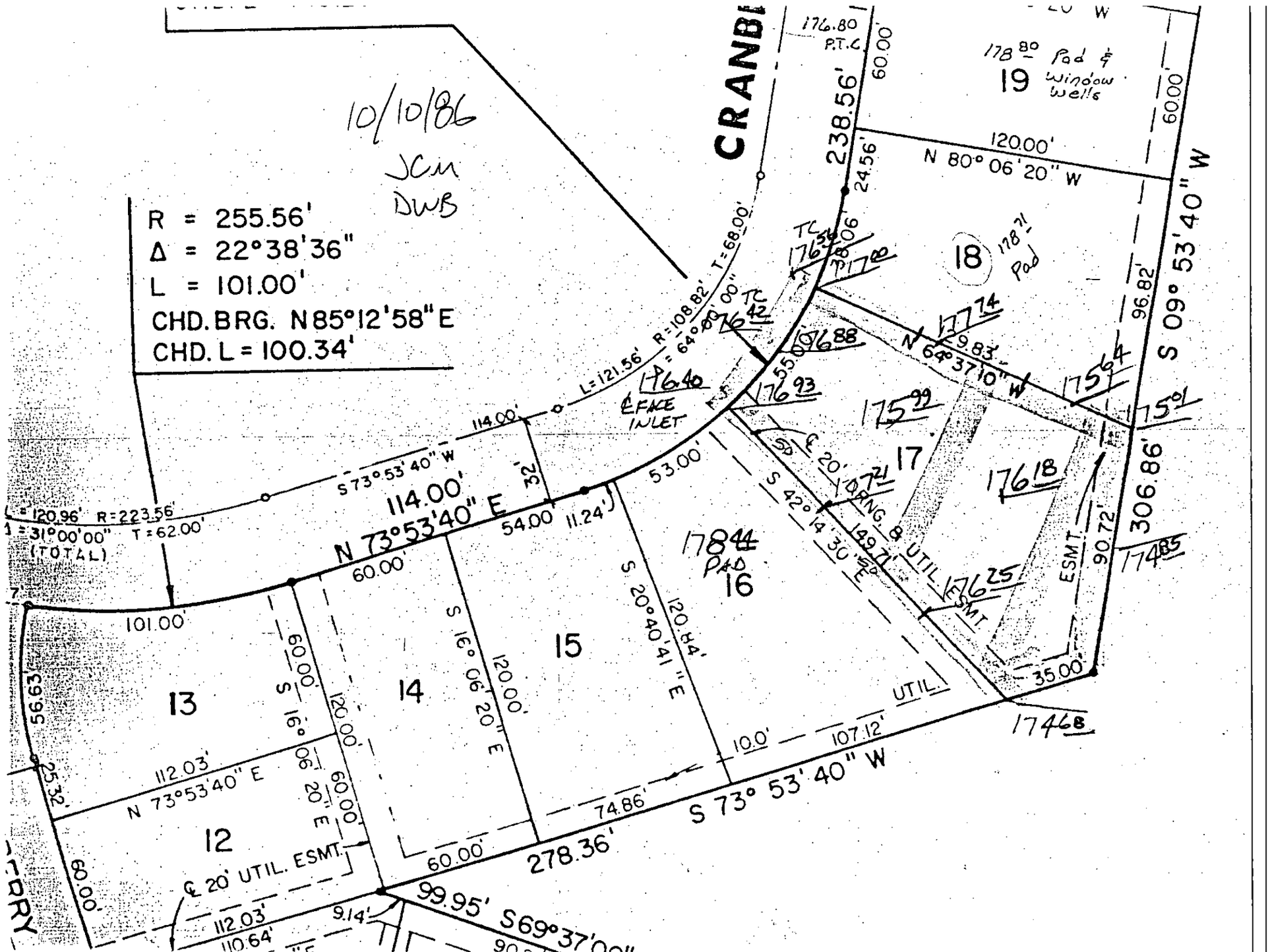
Please arrange for a letter of map amendment to reflect the changed condition.

