

STAFF REPORT
(Final Plat, Overall Preliminary Plat Approved 5/8/97)

CASE NUMBER: S/D 99-29 - HIGHLAND SPRINGS 2ND ADDITION

OWNER/APPLICANT: Kelsey Development, Inc., 716 N. 119th St. West, Wichita, KS 67235

SURVEYOR/ENGINEER: Baughman Company, P.A., 315 Ellis, Wichita, KS 67211

LOCATION: West of 135th St. West, South of Central

SITE SIZE: 63.28 acres

NUMBER OF LOTS

Residential:	122
Office:	
Commercial:	
Industrial:	
Total:	122

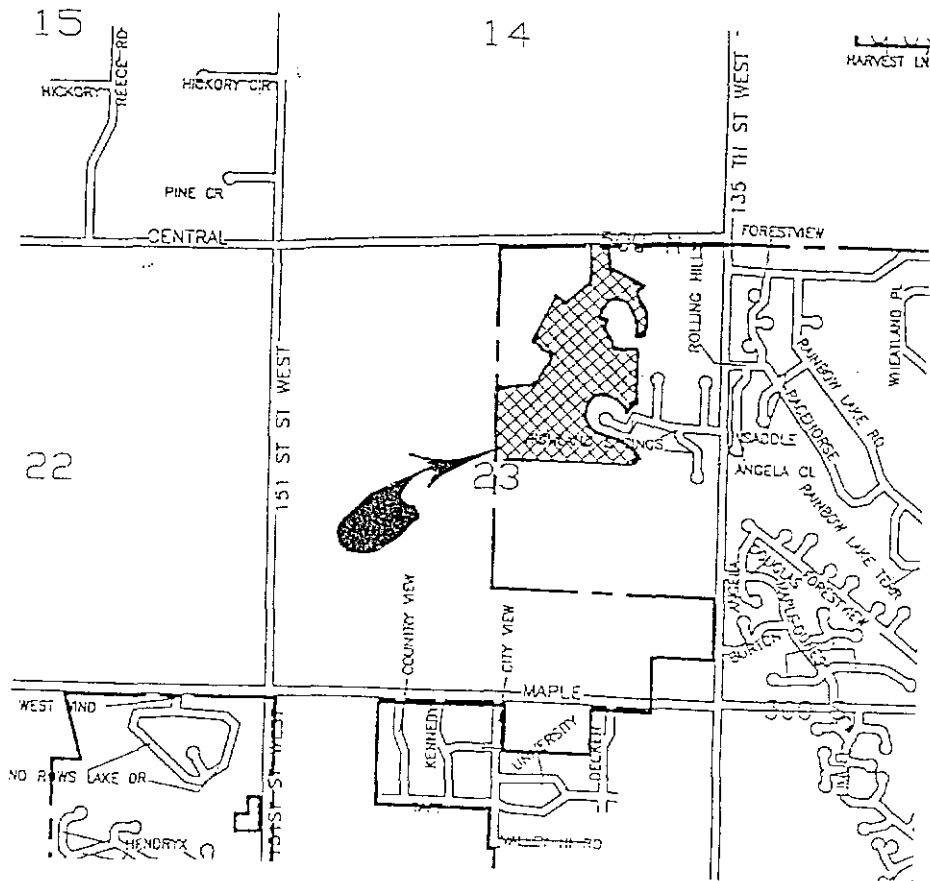
MINIMUM LOT AREA: 63.28 acres

CURRENT ZONING: SF-6, Single-Family Residential

PROPOSED ZONING: Same

CIS

VICINITY MAP



Note: An overall preliminary plat - Highland Springs Addition - was approved for this site on May 8, 1997, which covered the entire quarter section. The final plat for the first phase, adjoining the east line of this plat (located in the southeast quarter of this quarter section) was approved by the MAPC on July 31, 1997. This second phase contains a similar street layout as for this portion in the preliminary plat, but with an additional loop street in the southwest portion of the plat. The lot layout is also similar, but with six fewer lots in this plat. Access will be obtained for this phase through Highland Springs from 135th St. West.

STAFF COMMENTS:

