New Market Square

Drainage Study

Revised April 2004

Introduction

The detention pond serving the New Market Square/ Evergreen Development is a 15 acre lake currently providing detention storage for approximately 135 acres of developed land. The pond has an 18" gravity outfall pipe at elevation 161.5 that discharges into a box culvert under Maize Road. An overflow ditch is positioned parallel to the piped outfall. Detention storage is fully restored by a pump system that discharges to the northeast of the pond into Cadillac Lake. The purpose of this study is to document two changes proposed for the current system. The area to be served by the pond is anticipated to increase to 158 acres and the location of pumped discharge is proposed to be moved to pipe directly into the existing 18" gravity pipe. These changes are proposed in response to changes in development that will eliminate the route for the current pumped discharge.

Design Methodology

This study assumes a 6-hour, 100-year event as the design storm. Static pool elevation will be set at elevation 158.5 (City of Wichita Datum). First floor and minimum opening elevations have been established at elevation 165.6 or higher for all existing structures. An overland relief channel exists that protects the site should the pond exceed an elevation above 164.6. A four day time period is allowed for the restoration of the required detention capacity.

Drainage Basin

Figure A illustrates the drainage basin contributing to the pond and outlet system. This basin includes most of the Evergreen Addition and most of New Market Square and represents a total of 158 acres.

Also shown on Figure A is the position of the pump station, the proposed location of the pump discharge line, the location and route of the gravity outfall system, and the configuration of the existing detention pond.

Pond

The existing pond has approximately 15 acres of surface area. The current static pool elevation is maintained at elevation 159.1. As part of this proposal, the static pool will be lowered to elevation 158.5. The pond bottom is at elevation 148.5, making the normal depth of the pond approximately 10 feet, and the bottom is approximately 5 feet above ground water.

The top of pond berm elevation is 165.0 and encompasses approximately 18.6 acres. With these dimensions the pond has a capacity of 109 acre-feet. It was originally designed to function as a 45 acre-foot detention pond with a maximum elevation of 163.4 during a 6-hour, 100-year event. This provided 3 feet of freeboard to all proposed structures. As stated above, in addition to the storage capacity, the pond has an emergency overflow capacity to ensure protection from flooding above an elevation of 165.6.

Pump System

The pump is a Cascade 10MF operating at 1175 rpm with a proposed 16" force main. A pump curve and system curve are included as Exhibit 1. This pump will provide a 2500 gpm discharge rate of flow. Control of pumping operation is provided by a float that starts the pump when the pond level exceeds elevation 158.5. Pumping continues until elevation 158.5 is re-established.

Proposed Site Plan

In the original site plan the area immediately south of Central Park and east of the detention pond was planned to include water features that would provide detention storage for this 23 acres tract. The current proposal reduces area for ponds and directs the drainage into the existing pond instead of Cadillac Lake. A small pond adjacent to Maize Road and Central Park will remain and a storm sewer will connect it to the Evergreen pond. The model assumes no detention storage from the existing pond.

Modeling the System

For the purpose of modeling the system the pump is assumed to shut off when the elevation of the pond reaches an elevation that sustains gravity flow. This concept was selected for modeling so as not to over state the flow of the outfall system.

To ensure that the pond could be restored to provide the protection from flooding within a 4 day period, a second storm of equal size was modeled to begin 4 days after the initial event. Results of this analysis are presented in Appendix A.

The scenario assumes the pump will be shut off at elevation 162.0, slightly above the elevation of the gravity system flowline. The analysis shows that the gravity system acting alone would be sufficient to provide protection for the first storm; and that the pumping system would dewater the pond to a level that would restore adequate protection if a second storm occurs 4 days later.

Recommendations for Infrastructure Improvements

To accomplish the desired drainage concept several drainage improvements are proposed. Those are listed below and should be accomplished prior to or concurrently with the development of the remaining portion of Mew Market Square.

1. Install a 16" force main from the existing pump station to the 18" gravity outfall line.
2. Lower the control weir at the pump station to elevation 158.5.
3. Install a storm sewer system connecting the northeast pond to the Evergreen pond and plug the pipe outfall from the northeast pond into the Maize Road storm sewer.
4. Grading within the parking lot serving the remaining development should provide an additional overland escape from the Evergreen pond with crests no higher than elevation 164.5. Additionally, the area along the south side of Central Park should provide an uninterrupted crest between

the New Market Square/Evergreen basin and the Cadillac Lake basin at an elevation no less than 165.0.

5. Minimum floor elevations within the development should be no less than 166.6.

EVERGREEN/NEWMARKET SQUARE

DRAINAGE STUDY

FIGURE A

SCALE: 1" = 300'

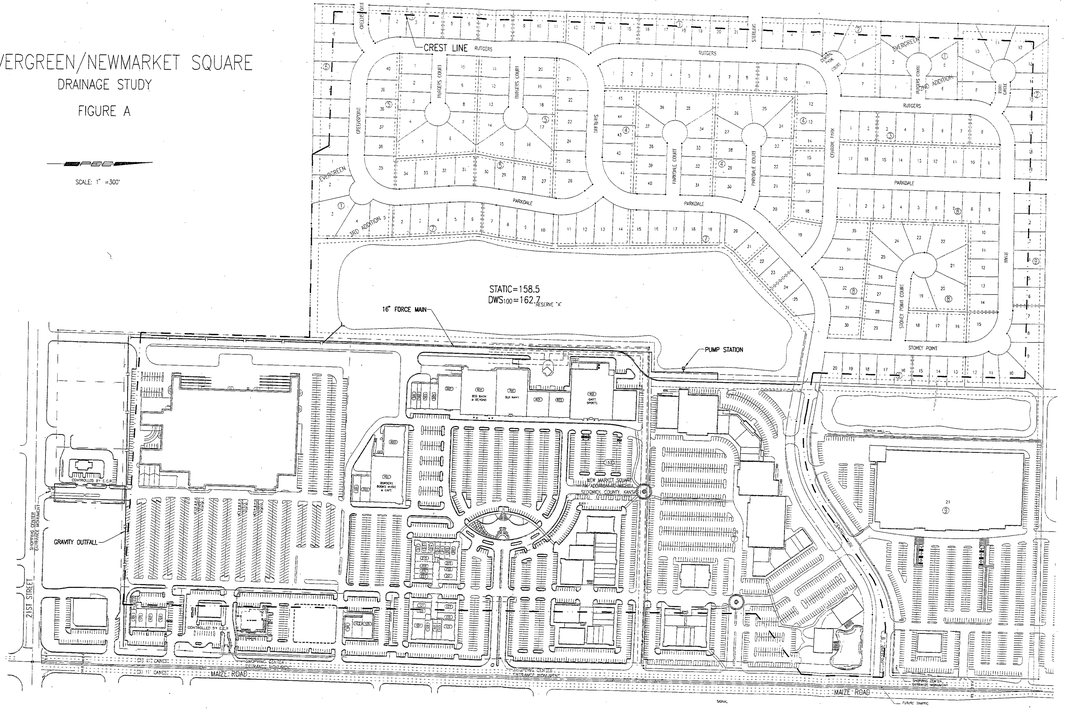
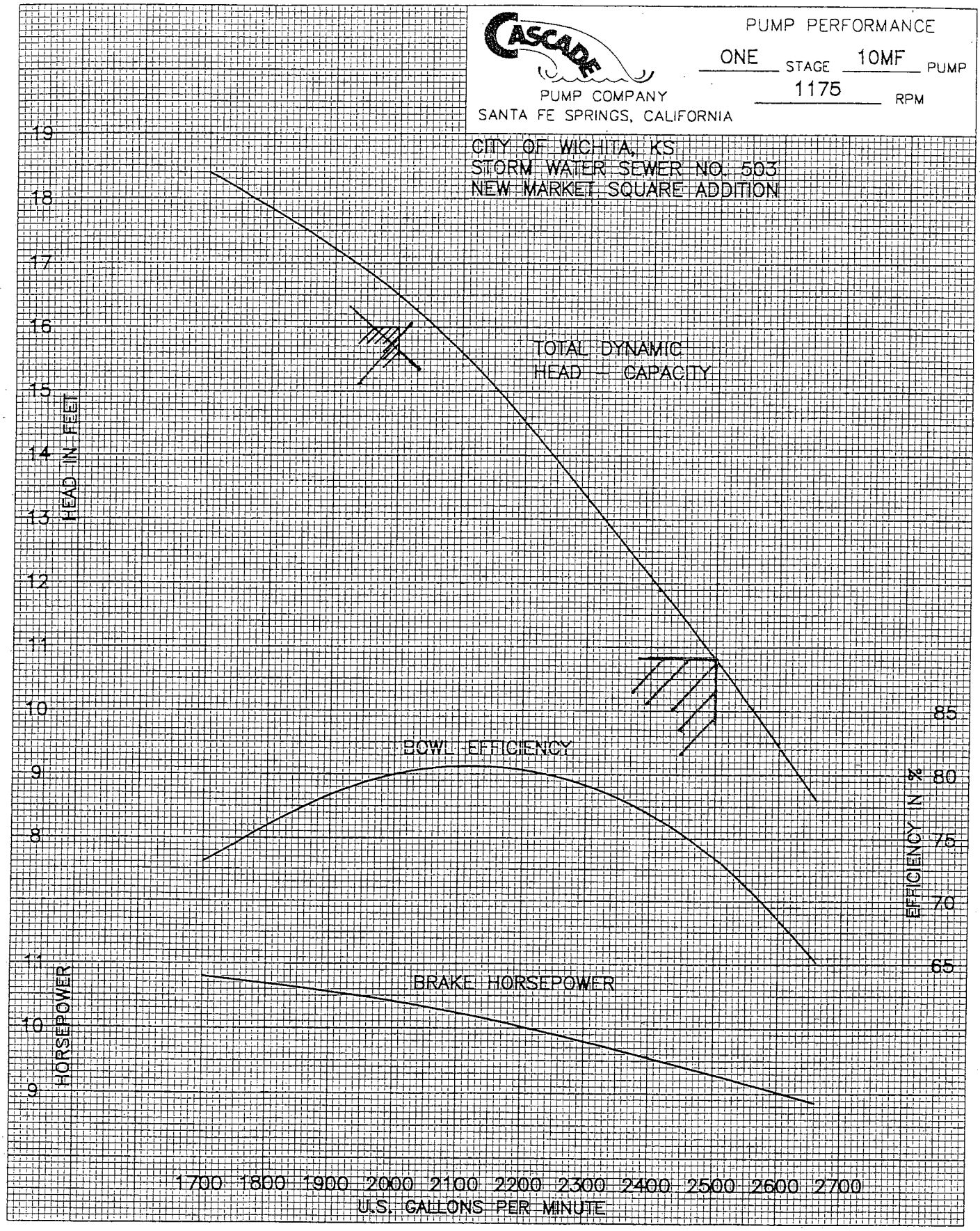