Very truly yours,

Kenneth H. Bengtson

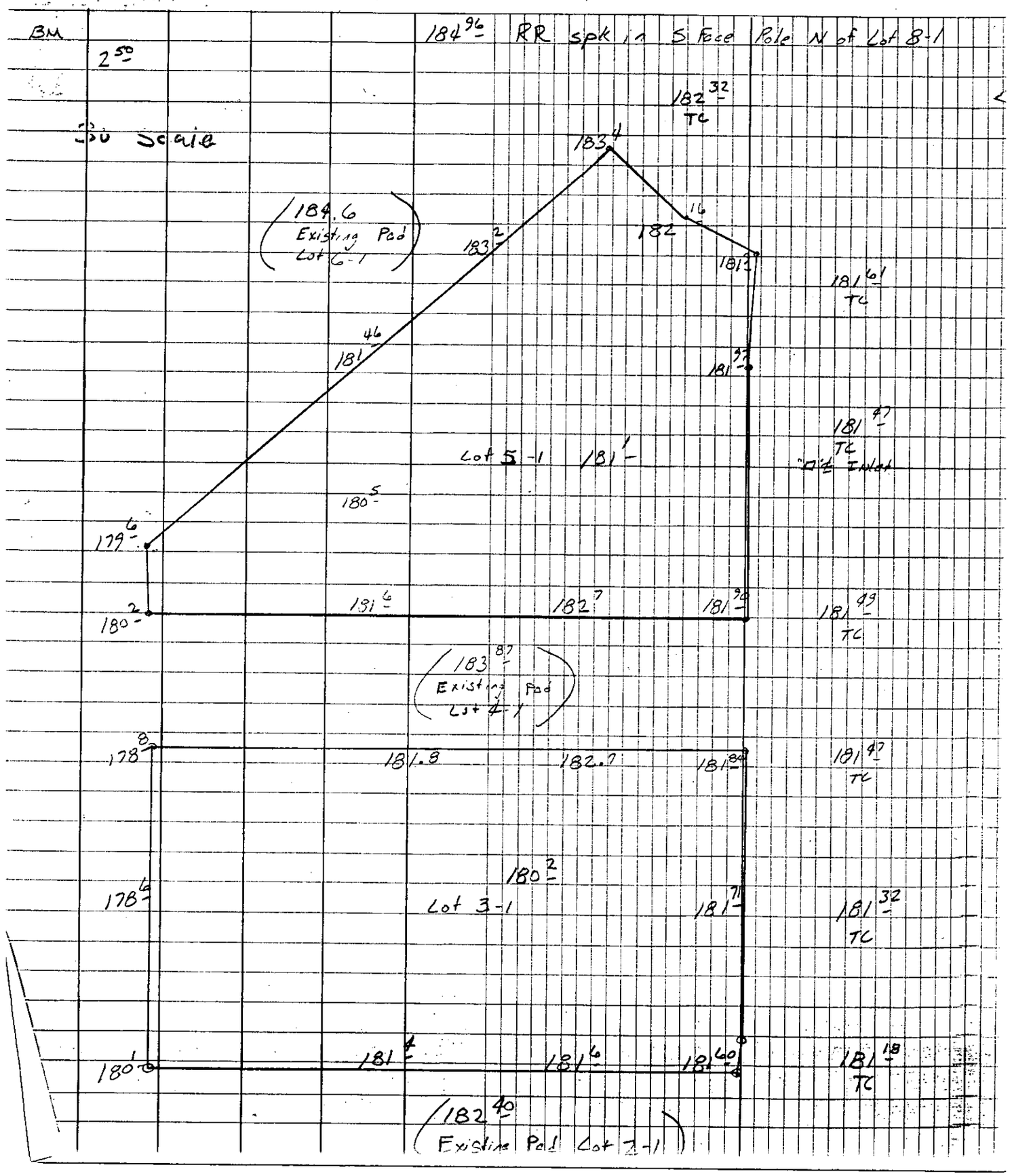
Kenneth H. Bengtson

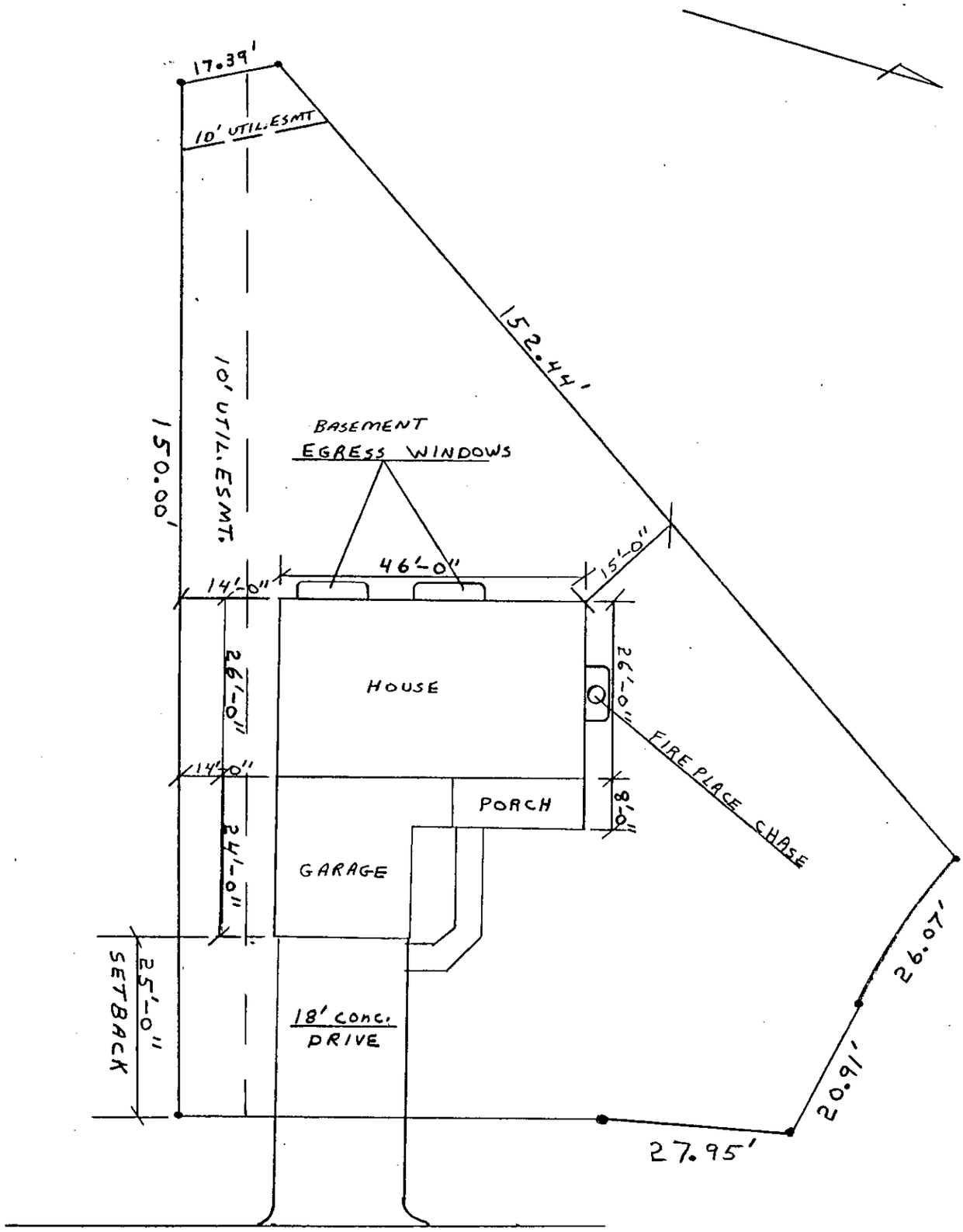
KHB/kb


10/10/86
JCM
DWB
R = 255.56'
Δ = 22°38'36"
L = 101.00'
CHD. BRG. N85°12'58"E
CHD. L = 100.34'
CRANB
176.80 P.T.C.
60.00'
238.56'
24.56'
178.80 Pad & window wells
19
120.00'
N 80° 06' 20" W
60.00'
S 09° 53' 40" W
96.82'
306.86'
TC 176.34
38.06'
176.80
18
178.71 Pad
TC 176.42
L=121.56' R=108.82' T=68.00'
Δ = 64°00'00"
176.88
177.74
9.83'
N 64° 37' 10" W
175.64
175.01
176.40
176.93
175.99
114.00'
S 73°53'40" W
114.00'
N 73°53'40" E
54.00
11.24'
53.00'
17
17618
S 42° 14' 30" E
149.71'
℄ 20' UTIL. ESMT.
ESMT.
90.72'
17485
17625
35.00'
17468
17844 Pad
16
15
14
13
12
S 20° 40' 41" E
120.84'
S 16° 06' 20" E
120.00'
60.00'
101.00'
56.63'
25.32'
112.03'
N 73°53'40" E
℄ 20' UTIL. ESMT.
112.03'
110.64'
9.14'
99.95'
S 69° 37' 00"
74.86'
278.36'
S 73° 53' 40" W
10.0'
107.12'
UTIL.