- A. The site is located within the Northwest Wichita sewer growth limits. The applicant shall guarantee the extension of sanitary sewer and City water to serve the lots being platted.
- B. If improvements are guaranteed by petition, a notarized certificate listing the petitions shall be submitted to the Planning department for recording.
- C. City Engineering needs to comment on the status of the applicant's drainage plan.
- D. The applicant shall guarantee the paving of the proposed interior streets. Highland shall be paved to a collector street status, and sidewalks shall be guaranteed along both sides of the street. Sidewalks shall be guaranteed on one side of the non-cul-de-sac streets - Remington Lane, Kentucky Lane and Rolling Hills. A temporary turnaround for Rolling Hills shall be established by separate instrument.
- E. The applicant shall submit a copy of the instrument which establishes the pipeline easements on the property, which verifies that the easements shown are sufficient and that utilities may be located adjacent to and within the easements.
- F. The applicant's agent shall determine any setback requirements for the pipelines by researching the text of the pipeline agreements. If a setback from the pipeline easements is provided for in the pipeline easement agreements, it shall be indicated on the face of the plat.
- G. Provisions shall be made for ownership and maintenance of the proposed reserves. The applicant shall either form a lot owners' association prior to recording the plat or shall submit a covenant stating when the association will be formed, when the reserves will be deeded to the association and who is to own and maintain the reserves prior to the association taking over those responsibilities.
- H. For those reserves being platted for drainage purposes, the required covenant which provides for ownership and maintenance of the reserves shall grant, to the City, the authority to maintain the drainage reserves in the event the owner(s) fail to do so. The covenant shall provide for the cost of such maintenance to be charged back to the owner(s) by the governing body.
- I. City Fire needs to comment on the acceptability of the street names. Several street names are not in compliance with the 12-character street name limitation.

- T. The owner of the subdivision should be aware of the fact that the development of any subdivision greater than five (5) acres in size may require an NPDES Storm Water Discharge Permit from the Kansas Department of Health and Environment in Topeka. Further, on all construction sites, the City of Wichita requires that best management practices be used to reduce pollutant loadings in storm water runoffs.
- U. Perimeter closure computations shall be submitted with the final plat tracing.
- V. Recording of the plat within thirty (30) days after approval by the City Council and/or County Commission.
- W. The representatives from the utility companies should be prepared to comment on the need for any additional utility easements to be platted on this property.
- X. The applicant is reminded that a disk shall be submitted with the final plat tracing to the Planning Department detailing this plat in digital format in Release 13 version of AutoCAD. This will be used by the City and County GIS Department.

- J. It is recommended that access easements at the ends of turnarounds be platted to increase the accessibility and usefulness of Reserve A for all homeowners in the Addition.
- K. For those reserves being platted for sidewalk purposes, the required covenant, which provides for ownership and maintenance of the reserves, shall establish that the homeowners' association shall maintain the sidewalk system planned for construction outside of the street right-of-way. This covenant shall grant to the City the authority to maintain the sidewalks outside of street right-of-way in the event the owners fail to do so.
- L. The applicant shall submit a covenant which provides for four (4) off-street parking spaces per dwelling unit on each lot which abuts a 58-foot street. The covenant shall inventory the affected lots by lot and block number and shall state that the covenant runs with the land and is binding on future owners and assigns.
- M. The applicant is reminded that a platting binder is required with the final plat. Approval of this plat will be subject to submittal of this binder and any relevant conditions found by such a review.
- N. The platlor's text shall include language that a drainage plan has been developed for the plat and that all drainage easements, rights-of-way, or reserves shall remain at established grades or as modified with the approval of the applicable City or County Engineer, and unobstructed to allow for the conveyance of stormwater.
- O. The minimum building opening elevations shall be designated in National Geodatic Vertical Datum (NGVD) and City Datum.
- 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. (Water service and fire hydrants required by Article 8 for fire protection shall be as per the direction and approval of the Chief of the Fire Department.)
- Q. The applicant's engineer is advised that the Register of Deeds is requiring the name(s) of the notary public, who acknowledges the signatures on this plat, to be printed beneath the notary's signature.
- R. To receive mail delivery without delay, and to avoid unnecessary expense, the applicant is advised of the necessity to meet with the U.S. Postal Service Growth Management Coordinator (phone 316-729-0102) prior to development of the plat so that the type of delivery, and the tentative mailbox locations can be determined.
- S. The applicant is advised that various State and Federal requirements [specifically but not limited to the Army Corps of Engineers, Kanopolis Project Office, Rt. 1, Box 317, Valley Center, KS 67147] for the control of soil and wind erosion and the protection of wetlands may impact how this site can be developed. It is the applicant's responsibility to contact all appropriate agencies to determine any such requirements.



KOCH PIPELINE COMPANY LP

August 22, 2000

City of Wichita
485 N. Main - 7th Floor
Wichita, KS 67202
Attn.: Vickie Wong
Engineering Dept.

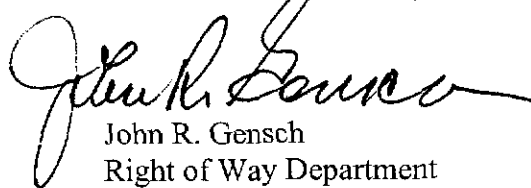
RE: Three (3) Encroachment Permits
Highland Springs Subdivision, 2nd Addition

Dear Ms. Wong:

Enclosed herein are three (3) duplicate original encroachment permits covering the following facilities: an 8" diameter water pipeline, two reinforced concrete 36" diameter storm water sewers, and an asphalt roadway.

Please have the Permit Agreements signed by the appropriate party. Construction of the above facilities across the pipeline can commence at the time the documents are signed by the City of Wichita.

Yours very truly,
KOCH PIPELINE COMPANY, L.P.