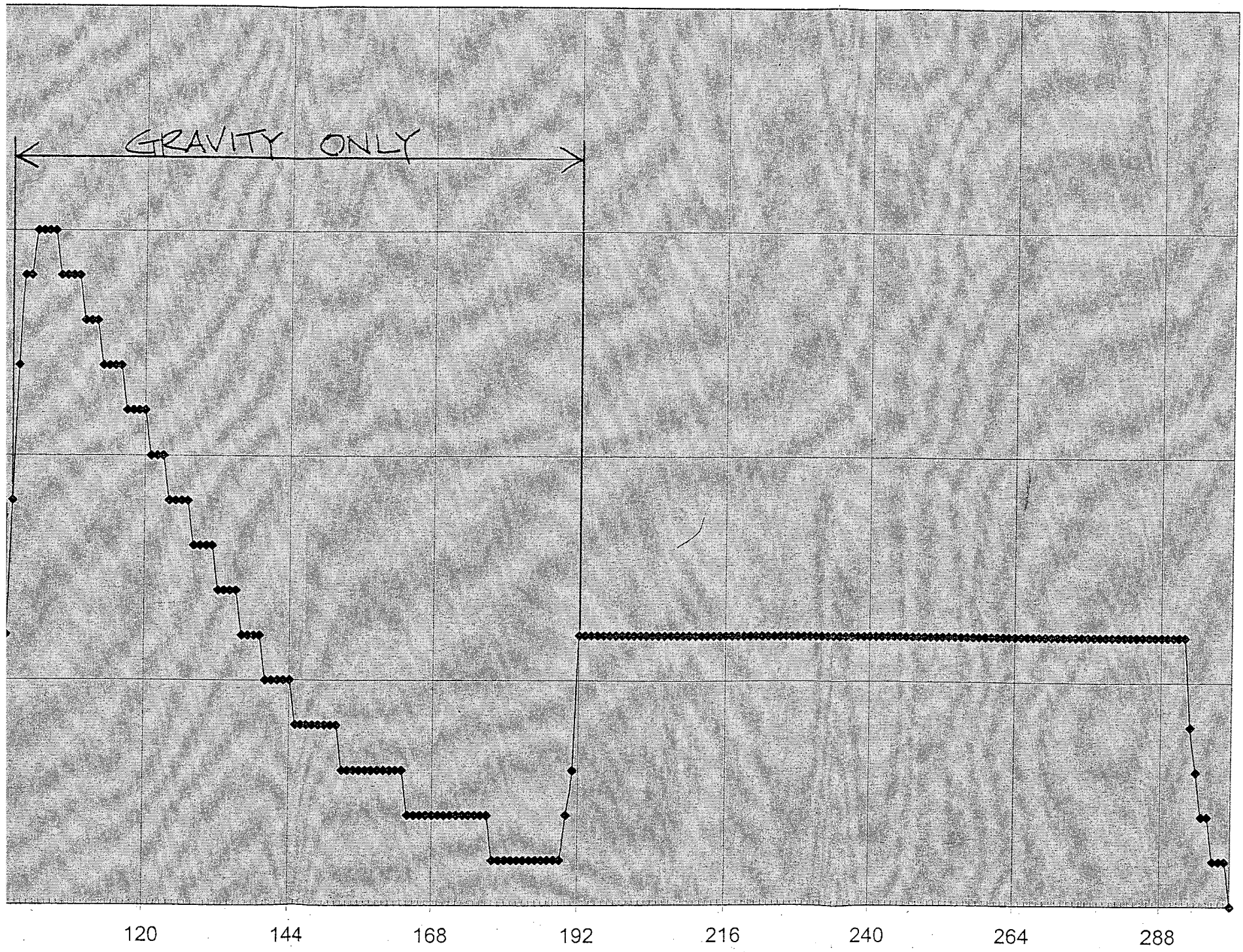
EXHIBIT 1

CURVE NO. 15448

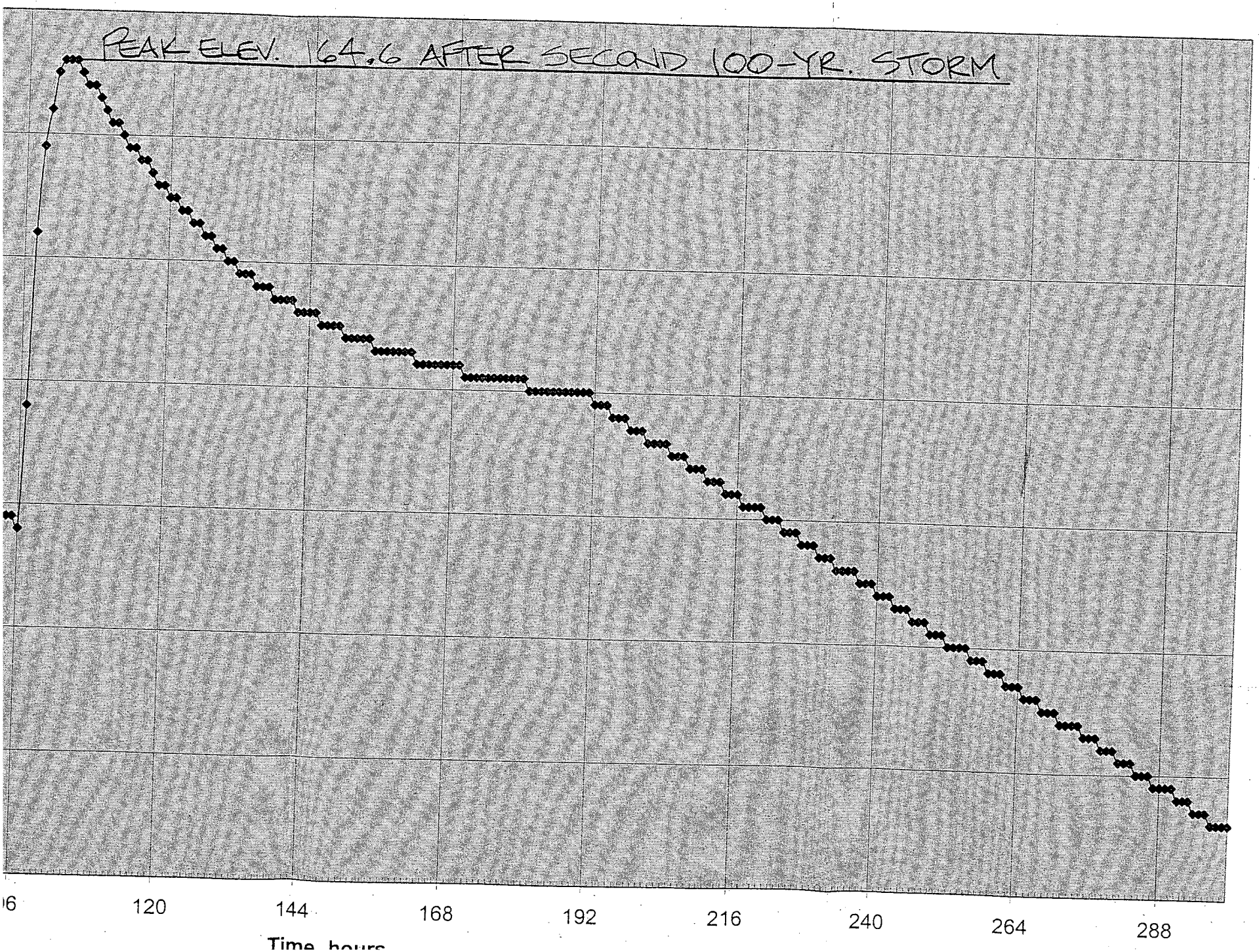


CURVES SHOW APPROXIMATELY THE CHARACTERISTICS WHEN PUMPING CLEAR NON-AERATED WATER. NO GUARANTEE IS MADE EXCEPT FOR THE RATED POINT.