MID-KANSAS ENGINEERING CONSULTANTS, P.A.

Instrument ADL
Rod FMR
Project Northbrook Lots 3 & 5-1
Job No. _____ Date 7-1-87 Sheet _____ of _____





4039 N. BAYBERRY

PLOT PLAN

SCALE: 1" = 20'-0"

LOT 5 BLOCK 1

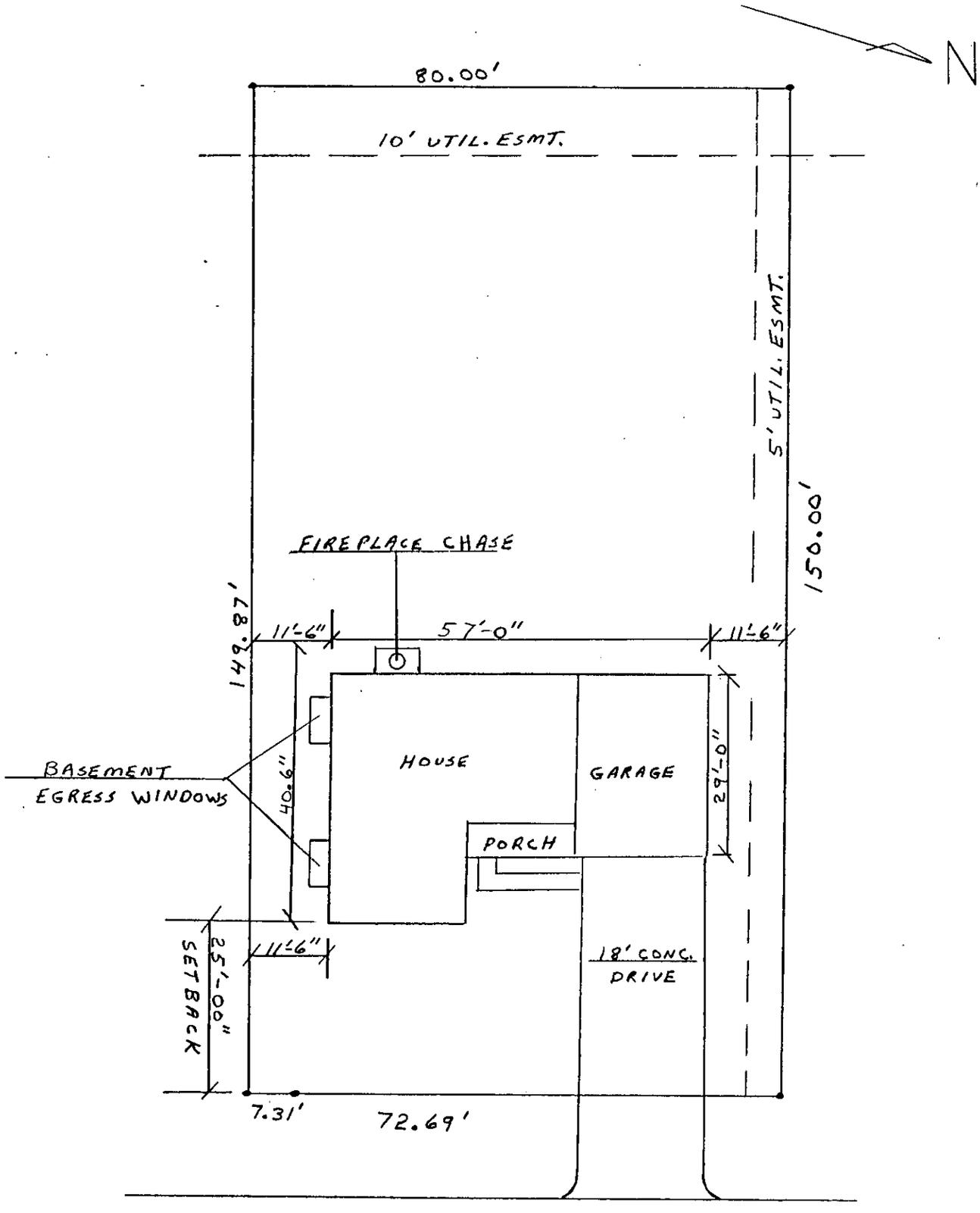
NORTH BROOK ADDITION

TO WICHITA, SEDGWICK, COUNTY, KS.