John R. Gensch
Right of Way Department

Enclosures

828-6067

828-6744

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991                       *
*   VERSION 4.0.1E                 *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc.     *
*   RUN DATE 07/16/01 TIME 11:15:12 *
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET           *
* DAVIS, CALIFORNIA 95616    *
* (916) 551-1748             *
*
*****

```

```

X X XXXXXXX XXXXX X
X X X X X XX
X X X X X X
XXXXXXX XXXX X XXXXX X
X X X X X X
X X X X X X
X X XXXXXXX XXXXX XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID NORTHERN DRAINAGE BASIN
  * EXISTING DRAINAGE FOR NORTHERN BASIN
  * INCLUDING OFFSITE FROM EAST AND NORTH
2 IT 1 03APR01 0000 300 2001
3 ID 3 0
  * 24-HR DISTRIBUTION
  * PREC 1.0000 1.3143 1.5143 1.7714 2.0000 2.2286
  * 45-MIN DISTRIBUTION
4 JR PREC 1.0 1.3489 1.4471 1.6923 1.9135 2.1057
  *DIAGRAM
  *
  * EXISTING

5 KK EXIST
6 BA .008 24-hr 45-min
7 PB 1.56 3.5 1.56
8 IN 1.875 60 1.875
9 PC 0 0.011 0.022 0.035 0.048 0.063 0.080 0.098 0.120 0.147
10 PC 0.181 0.235 0.663 0.772 0.820 0.854 0.880 0.902 0.921 0.937
11 PC 0.952 0.965 0.978 0.989 1.000
12 UD .15
13 LS 0 76
  *

14 KK DEVEL
15 BA .008
16 UD .15
17 LS 0 83
  *

18 KK POND
19 RS 1 ELEV 197
20 SA 0 .01 .1 .25 .4
21 SE 197 198 199 200 201
22 SL 197.75 1.23 0.67 0.5
23 SS 200 100 0.45 1.5
  *
24 ZZ

```

```

INPUT LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
NO. (.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW
5 EXIST
.
.
14 . DEVEL
. V
. V
18 . POND

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 07/16/01 TIME 11:15:12 *
*****

```

```

*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

```

NORTHERN DRAINAGE BASIN

```

3 IO OUTPUT CONTROL VARIABLES
    IPRNT 3 PRINT CONTROL
    IPLOT 0 PLOT CONTROL
    QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
    NMIN 1 MINUTES IN COMPUTATION INTERVAL
    IDATE 3APR 1 STARTING DATE
    ITIME 0000 STARTING TIME
    NQ 300 NUMBER OF HYDROGRAPH ORDINATES
    NDDATE 3APR 1 ENDING DATE
    NDTIME 0459 ENDING TIME
    ICENT 20 CENTURY MARK