ur, 100-Year Storms (the second storm occurs 96 hours after the first storm)



nd for Two 6-Hour, 100-Year Storms (the second storm occurs 96 hours after the first storm)



Water Levels in the Detention Pond for Two 6-Hour, 100-Year Storms (the second storm occurs 96 hours after the first storm)

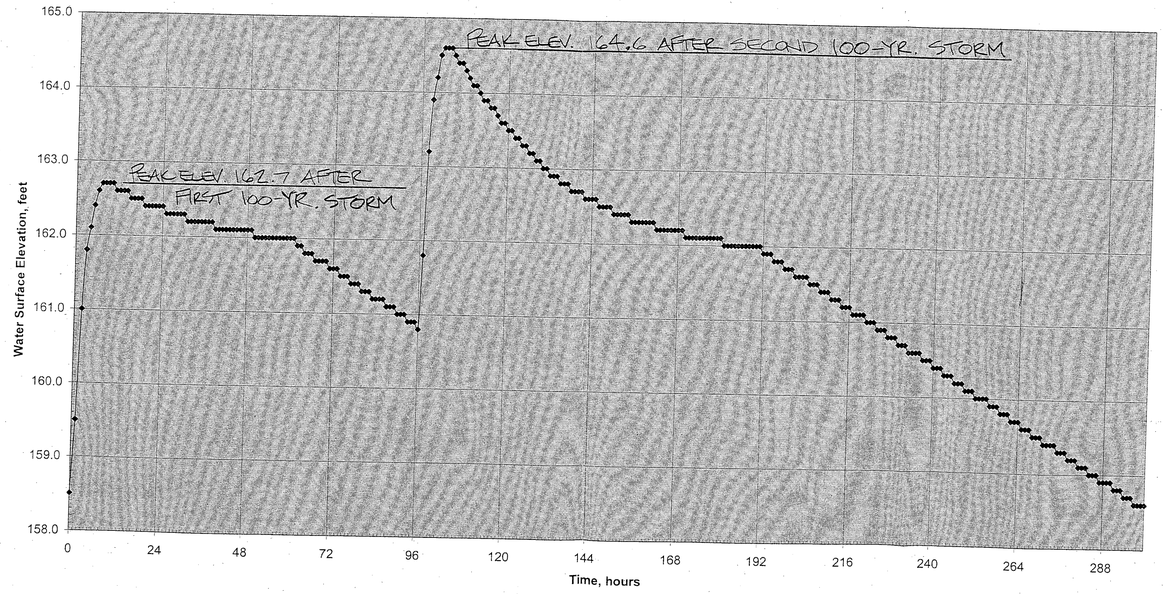


FIGURE A-2

Outflow Hydrograph for Two 6-Hour, 100-Year Storms (the second storm occurs 96 hours after the first storm)

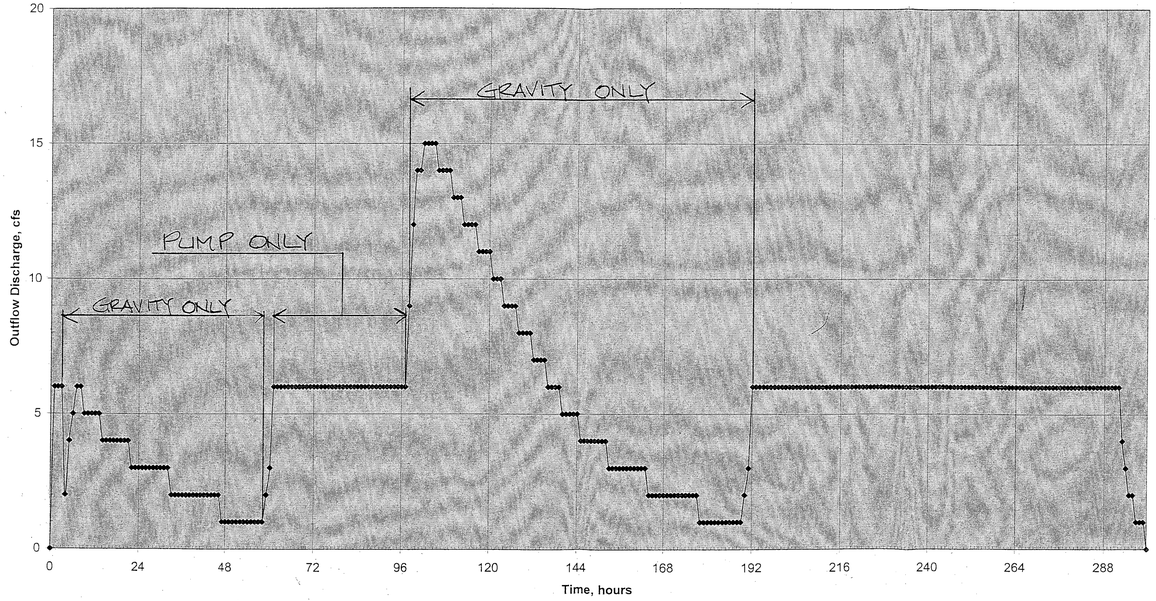


FIGURE A-1

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  03/29/2004  TIME  15:07:49 *
*                                       *
*****************************************
```


```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE 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
XXXXXXX  XXXX   X       XXXXX   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

Newmarket Square Detention Pond - Inflow Hydrograph


```
         LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

           1       ID    NEWMARKET SQUARE
           2       ID    158-ACRES DRAINS TO A 15 ACRE POND   ONE STORM CONSIDERED
           3       ID    100-YEAR, 6 HOUR STORM DISTRIBUTED FOR FIVE-MINUTE INCREMENTS
*** LIST ***
*** FREE ***
                   *DIAGRAM
                   *
                   *
           4       IT     5 13FEB04   1200       0 25FEB04    2000
           5       IN     5 13FEB04   1200
           6       IO     0       5
           7       JR   PREC     5.9
                   *
                   *
                   *

           8       KK     A
           9       KO     5
          10       BA 0.1000
          11       PB   1.00
          12       PC 0.000 0.145 0.245 0.315 0.374 0.426 0.469 0.506 0.536 0.564
          13       PC 0.588 0.610 0.629 0.649 0.665 0.680 0.696 0.711 0.722 0.735
          14       PC 0.745 0.756 0.767 0.776 0.782 0.790 0.796 0.804 0.810 0.814
          15       PC 0.821 0.826 0.830 0.837 0.838 0.843 0.852 0.858 0.863 0.868
          16       PC 0.873 0.877 0.881 0.886 0.890 0.893 0.900 0.906 0.912 0.917
          17       PC 0.921 0.925 0.929 0.931 0.934 0.938 0.942 0.945 0.951 0.956
          18       PC 0.961 0.965 0.969 0.973 0.977 0.980 0.982 0.988 0.993 0.997
          19       PC 0.998 0.999 1.000
          20       LS     0      72      40
          21       UD 0.500
                   *
                   *
                   *
                   *

          22       KK     B
          23       KO     5
          24       BA 0.1470
          25       PB   1.00
          26       PC 0.000 0.145 0.245 0.315 0.374 0.426 0.469 0.506 0.536 0.564
          27       PC 0.588 0.610 0.629 0.649 0.665 0.680 0.696 0.711 0.722 0.735
          28       PC 0.745 0.756 0.767 0.776 0.782 0.790 0.796 0.804 0.810 0.814
          29       PC 0.821 0.826 0.830 0.837 0.838 0.843 0.852 0.858 0.863 0.868
          30       PC 0.873 0.877 0.881 0.886 0.890 0.893 0.900 0.906 0.912 0.917
          31       PC 0.921 0.925 0.929 0.931 0.934 0.938 0.942 0.945 0.951 0.956
          32       PC 0.961 0.965 0.969 0.973 0.977 0.980 0.982 0.988 0.993 0.997
          33       PC 0.998 0.999 1.000
          34       LS     0      72      90
          35       UD 0.500
                   *
                   *
```

Newmarket Square Detention Pond - Inflow Hydrograph


```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  16          KK    STM1
  17          BC       2       0
              *
              *
              *
  18          ZZ
```

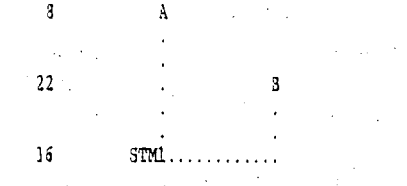
Newmarket Square Detention Pond - Inflow Hydrograph