ADDRESS 4039 N. BAY BERRY

WICHITA BUILDERS LICENCE NO. K00221

FARRELL CONST. CO., INC.
#9 SON COURT
VALLEY CENTER, KS 67147
(316) 755-0855



4023 N. BAYBERRY

PLOT PLAN

SCALE: 1" = 20'-0"

LOT 3 BLOCK 1

NORTH BROOK ADDITION

TO WICHITA, SEDGWICK, COUNTY, KS.

ADDRESS: 4023 N. BAYBERRY

WICHITA BUILDERS LICENCE NO. K00221

FARRELL CONST. CO., INC.
#9 SON COURT
VALLEY CENTER, KS 67147
(316) 755-0855

NORTHBROOK

Node	Ave. Street Slope (Prelim. Proposed)	T_c	Area	Area Accum.	C	i_2	i_{100}	Q_2	Q_{100}	Discharge D.W.S. (100 yr.)	Up Str. D.W.S.	Pipe Size	Inlets (length)	Comments
C-1	0.62	20	4.15		0.55	3.63	8.03	8.23	18.32				8'	
C-2	0.62	20	2.36		0.6	3.63	8.03	5.14	11.37			84" @ 0.20%	8'	
				6.51	0.568			13.43	29.69			30" @ 0.24%		(8 cfs to C-3 on 100 Yr.)
C-3	1.10	18	5.3		0.6	3.78	8.37	12.0	26.6		1364.8		12'- 8'	
C-3A			(1.9 - 3.4)					7.7	17.1			21" @ 0.44%	8'	
C-4	1.10	18	2.7		0.6	3.78	8.37	6.1	13.6		1364.8		12'	
										1363.0		36" @ 0.54%		
W-1		15	3.2		0.75	4.06	8.98	9.7	21.6			30" @ 0.26%	16'	
W-2		18	1.7		0.75	3.78	8.37	4.8	10.7			24" @ 0.23%	8'	
S-1	0.44	15	0.74		0.6	4.06	8.98	1.8	3.98		1365.3			
S-2	0.44	15	1.10		0.6	4.06	8.98	2.68	5.93		1365.3			
				1.84	0.6	4.06	8.98	4.48	9.91	1363.5		18" @ 0.24%	6'	
E-1	1.80	15	1.46		0.55	4.06	8.98	3.26	7.21				5'	
E-2	1.80	15	0.81		0.6	4.06	8.98	1.97	4.36				4'	
E-3	0.8	15	2.3		0.55	4.06	8.98	5.13	11.35			24" @ 0.20%	8'	
E-4	0.8	15	1.2		0.6	4.06	8.98	2.9	6.4			18" @ 0.28"	5'	
										1363.4				