    COMPUTATION INTERVAL 0.02 HOURS
    TOTAL TIME BASE 4.98 HOURS

```

ENGLISH UNITS

```

DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

```

```

JP MULTI-PLAN OPTION
    NPLAN 1 NUMBER OF PLANS

```

```

JR MULTI-RATIO OPTION
    RATIOS OF PRECIPITATION
    1.00 1.35 1.45 1.69 1.91 2.11

```

*** **

```

*****
* EXIST *
*****

```

```

8 IN TIME DATA FOR INPUT TIME SERIES
    JXMIN 1 TIME INTERVAL IN MINUTES
    JXDATE 3APR 1 STARTING DATE
    JXTIME 0 STARTING TIME

```

SUBBASIN RUNOFF DATA

6 BA SUBBASIN CHARACTERISTICS
TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

7 PB STORM 1.56 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN
0.01 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.03 0.03
0.05 0.43 0.11 0.05 0.03 0.03 0.02 0.02 0.02 0.02
0.01 0.01 0.01 0.01

13 LS SCS LOSS RATE
STRTL 0.63 INITIAL ABSTRACTION
CRVNB 76.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

12 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.15 LAG

UNIT HYDROGRAPH
47 END-OF-PERIOD ORDINATES

1.	3.	5.	8.	13.	17.	21.	23.	24.	24.
23.	22.	20.	17.	14.	12.	10.	8.	7.	6.
5.	4.	3.	3.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

TOTAL RAINFALL = 1.56, TOTAL LOSS = 1.35, TOTAL EXCESS = 0.21

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	4.98-HR
4.	0.40	0.	0.	0.	0.
		(INCHES) 0.211	0.211	0.211	0.211
		(AC-FT) 0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.00

TOTAL RAINFALL = 1.56, TOTAL LOSS = 1.35, TOTAL EXCESS = 0.21

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	4.98-HR
4.	0.40	0.	0.	0.	0.
		(INCHES) 0.211	0.211	0.211	0.211
		(AC-FT) 0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.35

TOTAL RAINFALL = 2.10, TOTAL LOSS = 1.64, TOTAL EXCESS = 0.47

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	4.98-HR
9.	0.38	0.	0.	0.	0.
		(INCHES) 0.468	0.468	0.468	0.468
		(AC-FT) 0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.45

TOTAL RAINFALL = 2.26, TOTAL LOSS = 1.70, TOTAL EXCESS = 0.55

+ PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ 11.	0.38	(CFS)	1.	1.	1.	1.
		(INCHES)	0.553	0.553	0.553	0.553
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.69

TOTAL RAINFALL = 2.64, TOTAL LOSS = 1.86, TOTAL EXCESS = 0.78

+ PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ 15.	0.38	(CFS)	1.	1.	1.	1.
		(INCHES)	0.781	0.781	0.781	0.781
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.91

TOTAL RAINFALL = 2.99, TOTAL LOSS = 1.98, TOTAL EXCESS = 1.00

+ PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ 20.	0.37	(CFS)	1.	1.	1.	1.
		(INCHES)	1.005	1.005	1.005	1.005
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 2.11

TOTAL RAINFALL = 3.28, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.21

+ PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ 24.	0.37	(CFS)	1.	1.	1.	1.
		(INCHES)	1.211	1.211	1.211	1.211
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** **

 * *
 14 KK * DEVEL *
 * *

SUBBASIN RUNOFF DATA

15 BA SUBBASIN CHARACTERISTICS
 TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

7 PB STORM 1.56 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN
 0.01 0.01 0.01 0.01 0.02 0.02 0.02 0.02 0.03 0.03
 0.05 0.43 0.11 0.05 0.03 0.03 0.02 0.02 0.02 0.02
 0.01 0.01 0.01 0.01

17 LS SCS LOSS RATE
 STRTL 0.41 INITIAL ABSTRACTION
 CRVNR 83.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

16 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 0.15 LAG

UNIT HYDROGRAPH
 47 END-OF-PERIOD ORDINATES

1.	3.	5.	8.	13.	17.	21.	23.	24.	24.
23.	22.	20.	17.	14.	12.	10.	8.	7.	6.
5.	4.	3.	3.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.			

TOTAL RAINFALL = 1.56, TOTAL LOSS = 1.15, TOTAL EXCESS = 0.41

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	4.98-HR
8.	0.38	0.	0.	0.	0.
		(INCHES) 0.414	0.414	0.414	0.414
		(AC-FT) 0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
 FOR PLAN 1, RATIO = 1.00

TOTAL RAINFALL = 1.56, TOTAL LOSS = 1.15, TOTAL EXCESS = 0.41

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	4.98-HR
8.	0.38	0.	0.	0.	0.
		(INCHES) 0.414	0.414	0.414	0.414
		(AC-FT) 0.	0.	0.	0.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
 FOR PLAN 1, RATIO = 1.35

TOTAL RAINFALL = 2.10, TOTAL LOSS = 1.34, TOTAL EXCESS = 0.77

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 15.	0.37	1.	1.	1.	1.	1.
		(INCHES)	0.767	0.767	0.767	0.767
		(AC-FT)	0.	0.	0.	0.
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.45

TOTAL RAINFALL = 2.26, TOTAL LOSS = 1.38, TOTAL EXCESS = 0.88

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 18.	0.37	1.	1.	1.	1.	1.
		(INCHES)	0.876	0.876	0.876	0.876
		(AC-FT)	0.	0.	0.	0.
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.69

TOTAL RAINFALL = 2.64, TOTAL LOSS = 1.48, TOTAL EXCESS = 1.16

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 23.	0.37	1.	1.	1.	1.	1.
		(INCHES)	1.163	1.163	1.163	1.163
		(AC-FT)	0.	0.	0.	0.
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.91

TOTAL RAINFALL = 2.99, TOTAL LOSS = 1.55, TOTAL EXCESS = 1.43

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 29.	0.37	1.	1.	1.	1.	1.
		(INCHES)	1.435	1.435	1.435	1.435
		(AC-FT)	1.	1.	1.	1.
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 2.11