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  03/29/2004  TIME  15:07:49 *
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*                                       *
*****************************************
```


```
                              NEWMARKET SQUARE
                              158-ACRES DRAINS TO A 15 ACRE POND  ONE STORM CONSIDERED
                              100-YEAR, 6 HOUR STORM DISTRIBUTED FOR FIVE-MINUTE INCREMENTS

*** ERROR *** SPSCIFIED START AND END DATES RESULT IN TOO MANY TIME PERIODS

  6 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          0  PRINT CONTROL
                     IPLOT          5  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE    13FEB 4  STARTING DATE
                     ITIME       1200  STARTING TIME
                        NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE    14FEB 4  ENDING DATE
                     NDTIME       1255  ENDING TIME
                     ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL      .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
                   5.90


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


            **************
            *            *
  8 KK      *        A   *
            *            *
            **************

  9 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          5  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE


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


            **************
            *            *
 22 KK      *        B   *
            *            *
            **************
```

```
23 KO         OUTPUT CONTROL VARIABLES
                   IPRNT          5  PRINT CONTROL
                   IPLOT          5  PLOT CONTROL
                   QSCAL         0.  HYDROGRAPH PLOT SCALE
```

*** ***

```
              **************
              *            *
36 KK         *    STM1    *
              *            *
              **************

37 HC         HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

HYDROGRAPH AT STATION STM1
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = 5.90

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
13	FEB	1200	1	0.	13	FEB	1815	76	31.	14	FEB	0030	151	0.	14	FEB	0645	226	0.
13	FEB	1205	2	9.	13	FEB	1820	77	27.	14	FEB	0035	152	0.	14	FEB	0650	227	0.
13	FEB	1210	3	33.	13	FEB	1825	78	22.	14	FEB	0040	153	0.	14	FEB	0655	228	0.
13	FEB	1215	4	78.	13	FEB	1830	79	17.	14	FEB	0045	154	0.	14	FEB	0700	229	0.
13	FEB	1220	5	149.	13	FEB	1835	80	14.	14	FEB	0050	155	0.	14	FEB	0705	230	0.
13	FEB	1225	6	231.	13	FEB	1840	81	11.	14	FEB	0055	156	0.	14	FEB	0710	231	0.
13	FEB	1230	7	308.	13	FEB	1845	82	8.	14	FEB	0100	157	0.	14	FEB	0715	232	0.
13	FEB	1235	8	371.	13	FEB	1850	83	6.	14	FEB	0105	158	0.	14	FEB	0720	233	0.
13	FEB	1240	9	414.	13	FEB	1855	84	5.	14	FEB	0110	159	0.	14	FEB	0725	234	0.
13	FEB	1245	10	438.	13	FEB	1900	85	4.	14	FEB	0115	160	0.	14	FEB	0730	235	0.
13	FEB	1250	11	440.	13	FEB	1905	86	3.	14	FEB	0120	161	0.	14	FEB	0735	236	0.
13	FEB	1255	12	424.	13	FEB	1910	87	2.	14	FEB	0125	162	0.	14	FEB	0740	237	0.
13	FEB	1300	13	402.	13	FEB	1915	88	2.	14	FEB	0130	163	0.	14	FEB	0745	238	0.
13	FEB	1305	14	375.	13	FEB	1920	89	1.	14	FEB	0135	164	0.	14	FEB	0750	239	0.
13	FEB	1310	15	349.	13	FEB	1925	90	1.	14	FEB	0140	165	0.	14	FEB	0755	240	0.
13	FEB	1315	16	322.	13	FEB	1930	91	1.	14	FEB	0145	166	0.	14	FEB	0800	241	0.
13	FEB	1320	17	297.	13	FEB	1935	92	1.	14	FEB	0150	167	0.	14	FEB	0805	242	0.
13	FEB	1325	18	273.	13	FEB	1940	93	0.	14	FEB	0155	168	0.	14	FEB	0810	243	0.
13	FEB	1330	19	252.	13	FEB	1945	94	0.	14	FEB	0200	169	0.	14	FEB	0815	244	0.
13	FEB	1335	20	232.	13	FEB	1950	95	0.	14	FEB	0205	170	0.	14	FEB	0820	245	0.
13	FEB	1340	21	215.	13	FEB	1955	96	0.	14	FEB	0210	171	0.	14	FEB	0825	246	0.
13	FEB	1345	22	199.	13	FEB	2000	97	0.	14	FEB	0215	172	0.	14	FEB	0830	247	0.
13	FEB	1350	23	184.	13	FEB	2005	98	0.	14	FEB	0220	173	0.	14	FEB	0835	248	0.
13	FEB	1355	24	171.	13	FEB	2010	99	0.	14	FEB	0225	174	0.	14	FEB	0840	249	0.
13	FEB	1400	25	159.	13	FEB	2015	100	0.	14	FEB	0230	175	0.	14	FEB	0845	250	0.
13	FEB	1405	26	148.	13	FEB	2020	101	0.	14	FEB	0235	176	0.	14	FEB	0850	251	0.
13	FEB	1410	27	137.	13	FEB	2025	102	0.	14	FEB	0240	177	0.	14	FEB	0855	252	0.
13	FEB	1415	28	127.	13	FEB	2030	103	0.	14	FEB	0245	178	0.	14	FEB	0900	253	0.
13	FEB	1420	29	118.	13	FEB	2035	104	0.	14	FEB	0250	179	0.	14	FEB	0905	254	0.
13	FEB	1425	30	109.	13	FEB	2040	105	0.	14	FEB	0255	180	0.	14	FEB	0910	255	0.
13	FEB	1430	31	101.	13	FEB	2045	106	0.	14	FEB	0300	181	0.	14	FEB	0915	256	0.
13	FEB	1435	32	94.	13	FEB	2050	107	0.	14	FEB	0305	182	0.	14	FEB	0920	257	0.
13	FEB	1440	33	87.	13	FEB	2055	108	0.	14	FEB	0310	183	0.	14	FEB	0925	258	0.
13	FEB	1445	34	81.	13	FEB	2100	109	0.	14	FEB	0315	184	0.	14	FEB	0930	259	0.
13	FEB	1450	35	75.	13	FEB	2105	110	0.	14	FEB	0320	185	0.	14	FEB	0935	260	0.
13	FEB	1455	36	70.	13	FEB	2110	111	0.	14	FEB	0325	186	0.	14	FEB	0940	261	0.
13	FEB	1500	37	66.	13	FEB	2115	112	0.	14	FEB	0330	187	0.	14	FEB	0945	262	0.
13	FEB	1505	38	63.	13	FEB	2120	113	0.	14	FEB	0335	188	0.	14	FEB	0950	263	0.
13	FEB	1510	39	61.	13	FEB	2125	114	0.	14	FEB	0340	189	0.	14	FEB	0955	264	0.
13	FEB	1515	40	60.	13	FEB	2130	115	0.	14	FEB	0345	190	0.	14	FEB	1000	265	0.
13	FEB	1520	41	60.	13	FEB	2135	116	0.	14	FEB	0350	191	0.	14	FEB	1005	266	0.
13	FEB	1525	42	59.	13	FEB	2140	117	0.	14	FEB	0355	192	0.	14	FEB	1010	267	0.
13	FEB	1530	43	59.	13	FEB	2145	118	0.	14	FEB	0400	193	0.	14	FEB	1015	268	0.
13	FEB	1535	44	57.	13	FEB	2150	119	0.	14	FEB	0405	194	0.	14	FEB	1020	269	0.
13	FEB	1540	45	56.	13	FEB	2155	120	0.	14	FEB	0410	195	0.	14	FEB	1025	270	0.
13	FEB	1545	46	54.	13	FEB	2200	121	0.	14	FEB	0415	196	0.	14	FEB	1030	271	0.
13	FEB	1550	47	53.	13	FEB	2205	122	0.	14	FEB	0420	197	0.	14	FEB	1035	272	0.
13	FEB	1555	48	51.	13	FEB	2210	123	0.	14	FEB	0425	198	0.	14	FEB	1040	273	0.
13	FEB	1600	49	51.	13	FEB	2215	124	0.	14	FEB	0430	199	0.	14	FEB	1045	274	0.