Box Culvert

ALL INLETS ARE IN SUMP CONDITION
1.2 - 1.6 cfs/lf

NORTHBROOK

Node	Ave. Street Slope (Prelim. Proposed)	T_c	Area	Area Accum.	C	i_2	i_{100}	Q_2	Q_{100}	Discharge D.W.S. (100 yr.)	Up Str. D.W.S.	Pipe Size	Inlets (length)	Comments
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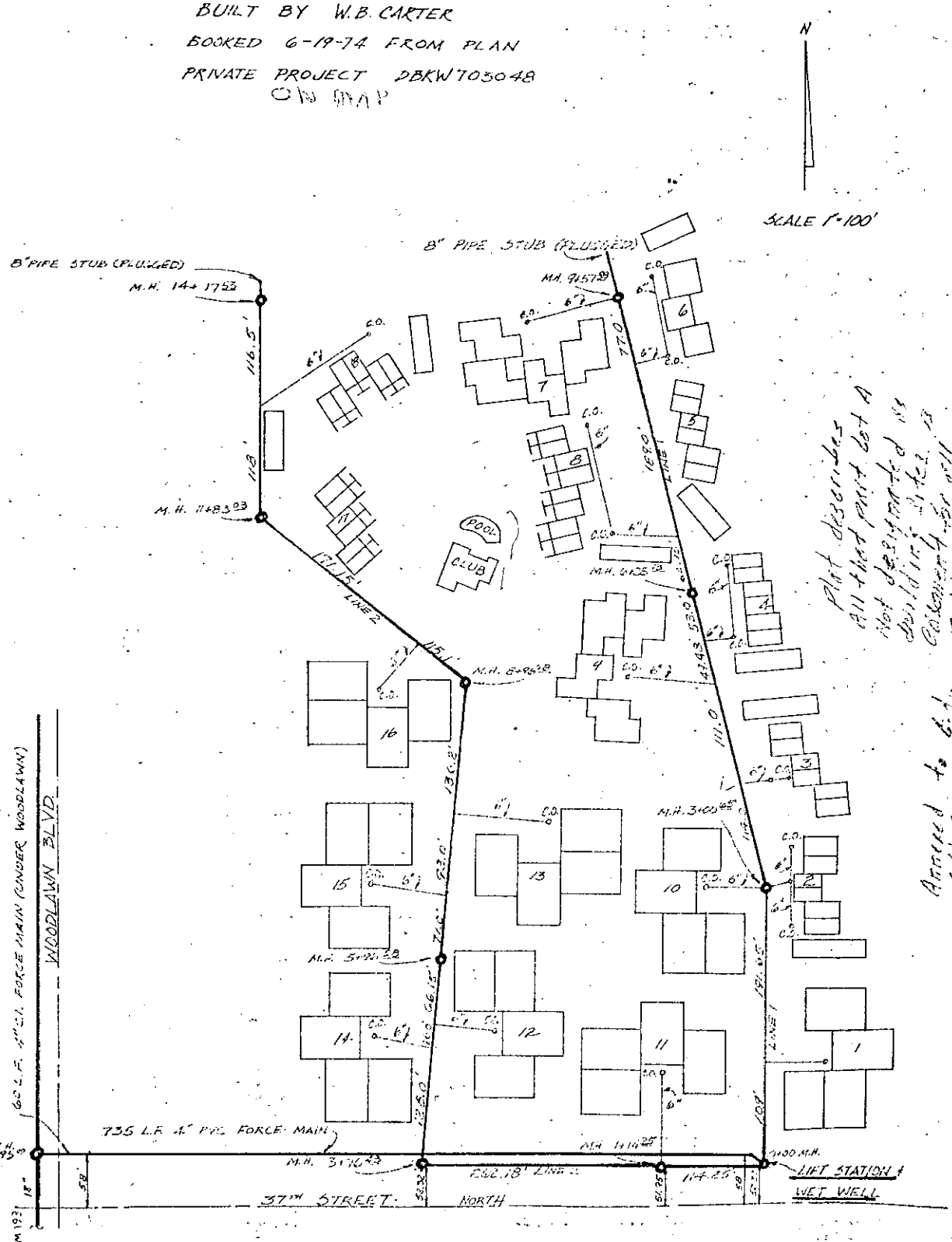
W-1		15	3.2		0.75	4.06	8.98	9.7	21.6			30" @ 0.26%	16'	
W-2		18	1.7		0.75	3.78	8.37	4.8	10.7			24" @ 0.23%	8'	
S-1	0.44	15	0.74		0.6	4.06	8.98	1.8	3.98		1365.3			
S-2	0.44	15	1.10		0.6	4.06	8.98	2.68	5.93		1365.3			
				1.84	0.6	4.06	8.98	4.48	9.91	1363.5		18" @ 0.24%	6'	
E-1	1.80	15	1.46		0.55	4.06	8.98	3.26	7.21				5'	
E-2	1.80	15	0.81		0.6	4.06	8.98	1.97	4.36				4'	
E-3	0.8	15	2.3		0.55	4.06	8.98	5.13	11.35			24" @ 0.20%	8'	
E-4	0.8	15	1.2		0.6	4.06	8.98	2.9	6.4			18" @ 0.28"	5'	
										1363.4				

Box Culvert

ALL INLETS ARE IN SUMP CONDITION
1.2 - 1.6 cfs/lf

M-234

SANITARY SEWER TO SERVE
CHISHOLM CREEK
BUILT BY W.B. CARTER
BOOKED 6-19-74 FROM PLAN
PRIVATE PROJECT DBKW 703048
ON MAP



M-234

Part of PY-173

Part of GOV. LOT 8

MISSOURI PACIFIC R.R.

NORTH BROOK

PY-173

Part of GOV. LOT 8

Part of PY-173

455'

18"

450'

SLOCK 1 ADD NO.

39TH ST

LOT A

GOV LOT 9

PY-173

CREEK

LOT A

CHISHOLM

LOCK 1

LOT B

PY-173

N

4

FEB. 17, 1983

4" P.V.C.

BOOK M-234 SEE ATTACHED SHEET

37TH ST N.

BK 79 PG 928 DED DEED

BOOK M-193 OUTFALL SEWER SYSTEM BEL AIRE IMPROVEMENT DISTRICT