TOTAL RAINFALL = 3.28, TOTAL LOSS = 1.61, TOTAL EXCESS = 1.68

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 34.	0.37	2.	2.	2.	2.	2.

(INCHES) 1.679 1.679 1.679 1.679
 (AC-FT) 1. 1. 1. 1.

CUMULATIVE AREA = 0.01 SQ MI

*** **

 * *
 18 KK * POND *
 * *

HYDROGRAPH ROUTING DATA

19 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP ELEV TYPE OF INITIAL CONDITION
 RSVRIC 197.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

20 SA AREA 0.0 0.0 0.1 0.3 0.4

21 SE ELEVATION 197.00 198.00 199.00 200.00 201.00

22 SL LOW-LEVEL OUTLET
 ELEV 197.75 ELEVATION AT CENTER OF OUTLET
 CAREA 1.23 CROSS-SECTIONAL AREA
 COGL 0.67 COEFFICIENT
 EXPL 0.50 EXPONENT OF HEAD

23 SS SPILLWAY
 CREL 200.00 SPILLWAY CREST ELEVATION
 SPWID 100.00 SPILLWAY WIDTH
 COGW 0.45 WEIR COEFFICIENT
 EXPW 1.50 EXPONENT OF HEAD

COMPUTED STORAGE-ELEVATION DATA

STORAGE 0.00 0.00 0.05 0.22 0.54
 ELEVATION 197.00 198.00 199.00 200.00 201.00

COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW 0.00 0.00 5.14 5.52 5.96 6.47 7.09 7.83 8.75 9.91
 ELEVATION 197.00 197.75 198.35 198.45 198.56 198.71 198.90 199.15 199.50 200.00
 OUTFLOW 10.05 10.55 11.66 13.62 16.68 21.08 27.06 34.86 44.74 56.92
 ELEVATION 200.02 200.05 200.10 200.18 200.27 200.38 200.50 200.65 200.82 201.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE 0.00 0.00 0.00 0.01 0.01 0.02 0.03 0.04 0.05 0.07
 OUTFLOW 0.00 0.00 3.30 5.14 5.52 5.96 6.47 7.09 7.39 7.83
 ELEVATION 197.00 197.75 198.00 198.35 198.45 198.56 198.71 198.90 199.00 199.15
 STORAGE 0.12 0.22 0.22 0.23 0.25 0.27 0.29 0.32 0.36 0.41
 OUTFLOW 8.75 9.91 10.05 10.55 11.66 13.62 16.68 21.08 27.06 34.86
 ELEVATION 199.50 200.00 200.02 200.05 200.10 200.18 200.27 200.38 200.50 200.65
 STORAGE 0.47 0.54
 OUTFLOW 44.74 56.92
 ELEVATION 200.82 201.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 3.
 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** **

HYDROGRAPH AT STATION POND

FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 6.	0.45		0.	0.	0.	0.
		(INCHES)	0.410	0.410	0.410	0.410
		(AC-FT)	0.	0.	0.	0.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)		6-HR	24-HR	72-HR	4.98-HR
+ 0.	0.43		0.	0.	0.	0.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)		6-HR	24-HR	72-HR	4.98-HR
+ 198.70	0.45		197.77	197.77	197.77	197.77
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.35

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 8.	0.50		1.	1.	1.	1.
		(INCHES)	0.764	0.764	0.764	0.764
		(AC-FT)	0.	0.	0.	0.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)		6-HR	24-HR	72-HR	4.98-HR
+ 0.	0.48		0.	0.	0.	0.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)		6-HR	24-HR	72-HR	4.98-HR
+ 199.40	0.50		197.85	197.85	197.85	197.85
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.45

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)				
+ 9.	0.52		1.	1.	1.	1.
		(INCHES)	0.873	0.873	0.873	0.873
		(AC-FT)	0.	0.	0.	0.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
+ (AC-FT)	(HR)		6-HR	24-HR	72-HR	4.98-HR
+ 0.	0.50		0.	0.	0.	0.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
+ (FEET)	(HR)		6-HR	24-HR	72-HR	4.98-HR
+ 199.57	0.52		197.88	197.88	197.88	197.88
CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION POND

FOR PLAN 1, RATIO = 1.69

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)	1.	1.	1.	1.
+ 10.	0.53	(INCHES)	1.159	1.159	1.159	1.159
		(AC-FT)	0.	0.	0.	0.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	4.98-HR
+ (AC-FT)	(HR)		0.	0.	0.	0.
+ 0.	0.52					
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	4.98-HR
+ (FEET)	(HR)		197.95	197.95	197.95	197.95
+ 199.97	0.53					

CUMULATIVE AREA = 0.01 SQ MI

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.91

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)	1.	1.	1.	1.
+ 14.	0.52	(INCHES)	1.431	1.431	1.431	1.431
		(AC-FT)	1.	1.	1.	1.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	4.98-HR
+ (AC-FT)	(HR)		0.	0.	0.	0.
+ 0.	0.50					
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	4.98-HR
+ (FEET)	(HR)		198.00	198.00	198.00	198.00
+ 200.20	0.52					

CUMULATIVE AREA = 0.01 SQ MI

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 2.11

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	4.98-HR
+ (CFS)	(HR)	(CFS)	2.	2.	2.	2.
+ 19.	0.48	(INCHES)	1.676	1.676	1.676	1.676
		(AC-FT)	1.	1.	1.	1.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	4.98-HR
+ (AC-FT)	(HR)		0.	0.	0.	0.
+ 0.	0.48					
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	4.98-HR
+ (FEET)	(HR)		197.95	197.95	197.95	197.95
+ 200.33	0.48					

CUMULATIVE AREA = 0.01 SQ MI

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
 TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO PRECIPITATION						
				RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5	RATIO 6	
				1.00	1.35	1.45	1.69	1.91	2.11	
HYDROGRAPH AT +	EXIST	0.01	1	FLOW TIME	4. 0.40	9. 0.38	11. 0.38	15. 0.38	20. 0.37	24. 0.37
HYDROGRAPH AT +	DEVEL	0.01	1	FLOW TIME	8. 0.38	15. 0.37	18. 0.37	23. 0.37	29. 0.37	34. 0.37
ROUTED TO +	POND	0.01	1	FLOW TIME	6. 0.45	8. 0.50	9. 0.52	10. 0.53	14. 0.52	19. 0.48
			** PEAK STAGES IN FEET **							
			1	STAGE	198.70	199.40	199.57	199.97	200.20	200.33
				TIME	0.45	0.50	0.52	0.53	0.52	0.48

*** NORMAL END OF HEC-1 ***