Newmarket Square Detention Pond - Inflow Hydrograph

13 FEB	1605	50	51.	*	13 FEB	2220	125	0.	*	14 FEB	0435	200	0.	*	14 FEB	1050	275	0.
13 FEB	1610	51	52.	*	13 FEB	2225	126	0.	*	14 FEB	0440	201	0.	*	14 FEB	1055	276	0.
13 FEB	1615	52	53.	*	13 FEB	2230	127	0.	*	14 FEB	0445	202	0.	*	14 FEB	1100	277	0.
13 FEB	1620	53	53.	*	13 FEB	2235	128	0.	*	14 FEB	0450	203	0.	*	14 FEB	1105	278	0.
13 FEB	1625	54	53.	*	13 FEB	2240	129	0.	*	14 FEB	0455	204	0.	*	14 FEB	1110	279	0.
13 FEB	1630	55	51.	*	13 FEB	2245	130	0.	*	14 FEB	0500	205	0.	*	14 FEB	1115	280	0.
13 FEB	1635	56	49.	*	13 FEB	2250	131	0.	*	14 FEB	0505	206	0.	*	14 FEB	1120	281	0.
13 FEB	1640	57	47.	*	13 FEB	2255	132	0.	*	14 FEB	0510	207	0.	*	14 FEB	1125	282	0.
13 FEB	1645	58	45.	*	13 FEB	2300	133	0.	*	14 FEB	0515	208	0.	*	14 FEB	1130	283	0.
13 FEB	1650	59	43.	*	13 FEB	2305	134	0.	*	14 FEB	0520	209	0.	*	14 FEB	1135	284	0.
13 FEB	1655	60	42.	*	13 FEB	2310	135	0.	*	14 FEB	0525	210	0.	*	14 FEB	1140	285	0.
13 FEB	1700	61	42.	*	13 FEB	2315	136	0.	*	14 FEB	0530	211	0.	*	14 FEB	1145	286	0.
13 FEB	1705	62	43.	*	13 FEB	2320	137	0.	*	14 FEB	0535	212	0.	*	14 FEB	1150	287	0.
13 FEB	1710	63	44.	*	13 FEB	2325	138	0.	*	14 FEB	0540	213	0.	*	14 FEB	1155	288	0.
13 FEB	1715	64	45.	*	13 FEB	2330	139	0.	*	14 FEB	0545	214	0.	*	14 FEB	1200	289	0.
13 FEB	1720	65	45.	*	13 FEB	2335	140	0.	*	14 FEB	0550	215	0.	*	14 FEB	1205	290	0.
13 FEB	1725	66	46.	*	13 FEB	2340	141	0.	*	14 FEB	0555	216	0.	*	14 FEB	1210	291	0.
13 FEB	1730	67	45.	*	13 FEB	2345	142	0.	*	14 FEB	0600	217	0.	*	14 FEB	1215	292	0.
13 FEB	1735	68	44.	*	13 FEB	2350	143	0.	*	14 FEB	0605	218	0.	*	14 FEB	1220	293	0.
13 FEB	1740	69	43.	*	13 FEB	2355	144	0.	*	14 FEB	0610	219	0.	*	14 FEB	1225	294	0.
13 FEB	1745	70	43.	*	14 FEB	0000	145	0.	*	14 FEB	0615	220	0.	*	14 FEB	1230	295	0.
13 FEB	1750	71	42.	*	14 FEB	0005	146	0.	*	14 FEB	0620	221	0.	*	14 FEB	1235	296	0.
13 FEB	1755	72	42.	*	14 FEB	0010	147	0.	*	14 FEB	0625	222	0.	*	14 FEB	1240	297	0.
13 FEB	1800	73	41.	*	14 FEB	0015	148	0.	*	14 FEB	0630	223	0.	*	14 FEB	1245	298	0.
13 FEB	1805	74	39.	*	14 FEB	0020	149	0.	*	14 FEB	0635	224	0.	*	14 FEB	1250	299	0.
13 FEB	1810	75	35.	*	14 FEB	0025	150	0.	*	14 FEB	0640	225	0.	*	14 FEB	1255	300	0.
				*					*					*				

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 440.	.83		130.	33.	32.	32.
		(INCHES)	4.891	4.996	4.996	4.996
		(AC-FT)	64.	66.	66.	66.

CUMULATIVE AREA = .25 SQ MI

Newmarket Square Detention Pond - Inflow Hydrograph

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

					RATIOS APPLIED TO PRECIPITATION
OPERATION	STATION	AREA	PLAN		RATIO 1
					5.90
HYDROGRAPH AT					
+	A	.10	1	FLOW	132.
				TIME	.83
HYDROGRAPH AT					
+	B	.15	1	FLOW	310.
				TIME	.75
2 COMBINED AT					
+	STM1	.25	1	FLOW	440.
				TIME	.83

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

CURRENT DATE: 03-26-2004 FILE DATE: 03-23-2004
CURRENT TIME: 09:31:10 FILE NAME: 21-MZ

FHWA CULVERT ANALYSIS
HY-8, VERSION 3.2

CU LV	SITE DATA: INLET ELEV. (FT)	SITE DATA: OUTLET ELEV. (FT)	SITE DATA: CULVERT LENGTH (FT)	CULVERT SHAPE, MATERIAL, INLET: BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	161.50	160.00	10.11	1 RCP	1.50	1.50	.012	CONVENTIONAL
2								
3								
4								
5								
6								

SUMMARY OF CULVERT FLOWS (CFS) FILE: 21-MZ DATE: 03-23-2004

ELEV (FT)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
161.50	0	0	0	0	0	0	0	0	1
161.94	1	1	0	0	0	0	0	0	1
162.14	2	2	0	0	0	0	0	0	1
162.31	3	3	0	0	0	0	0	0	1
162.48	4	4	0	0	0	0	0	0	1
162.63	5	5	0	0	0	0	0	0	1
162.77	6	6	0	0	0	0	0	0	1
162.91	7	7	0	0	0	0	0	0	1
163.06	8	8	0	0	0	0	0	0	1
163.23	9	9	0	0	0	0	0	0	1
163.41	10	10	0	0	0	0	0	0	1
170.00	28	28	0	0	0	0	0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: 21-MZ DATE: 03-23-2004

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
161.50	0.00	0	0	0.00
161.94	0.00	1	0	0.00
162.14	0.00	2	0	0.00
162.31	0.00	3	0	0.00
162.48	0.00	4	0	0.00
162.63	0.00	5	0	0.00
162.77	0.00	6	0	0.00
162.91	0.00	7	0	0.00
163.06	0.00	8	0	0.00
163.23	0.00	9	0	0.00
163.41	0.00	10	0	0.00

<1> TOLERANCE (FT) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 03-26-2004
CURRENT TIME: 09:31:10

FILE DATE: 03-23-2004
FILE NAME: 21-MZ

CULVERT # 1

PERFORMANCE CURVE FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	FLOW TYPE	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	161.50	161.50	0.00	0.00	0-NF	0.00	161.50	0.00	0.00
1	161.94	161.50	0.44	-0.01	4-FF	0.00	0.00	0.00	0.57
2	162.14	161.50	0.64	0.01	4-FF	0.00	0.00	0.00	1.13
3	162.31	161.50	0.81	0.04	4-FF	0.00	0.00	0.00	1.70
4	162.48	161.50	0.98	0.09	4-FF	0.00	0.00	0.00	2.26
5	162.63	161.50	1.13	0.15	4-FF	0.00	0.00	0.00	2.83
6	162.77	161.50	1.27	0.23	4-FF	0.00	0.00	0.00	3.40
7	162.91	161.50	1.41	0.31	4-FF	0.00	0.00	0.00	3.96
8	163.06	161.50	1.56	0.41	4-FF	0.00	0.00	0.00	4.53
9	163.23	161.50	1.73	0.53	4-FF	0.00	0.00	0.00	5.09
10	163.41	161.50	1.91	0.66	4-FF	0.00	0.00	0.00	5.66

El. inlet face invert 161.50 ft El. outlet invert 160.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	161.50
OUTLET STATION (FT)	10.00
OUTLET ELEVATION (FT)	160.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.1500
CULVERT LENGTH ALONG SLOPE (FT)	10.11

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	1.50 FT
BARREL MATERIAL	CONCRETE
BARREL MANNING'S N	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	GROOVED END IN HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 03-26-2004
CURRENT TIME: 09:31:10

FILE DATE: 03-23-2004
FILE NAME: 21-MZ

TAILWATER

CONSTANT WATER SURFACE ELEVATION
161.50

ROADWAY OVERTOPPING DATA

WEIR COEFFICIENT	3.00
EMBANKMENT TOP WIDTH (FT)	40.00
CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	170.00

CURRENT DATE: 03-26-2004
CURRENT TIME: 11:41:53

FILE DATE: 03-23-2004
FILE NAME: 21-MZ

FHWA CULVERT ANALYSIS
HY-8, VERSION 3.2

CULV	SITE DATA			CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANNING n	INLET TYPE
1	161.50	160.00	10.11	1 RCP	1.50	1.50	.012	CONVENTIONAL
2								
3								
4								
5								
6								

FILE: 21-MZ CULVERT HEADWATER ELEVATION (FT) DATE: 03-23-2004

DISCHARGE	1	2	3	4	5	6	ROADWAY
0	161.50	0.00	0.00	0.00	0.00	0.00	170.00
2	162.14	0.00	0.00	0.00	0.00	0.00	170.04
4	162.48	0.00	0.00	0.00	0.00	0.00	170.06
6	162.77	0.00	0.00	0.00	0.00	0.00	170.07
8	163.06	0.00	0.00	0.00	0.00	0.00	170.09
10	163.41	0.00	0.00	0.00	0.00	0.00	170.10
12	163.83	0.00	0.00	0.00	0.00	0.00	170.12
14	164.33	0.00	0.00	0.00	0.00	0.00	170.13
16	164.88	0.00	0.00	0.00	0.00	0.00	170.14
18	165.50	0.00	0.00	0.00	0.00	0.00	170.15
20	166.20	0.00	0.00	0.00	0.00	0.00	170.16