```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 07/16/01 TIME 11:19:33 *
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

```

```

X X XXXXXXX XXXXX X
X X X X X XX
X X X X X
XXXXXXXX XXXX X XXXXX X
X X X X X
X X X X X
X X XXXXXXX XXXXX XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1

HEC-1 INPUT

PAGE 1

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID NORTHERN DRAINAGE BASIN
* EXISTING DRAINAGE FOR NORTHERN BASIN
* INCLUDING OFFSITE FROM EAST AND NORTH
2 IT 5 03APR01 0000 300 2001
3 IO 3 0
* 24-HR DISTRIBUTION
4 JR PREC 1.0000 1.3143 1.5143 1.7714 2.0000 2.2286
* 45-MIN DISTRIBUTION
* PREC 1.0 1.3489 1.4471 1.6923 1.9135 2.1057
*DIAGRAM
*
* EXISTING
5 KK EXIST
6 BA .008 24-hr 45-min
7 PB 3.5 3.5 1.56
8 IN 60 60 1.875
9 PC 0 0.011 0.022 0.035 0.048 0.063 0.080 0.098 0.120 0.147
10 PC 0.181 0.235 0.663 0.772 0.820 0.854 0.880 0.902 0.921 0.937
11 PC 0.952 0.965 0.978 0.989 1.000
12 UD .15
13 LS 0 76
*
14 KK DEVEL
15 BA .008
16 UD .15
17 LS 0 83
*
18 KK POND
19 RS 1 ELEV 197
20 SA 0 .01 .1 .25 .4
21 SE 197 198 199 200 201
22 SL 197.75 1.23 0.67 0.5
23 SS 200 100 0.45 1.5
*
24 ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW
 NO. (.) CONNECTOR (---) RETURN OF DIVERTED OR PUMPED FLOW
 5 EXIST
 14 . DEVEL
 . V
 . V
 18 . POND

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

 * FLOOD HYDROGRAPH PACKAGE (HEC-1) *
 * MAY 1991 *
 * VERSION 4.0.1E *
 * Lahey F77L-EM/32 version 5.01 *
 * Dodson & Associates, Inc. *
 * RUN DATE 07/16/01 TIME 11:19:33 *

 * U.S. ARMY CORPS OF ENGINEERS *
 * HYDROLOGIC ENGINEERING CENTER *
 * 609 SECOND STREET *
 * DAVIS, CALIFORNIA 95616 *
 * (916) 551-1748 *

NORTHERN DRAINAGE BASIN

3 IO OUTPUT CONTROL VARIABLES,
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IT HYDROGRAPH TIME DATA
 NMIN 5 MINUTES IN COMPUTATION INTERVAL
 IDATE 3APR 1 STARTING DATE
 ITIME 0000 STARTING TIME
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 4APR 1 ENDING DATE
 NDTIME 0055 ENDING TIME
 ICENT 20 CENTURY MARK
 COMPUTATION INTERVAL 0.08 HOURS
 TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES
 PRECIPITATION DEPTH INCHES
 LENGTH, ELEVATION FEET
 FLOW CUBIC FEET PER SECOND
 STORAGE VOLUME ACRE-FEET
 SURFACE AREA ACRES
 TEMPERATURE DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION
 NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
 RATIOS OF PRECIPITATION
 1.00 1.31 1.51 1.77 2.00 2.23

*** **

 * *
 5 KK * EXIST *
 * *

8 IN TIME DATA FOR INPUT TIME SERIES
 JXMIN 60 TIME INTERVAL IN MINUTES
 JXDATE 3APR 1 STARTING DATE
 JXTIME 0 STARTING TIME

+	(CFS)	(HR)	(CFS)				
+	4.	12.00	1.	0.	0.	0.	
			(INCHES)	1.106	1.365	1.365	1.365
			(AC-FT)	0.	1.	1.	1.
			CUMULATIVE AREA = 0.01 SQ MI				

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.31

TOTAL RAINFALL = 4.60, TOTAL LOSS = 2.39, TOTAL EXCESS = 2.21

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW				
			6-HR	24-HR	72-HR	24.92-HR	
+	(CFS)	(HR)	(CFS)				
+	6.	12.00	2.	0.	0.	0.	
			(INCHES)	1.793	2.210	2.210	
			(AC-FT)	1.	1.	1.	
			CUMULATIVE AREA = 0.01 SQ MI				

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.51

TOTAL RAINFALL = 5.30, TOTAL LOSS = 2.52, TOTAL EXCESS = 2.78

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW				
			6-HR	24-HR	72-HR	24.92-HR	
+	(CFS)	(HR)	(CFS)				
+	8.	12.00	2.	1.	1.	1.	
			(INCHES)	2.253	2.785	2.785	
			(AC-FT)	1.	1.	1.	
			CUMULATIVE AREA = 0.01 SQ MI				

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 2.65, TOTAL EXCESS = 3.55

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW				
			6-HR	24-HR	72-HR	24.92-HR	
+	(CFS)	(HR)	(CFS)				
+	10.	12.00	2.	1.	1.	1.	
			(INCHES)	2.861	3.553	3.553	
			(AC-FT)	1.	2.	2.	
			CUMULATIVE AREA = 0.01 SQ MI				

*** *** *** *** ***

HYDROGRAPH AT STATION EXIST
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 2.74, TOTAL EXCESS = 4.26

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)	(CFS)			
+	12.	12.00	3.	1.	1.	1.
			(INCHES)	3.415	4.257	4.257
			(AC-FT)	1.	2.	2.

TLAG 0.15 LAG

UNIT HYDROGRAPH
11 END-OF-PERIOD ORDINATES

7. 20. 17. 9. 4. 2. 1. 1. 0. 0.

TOTAL RAINFALL = 3.50, TOTAL LOSS = 1.64, TOTAL EXCESS = 1.86

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
5.	12.00	1.503	1.	0.	0.	0.
		(INCHES)	1.503	1.859	1.859	1.859
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.00

TOTAL RAINFALL = 3.50, TOTAL LOSS = 1.64, TOTAL EXCESS = 1.86

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
5.	12.00	1.503	1.	0.	0.	0.
		(INCHES)	1.503	1.859	1.859	1.859
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.31

TOTAL RAINFALL = 4.60, TOTAL LOSS = 1.79, TOTAL EXCESS = 2.81

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
8.	12.00	2.257	2.	1.	1.	1.
		(INCHES)	2.257	2.815	2.815	2.815
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.51

TOTAL RAINFALL = 5.30, TOTAL LOSS = 1.85, TOTAL EXCESS = 3.45

PEAK FLOW + (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
9.	12:00	2.753	2.	1.	1.	1.
		(INCHES)	2.753	3.447	3.447	3.447
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 1.92, TOTAL EXCESS = 4.28

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
12.	12.00	3.	1.	1.	1.
		(INCHES) 3.401	4.277	4.277	4.277
		(AC-FT) 1.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 1.97, TOTAL EXCESS = 5.03

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
13.	12.00	3.	1.	1.	1.
		(INCHES) 3.982	5.028	5.028	5.028
		(AC-FT) 2.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 2.23

TOTAL RAINFALL = 7.80, TOTAL LOSS = 2.01, TOTAL EXCESS = 5.79

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
15.	12.00	4.	1.	1.	1.
		(INCHES) 4.565	5.787	5.787	5.787
		(AC-FT) 2.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** **

* *
18 KK * POND *
* *

HYDROGRAPH ROUTING DATA

19 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP ELEV TYPE OF INITIAL CONDITION
RSVRIC 197.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

20 SA AREA 0.0 0.0 0.1 0.3 0.4

21 SE ELEVATION 197.00 198.00 199.00 200.00 201.00

22 SL LOW-LEVEL OUTLET
ELEV 197.75 ELEVATION AT CENTER OF OUTLET
CAREA 1.23 CROSS-SECTIONAL AREA

COQL 0.67 COEFFICIENT
 EXPL 0.50 EXPONENT OF HEAD

23 SS SPILLWAY
 CREL 200.00 SPILLWAY CREST ELEVATION
 SPWID 100.00 SPILLWAY WIDTH
 COQW 0.45 WEIR COEFFICIENT
 EXPW 1.50 EXPONENT OF HEAD

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.00	0.05	0.22	0.54
ELEVATION	197.00	198.00	199.00	200.00	201.00

COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	0.00	0.00	5.14	5.52	5.96	6.47	7.09	7.83	8.75	9.91
ELEVATION	197.00	197.75	198.35	198.45	198.56	198.71	198.90	199.15	199.50	200.00
OUTFLOW	10.05	10.55	11.66	13.62	16.68	21.08	27.06	34.86	44.74	56.92
ELEVATION	200.02	200.05	200.10	200.18	200.27	200.38	200.50	200.65	200.82	201.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.00	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.07
OUTFLOW	0.00	0.00	3.30	5.14	5.52	5.96	6.47	7.09	7.39	7.83
ELEVATION	197.00	197.75	198.00	198.35	198.45	198.56	198.71	198.90	199.00	199.15
STORAGE	0.12	0.22	0.22	0.23	0.25	0.27	0.29	0.32	0.36	0.41
OUTFLOW	8.75	9.91	10.05	10.55	11.66	13.62	16.68	21.08	27.06	34.86
ELEVATION	199.50	200.00	200.02	200.05	200.10	200.18	200.27	200.38	200.50	200.65
STORAGE	0.47	0.54								
OUTFLOW	44.74	56.92								
ELEVATION	200.82	201.00								