CURRENT DATE: 03-26-2004
CURRENT TIME: 11:41:53

FILE DATE: 03-23-2004
FILE NAME: 21-MZ

CULVERT # 1

PERFORMANCE CURVE FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	FLOW TYPE	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	161.50	161.50	0.00	0.00	0-NF	0.00	161.50	0.00	0.00
2	162.14	161.50	0.64	0.01	4-FF	0.00	0.00	0.00	1.13
4	162.48	161.50	0.98	0.09	4-FF	0.00	0.00	0.00	2.26
6	162.77	161.50	1.27	0.23	4-FF	0.00	0.00	0.00	3.40
8	163.06	161.50	1.56	0.41	4-FF	0.00	0.00	0.00	4.53
10	163.41	161.50	1.91	0.66	4-FF	0.00	0.00	0.00	5.66
12	163.83	161.50	2.33	0.95	4-FF	0.00	0.00	0.00	6.79
14	164.33	161.50	2.83	1.30	4-FF	0.00	0.00	0.00	7.92
16	164.88	161.50	3.38	1.71	4-FF	0.00	0.00	0.00	9.05
18	165.50	161.50	4.00	2.17	4-FF	0.00	0.00	0.00	10.19
20	166.20	161.50	4.70	2.68	4-FF	0.00	0.00	0.00	11.32

El. inlet face invert 161.50 ft El. outlet invert 160.00 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	161.50
OUTLET STATION (FT)	10.00
OUTLET ELEVATION (FT)	160.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.1500
CULVERT LENGTH ALONG SLOPE (FT)	10.11

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	CIRCULAR
BARREL DIAMETER	1.50 FT
BARREL MATERIAL	CONCRETE
BARREL MANNING'S N	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	GROOVED END IN HEADWALL
INLET DEPRESSION	NONE

CURRENT DATE: 03-26-2004
CURRENT TIME: 11:41:53

FILE DATE: 03-23-2004
FILE NAME: 21-MZ

TAILWATER

CONSTANT WATER SURFACE ELEVATION
161.50

ROADWAY OVERTOPPING DATA

WEIR COEFFICIENT	3.00
EMBANKMENT TOP WIDTH (FT)	40.00
CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	170.00

```
**************************************
*                                    *
*   FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*         FEBRUARY 1981              *
*        REVISED 02 AUG 88           *
*                                    *
*  RUN DATE  04/07/2004  TIME  10:03:43 *
*                                    *
**************************************
```


```
**************************************
*                                    *
*   U.S. ARMY CORPS OF ENGINEERS     *
* THE 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
XXXXXXX  XXXX     X        XXXXX   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

Outflow Hydrograph (Do Not Use for Inflow Values)


```
         LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

           1       ID       NEWMARKET SQUARE
           2       ID       158-ACRES DRAINS TO A 15 ACRE POND   TWO STORMS CONSIDERED
           3       ID       100-YEAR, 6 HOUR STORMS DISTRIBUTED FOR ONE-HOUR INCREMENTS
*** LIST ***
*** FREE ***
                   *DIAGRAM
                   *
                   *
           4       IT     60 13FEB04    1200       0 25FEB04    2000
           5       IN     60 13FEB04    1200
           6       IO      0       5
           7       JR    PREC     5.9
                   *
                   *
                   *

           8       KK       A
           9       KO       5
          10       BA  0.1000
          11       PB    1.00
          12       PC   0.000   0.629   0.782   0.852   0.912   0.961   1.000
          13       LS       0      72      40
          14       UD   0.500
                   *
                   *
                   *

          15       KK       B
          16       KO       5
          17       BA  0.1470
          18       PB    1.00
          19       PC   0.000   0.629   0.782   0.852   0.912   0.961   1.000
          20       LS       0      72      90
          21       UD   0.500
                   *
                   *

          22       KK    STM1
          23       HC       2       0
                   *
                   *
                   *

          24       KK       A
          25       KO       5
          26       BA  0.1000
          27       PB    1.00
          28       PC   0.000   0.629   0.782   0.852   0.912   0.961   1.000
          29       LS       0      72      40
          30       UD   0.500
                   *
                   *
                   *
```

Outflow Hydrograph (Do Not Use for Inflow Values)

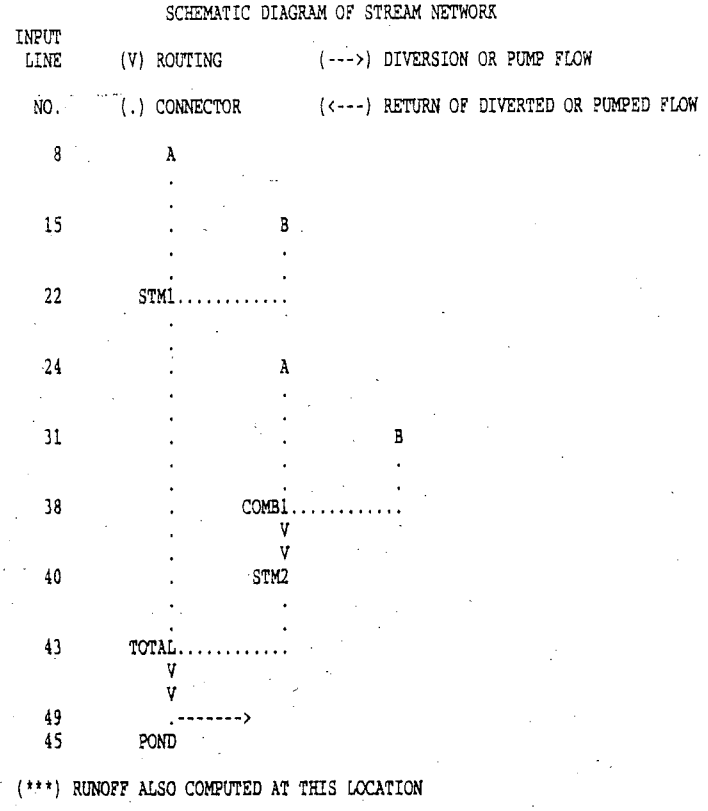

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  31          KK       B
  32          KO       5
  33          BA  0.1470
  34          PB    1.00
  35          PC   0.000   0.629   0.782   0.852   0.912   0.961   1.000
  36          LS       0      72      90
  37          UD   0.500
              *
              *

  38          KK   COMB1
  39          HC       2       0
              *
              *
              *

  40          KK    STM2
  41          KO       5
  42          RT       0       0      96
              *
              *
              *

  43          KK   TOTAL
  44          HC       2       0
              *
              *
              *  STORAGE COMPUTATIONS BASED ON 2,500 GPM PUMP STATION SITE
              *  POND IS AT ELEVATION 158.5 (STATIC) WHEN THE RAIN BEGINS
              *  2,500 GPM(5.6 CFS) PUMP REMOVES WATER FROM THE POND WHEN THE RAIN BEGINS
              *  WHEN WATER RISES TO 162.00, THE PUMP STOPS AND ONLY THE GRAVITY REMOVES WATER
              *  WHEN THE WATER DESCENDS BACK DOWN TO 162.00, THE PUMP CONTINUES TO RUN UNTIL
              *  THE WATER LEVEL IS BACK DOWN TO 158.50.
              *
              *
              *

  45          KK    POND
  46          RS       1    ELEV  158.50
  47          SA   14.03   15.56   15.56
  48          SE  158.50  162.00  170.00
              *
              *
  49          WP       0
  50          WP   158.5     0.0
              *
              *
              *
  51          SQ     0.0     5.6     5.6     6.6     1.0     2.0     3.0     4.0     5.0     6.0
  52          SQ     7.0     8.0     9.0    10.0    12.0    14.0    16.0    18.0    20.0
              *
  53          SE   158.5   158.6  161.50  161.94  162.00  162.14  162.31  162.48  162.63  162.77
  54          SE   162.9  163.06  163.23  163.41  163.83  164.33  164.88  165.50  166.20
              *
              *
              *
```

Outflow Hydrograph (Do Not Use for Inflow Values)

HEC-1 INPUT PAGE 3

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
  55      ZZ
```

Outflow Hydrograph (Do Not Use for Inflow Values)



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

Outflow Hydrograph (Do Not Use for Inflow Values)

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  04/07/2004  TIME  10:03:43 *
*                                       *
*****************************************

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

                          NEWMARKET SQUARE
                          158-ACRES DRAINS TO A 15 ACRE POND   TWO STORMS CONSIDERED
                          100-YEAR, 6 HOUR STORMS DISTRIBUTED FOR ONE-HOUR INCREMENTS

  6 IO         OUTPUT CONTROL VARIABLES
                    IPRNT         0  PRINT CONTROL
                    IPLOT         5  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT         HYDROGRAPH TIME DATA
                   NMIN          60  MINUTES IN COMPUTATION INTERVAL
                   IDATE     13FEB 4  STARTING DATE
                   ITIME        1200  STARTING TIME
                     NQ          297  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE     25FEB 4  ENDING DATE
                  NDTIME        2000  ENDING TIME
                  ICENT           19  CENTURY MARK

                COMPUTATION INTERVAL    1.00 HOURS
                    TOTAL TIME BASE  296.00 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
                 5.90


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


          **************
          *            *
  8 KK    *         A  *
          *            *
          **************

  9 KO         OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
                    IPLOT           5  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE


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


          **************
          *            *
 15 KK    *         B  *
          *            *
          **************

 16 KO         OUTPUT CONTROL VARIABLES
                    IPRNT           5  PRINT CONTROL
```