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 3.
 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** **

HYDROGRAPH AT STATION POND
 FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
+	(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	5.	12.00	(CFS)			
			1.	0.	0.	0.
			(INCHES)	1.503	1.855	1.855
			(AC-FT)	1.	1.	1.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
+	(AC-FT)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	0.	11.92	0.	0.	0.	0.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
+	(FEET)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	198.36	12.00	197.87	197.54	197.52	197.52

CUMULATIVE AREA = 0.01 SQ MI

*** **

HYDROGRAPH AT STATION POND
 FOR PLAN 1, RATIO = 1.31

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
+	(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
			(CFS)			

+	7.	12.08	2.	1.	1.	1.
			(INCHES) 2.257	2.811	2.811	2.811
			(AC-FT) 1.	1.	1.	1.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	0.	12.08	0.	0.	0.	0.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	198.93	12.08	197.97	197.61	197.59	197.59

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.51

PEAK FLOW	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
	8.	12.08	(CFS) 2.	1.	1.	1.
			(INCHES) 2.753	3.444	3.444	3.444
			(AC-FT) 1.	1.	1.	1.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	0.	12.08	0.	0.	0.	0.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	199.29	12.08	198.06	197.66	197.64	197.64

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.77

PEAK FLOW	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
	9.	12.17	(CFS) 3.	1.	1.	1.
			(INCHES) 3.401	4.274	4.274	4.274
			(AC-FT) 1.	2.	2.	2.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	0.	12.08	0.	0.	0.	0.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	199.72	12.17	198.18	197.72	197.69	197.69

CUMULATIVE AREA = 0.01 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 2.00

PEAK FLOW	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
			(CFS)			

+	11.	12.08		3.	1.	1.	1.
			(INCHES)	3.982	5.025	5.025	5.025
			(AC-FT)	2.	2.	2.	2.
	PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
	(AC-FT)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	0.	12.08		0.	0.	0.	0.
	PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
	(FEET)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	200.07	12.08		198.30	197.77	197.74	197.74
	CUMULATIVE AREA =			0.01 SQ MI			

*** *** *** *** ***

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 2.23

	PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
	(CFS)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	14.	12.08	(CFS)	4.	1.	1.	1.
			(INCHES)	4.565	5.783	5.783	5.783
			(AC-FT)	2.	2.	2.	2.
	PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
	(AC-FT)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	0.	12.08		0.	0.	0.	0.
	PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
	(FEET)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	200.20	12.08		198.38	197.80	197.77	197.77
	CUMULATIVE AREA =			0.01 SQ MI			

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO PRECIPITATION						
				RATIO 1 1.00	RATIO 2 1.31	RATIO 3 1.51	RATIO 4 1.77	RATIO 5 2.00	RATIO 6 2.23	
HYDROGRAPH AT										
+	EXIST	0.01	1	FLOW	4.	6.	8.	10.	12.	14.
				TIME	12.00	12.00	12.00	12.00	12.00	12.00
HYDROGRAPH AT										
+	DEVEL	0.01	1	FLOW	5.	8.	9.	12.	13.	15.
				TIME	12.00	12.00	12.00	12.00	12.00	12.00
ROUTED TO										
+	POND	0.01	1	FLOW	5.	7.	8.	9.	11.	14.
				TIME	12.00	12.08	12.08	12.17	12.08	12.08
				** PEAK STAGES IN FEET **						
			1	STAGE	198.36	198.93	199.29	199.72	200.07	200.20
				TIME	12.00	12.08	12.08	12.17	12.08	12.08

*** NORMAL END OF HEC-1 ***



Department of Public Works

August 23, 2000

Mr. John Gensch
Right of Way Department
Koch Pipeline Company
P.O. Box 2256
Wichita, Ks 67201-2256

RE: Three (3) Encroachment Permits

Dear Mr. Gensch:

The City's Law Department has reviewed and approved the three encroachment permits as to form and we are going to put these agreements on City Council's agenda for the Mayor's signatures as soon as possible. This will be a routine consent item and I do not foresee any problem getting them signed.

City of Wichita is willing to abide by the conditions as stated in the agreements. Since our contractors are on hold to cross the pipeline easement, we would like to proceed with construction immediately.

Please advise when the construction may start. Thank you for your consideration.

Sincerely yours,

Mike Lindebak, P. E.
City Engineer
City of Wichita

Engineering Division

City Hall • Seventh Floor • 455 North Main • Wichita, Kansas 67202-1606

T 316.268.4501 F 316.268.4114

www.wichitagov.org