Outflow Hydrograph (Do Not Use for Inflow Values)

IPLOT 5 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

*** ***

22 KK STM1

23 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

****

HYDROGRAPH AT STATION STM1
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = 5.90

****

DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
13 FEB 1200	1	0.	16 FEB 1500	76	0.	19 FEB 1800	151	0.	22 FEB 2100	226	0.
13 FEB 1300	2	352.	16 FEB 1600	77	0.	19 FEB 1900	152	0.	22 FEB 2200	227	0.
13 FEB 1400	3	196.	16 FEB 1700	78	0.	19 FEB 2000	153	0.	22 FEB 2300	228	0.
13 FEB 1500	4	92.	16 FEB 1800	79	0.	19 FEB 2100	154	0.	23 FEB 0000	229	0.
13 FEB 1600	5	61.	16 FEB 1900	80	0.	19 FEB 2200	155	0.	23 FEB 0100	230	0.
13 FEB 1700	6	47.	16 FEB 2000	81	0.	19 FEB 2300	156	0.	23 FEB 0200	231	0.
13 FEB 1800	7	37.	16 FEB 2100	82	0.	20 FEB 0000	157	0.	23 FEB 0300	232	0.
13 FEB 1900	8	9.	16 FEB 2200	83	0.	20 FEB 0100	158	0.	23 FEB 0400	233	0.
13 FEB 2000	9	2.	16 FEB 2300	84	0.	20 FEB 0200	159	0.	23 FEB 0500	234	0.
13 FEB 2100	10	0.	17 FEB 0000	85	0.	20 FEB 0300	160	0.	23 FEB 0600	235	0.
13 FEB 2200	11	0.	17 FEB 0100	86	0.	20 FEB 0400	161	0.	23 FEB 0700	236	0.
13 FEB 2300	12	0.	17 FEB 0200	87	0.	20 FEB 0500	162	0.	23 FEB 0800	237	0.
14 FEB 0000	13	0.	17 FEB 0300	88	0.	20 FEB 0600	163	0.	23 FEB 0900	238	0.
14 FEB 0100	14	0.	17 FEB 0400	89	0.	20 FEB 0700	164	0.	23 FEB 1000	239	0.
14 FEB 0200	15	0.	17 FEB 0500	90	0.	20 FEB 0800	165	0.	23 FEB 1100	240	0.
14 FEB 0300	16	0.	17 FEB 0600	91	0.	20 FEB 0900	166	0.	23 FEB 1200	241	0.
14 FEB 0400	17	0.	17 FEB 0700	92	0.	20 FEB 1000	167	0.	23 FEB 1300	242	0.
14 FEB 0500	18	0.	17 FEB 0800	93	0.	20 FEB 1100	168	0.	23 FEB 1400	243	0.
14 FEB 0600	19	0.	17 FEB 0900	94	0.	20 FEB 1200	169	0.	23 FEB 1500	244	0.
14 FEB 0700	20	0.	17 FEB 1000	95	0.	20 FEB 1300	170	0.	23 FEB 1600	245	0.
14 FEB 0800	21	0.	17 FEB 1100	96	0.	20 FEB 1400	171	0.	23 FEB 1700	246	0.
14 FEB 0900	22	0.	17 FEB 1200	97	0.	20 FEB 1500	172	0.	23 FEB 1800	247	0.
14 FEB 1000	23	0.	17 FEB 1300	98	0.	20 FEB 1600	173	0.	23 FEB 1900	248	0.
14 FEB 1100	24	0.	17 FEB 1400	99	0.	20 FEB 1700	174	0.	23 FEB 2000	249	0.
14 FEB 1200	25	0.	17 FEB 1500	100	0.	20 FEB 1800	175	0.	23 FEB 2100	250	0.
14 FEB 1300	26	0.	17 FEB 1600	101	0.	20 FEB 1900	176	0.	23 FEB 2200	251	0.
14 FEB 1400	27	0.	17 FEB 1700	102	0.	20 FEB 2000	177	0.	23 FEB 2300	252	0.
14 FEB 1500	28	0.	17 FEB 1800	103	0.	20 FEB 2100	178	0.	24 FEB 0000	253	0.
14 FEB 1600	29	0.	17 FEB 1900	104	0.	20 FEB 2200	179	0.	24 FEB 0100	254	0.
14 FEB 1700	30	0.	17 FEB 2000	105	0.	20 FEB 2300	180	0.	24 FEB 0200	255	0.
14 FEB 1800	31	0.	17 FEB 2100	106	0.	21 FEB 0000	181	0.	24 FEB 0300	256	0.
14 FEB 1900	32	0.	17 FEB 2200	107	0.	21 FEB 0100	182	0.	24 FEB 0400	257	0.
14 FEB 2000	33	0.	17 FEB 2300	108	0.	21 FEB 0200	183	0.	24 FEB 0500	258	0.
14 FEB 2100	34	0.	18 FEB 0000	109	0.	21 FEB 0300	184	0.	24 FEB 0600	259	0.
14 FEB 2200	35	0.	18 FEB 0100	110	0.	21 FEB 0400	185	0.	24 FEB 0700	260	0.
14 FEB 2300	36	0.	18 FEB 0200	111	0.	21 FEB 0500	186	0.	24 FEB 0800	261	0.
15 FEB 0000	37	0.	18 FEB 0300	112	0.	21 FEB 0600	187	0.	24 FEB 0900	262	0.
15 FEB 0100	38	0.	18 FEB 0400	113	0.	21 FEB 0700	188	0.	24 FEB 1000	263	0.
15 FEB 0200	39	0.	18 FEB 0500	114	0.	21 FEB 0800	189	0.	24 FEB 1100	264	0.
15 FEB 0300	40	0.	18 FEB 0600	115	0.	21 FEB 0900	190	0.	24 FEB 1200	265	0.
15 FEB 0400	41	0.	18 FEB 0700	116	0.	21 FEB 1000	191	0.	24 FEB 1300	266	0.
15 FEB 0500	42	0.	18 FEB 0800	117	0.	21 FEB 1100	192	0.	24 FEB 1400	267	0.
15 FEB 0600	43	0.	18 FEB 0900	118	0.	21 FEB 1200	193	0.	24 FEB 1500	268	0.
15 FEB 0700	44	0.	18 FEB 1000	119	0.	21 FEB 1300	194	0.	24 FEB 1600	269	0.
15 FEB 0800	45	0.	18 FEB 1100	120	0.	21 FEB 1400	195	0.	24 FEB 1700	270	0.
15 FEB 0900	46	0.	18 FEB 1200	121	0.	21 FEB 1500	196	0.	24 FEB 1800	271	0.
15 FEB 1000	47	0.	18 FEB 1300	122	0.	21 FEB 1600	197	0.	24 FEB 1900	272	0.
15 FEB 1100	48	0.	18 FEB 1400	123	0.	21 FEB 1700	198	0.	24 FEB 2000	273	0.
15 FEB 1200	49	0.	18 FEB 1500	124	0.	21 FEB 1800	199	0.	24 FEB 2100	274	0.
15 FEB 1300	50	0.	18 FEB 1600	125	0.	21 FEB 1900	200	0.	24 FEB 2200	275	0.
15 FEB 1400	51	0.	18 FEB 1700	126	0.	21 FEB 2000	201	0.	24 FEB 2300	276	0.

15 FEB 1500	52	0.	*	18 FEB 1800	127	0.	*	21 FEB 2100	202	0.	*	25 FEB 0000	277	0.
15 FEB 1600	53	0.	*	18 FEB 1900	128	0.	*	21 FEB 2200	203	0.	*	25 FEB 0100	278	0.
15 FEB 1700	54	0.	*	18 FEB 2000	129	0.	*	21 FEB 2300	204	0.	*	25 FEB 0200	279	0.
15 FEB 1800	55	0.	*	18 FEB 2100	130	0.	*	22 FEB 0000	205	0.	*	25 FEB 0300	280	0.
15 FEB 1900	56	0.	*	18 FEB 2200	131	0.	*	22 FEB 0100	206	0.	*	25 FEB 0400	281	0.
15 FEB 2000	57	0.	*	18 FEB 2300	132	0.	*	22 FEB 0200	207	0.	*	25 FEB 0500	282	0.
15 FEB 2100	58	0.	*	19 FEB 0000	133	0.	*	22 FEB 0300	208	0.	*	25 FEB 0600	283	0.
15 FEB 2200	59	0.	*	19 FEB 0100	134	0.	*	22 FEB 0400	209	0.	*	25 FEB 0700	284	0.
15 FEB 2300	60	0.	*	19 FEB 0200	135	0.	*	22 FEB 0500	210	0.	*	25 FEB 0800	285	0.
16 FEB 0000	61	0.	*	19 FEB 0300	136	0.	*	22 FEB 0600	211	0.	*	25 FEB 0900	286	0.
16 FEB 0100	62	0.	*	19 FEB 0400	137	0.	*	22 FEB 0700	212	0.	*	25 FEB 1000	287	0.
16 FEB 0200	63	0.	*	19 FEB 0500	138	0.	*	22 FEB 0800	213	0.	*	25 FEB 1100	288	0.
16 FEB 0300	64	0.	*	19 FEB 0600	139	0.	*	22 FEB 0900	214	0.	*	25 FEB 1200	289	0.
16 FEB 0400	65	0.	*	19 FEB 0700	140	0.	*	22 FEB 1000	215	0.	*	25 FEB 1300	290	0.
16 FEB 0500	66	0.	*	19 FEB 0800	141	0.	*	22 FEB 1100	216	0.	*	25 FEB 1400	291	0.
16 FEB 0600	67	0.	*	19 FEB 0900	142	0.	*	22 FEB 1200	217	0.	*	25 FEB 1500	292	0.
16 FEB 0700	68	0.	*	19 FEB 1000	143	0.	*	22 FEB 1300	218	0.	*	25 FEB 1600	293	0.
16 FEB 0800	69	0.	*	19 FEB 1100	144	0.	*	22 FEB 1400	219	0.	*	25 FEB 1700	294	0.
16 FEB 0900	70	0.	*	19 FEB 1200	145	0.	*	22 FEB 1500	220	0.	*	25 FEB 1800	295	0.
16 FEB 1000	71	0.	*	19 FEB 1300	146	0.	*	22 FEB 1600	221	0.	*	25 FEB 1900	296	0.
16 FEB 1100	72	0.	*	19 FEB 1400	147	0.	*	22 FEB 1700	222	0.	*	25 FEB 2000	297	0.
16 FEB 1200	73	0.	*	19 FEB 1500	148	0.	*	22 FEB 1800	223	0.	*			
16 FEB 1300	74	0.	*	19 FEB 1600	149	0.	*	22 FEB 1900	224	0.	*			
16 FEB 1400	75	0.	*	19 FEB 1700	150	0.	*	22 FEB 2000	225	0.	*			
			*				*				*			

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	296.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 352.	1.00		128.	33.	11.	3.
		(INCHES)	4.807	4.996	4.996	4.996
		(AC-FT)	63.	66.	66.	66.

CUMULATIVE AREA = .25 SQ MI

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          **************
          *            *
 24 KK    *          A *
          *            *
          **************
```

```
 25 KO          OUTPUT CONTROL VARIABLES
                     IPRNT         5  PRINT CONTROL
                     IPLOT         5  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
```

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          **************
          *            *
 31 KK    *          B *
          *            *
          **************
```

```
 32 KO          OUTPUT CONTROL VARIABLES
                     IPRNT         5  PRINT CONTROL
                     IPLOT         5  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
```

*** ***

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          **************
          *            *
 38 KK    *     COMB1  *
          *            *
          **************
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39 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION COMB1
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = 5.90

DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW	DA MON HRMN	ORD	FLOW
13 FEB 1200	1	0.	16 FEB 1500	76	0.	19 FEB 1800	151	0.	22 FEB 2100	226	0.
13 FEB 1300	2	352.	16 FEB 1600	77	0.	19 FEB 1900	152	0.	22 FEB 2200	227	0.
13 FEB 1400	3	196.	16 FEB 1700	78	0.	19 FEB 2000	153	0.	22 FEB 2300	228	0.
13 FEB 1500	4	92.	16 FEB 1800	79	0.	19 FEB 2100	154	0.	23 FEB 0000	229	0.
13 FEB 1600	5	61.	16 FEB 1900	80	0.	19 FEB 2200	155	0.	23 FEB 0100	230	0.
13 FEB 1700	6	47.	16 FEB 2000	81	0.	19 FEB 2300	156	0.	23 FEB 0200	231	0.
13 FEB 1800	7	37.	16 FEB 2100	82	0.	20 FEB 0000	157	0.	23 FEB 0300	232	0.
13 FEB 1900	8	9.	16 FEB 2200	83	0.	20 FEB 0100	158	0.	23 FEB 0400	233	0.
13 FEB 2000	9	2.	16 FEB 2300	84	0.	20 FEB 0200	159	0.	23 FEB 0500	234	0.
13 FEB 2100	10	0.	17 FEB 0000	85	0.	20 FEB 0300	160	0.	23 FEB 0600	235	0.
13 FEB 2200	11	0.	17 FEB 0100	86	0.	20 FEB 0400	161	0.	23 FEB 0700	236	0.
13 FEB 2300	12	0.	17 FEB 0200	87	0.	20 FEB 0500	162	0.	23 FEB 0800	237	0.
14 FEB 0000	13	0.	17 FEB 0300	88	0.	20 FEB 0600	163	0.	23 FEB 0900	238	0.
14 FEB 0100	14	0.	17 FEB 0400	89	0.	20 FEB 0700	164	0.	23 FEB 1000	239	0.
14 FEB 0200	15	0.	17 FEB 0500	90	0.	20 FEB 0800	165	0.	23 FEB 1100	240	0.
14 FEB 0300	16	0.	17 FEB 0600	91	0.	20 FEB 0900	166	0.	23 FEB 1200	241	0.
14 FEB 0400	17	0.	17 FEB 0700	92	0.	20 FEB 1000	167	0.	23 FEB 1300	242	0.
14 FEB 0500	18	0.	17 FEB 0800	93	0.	20 FEB 1100	168	0.	23 FEB 1400	243	0.
14 FEB 0600	19	0.	17 FEB 0900	94	0.	20 FEB 1200	169	0.	23 FEB 1500	244	0.
14 FEB 0700	20	0.	17 FEB 1000	95	0.	20 FEB 1300	170	0.	23 FEB 1600	245	0.
14 FEB 0800	21	0.	17 FEB 1100	96	0.	20 FEB 1400	171	0.	23 FEB 1700	246	0.
14 FEB 0900	22	0.	17 FEB 1200	97	0.	20 FEB 1500	172	0.	23 FEB 1800	247	0.
14 FEB 1000	23	0.	17 FEB 1300	98	0.	20 FEB 1600	173	0.	23 FEB 1900	248	0.
14 FEB 1100	24	0.	17 FEB 1400	99	0.	20 FEB 1700	174	0.	23 FEB 2000	249	0.
14 FEB 1200	25	0.	17 FEB 1500	100	0.	20 FEB 1800	175	0.	23 FEB 2100	250	0.
14 FEB 1300	26	0.	17 FEB 1600	101	0.	20 FEB 1900	176	0.	23 FEB 2200	251	0.
14 FEB 1400	27	0.	17 FEB 1700	102	0.	20 FEB 2000	177	0.	23 FEB 2300	252	0.
14 FEB 1500	28	0.	17 FEB 1800	103	0.	20 FEB 2100	178	0.	24 FEB 0000	253	0.
14 FEB 1600	29	0.	17 FEB 1900	104	0.	20 FEB 2200	179	0.	24 FEB 0100	254	0.
14 FEB 1700	30	0.	17 FEB 2000	105	0.	20 FEB 2300	180	0.	24 FEB 0200	255	0.
14 FEB 1800	31	0.	17 FEB 2100	106	0.	21 FEB 0000	181	0.	24 FEB 0300	256	0.
14 FEB 1900	32	0.	17 FEB 2200	107	0.	21 FEB 0100	182	0.	24 FEB 0400	257	0.
14 FEB 2000	33	0.	17 FEB 2300	108	0.	21 FEB 0200	183	0.	24 FEB 0500	258	0.
14 FEB 2100	34	0.	18 FEB 0000	109	0.	21 FEB 0300	184	0.	24 FEB 0600	259	0.
14 FEB 2200	35	0.	18 FEB 0100	110	0.	21 FEB 0400	185	0.	24 FEB 0700	260	0.
14 FEB 2300	36	0.	18 FEB 0200	111	0.	21 FEB 0500	186	0.	24 FEB 0800	261	0.
15 FEB 0000	37	0.	18 FEB 0300	112	0.	21 FEB 0600	187	0.	24 FEB 0900	262	0.
15 FEB 0100	38	0.	18 FEB 0400	113	0.	21 FEB 0700	188	0.	24 FEB 1000	263	0.
15 FEB 0200	39	0.	18 FEB 0500	114	0.	21 FEB 0800	189	0.	24 FEB 1100	264	0.
15 FEB 0300	40	0.	18 FEB 0600	115	0.	21 FEB 0900	190	0.	24 FEB 1200	265	0.
15 FEB 0400	41	0.	18 FEB 0700	116	0.	21 FEB 1000	191	0.	24 FEB 1300	266	0.
15 FEB 0500	42	0.	18 FEB 0800	117	0.	21 FEB 1100	192	0.	24 FEB 1400	267	0.
15 FEB 0600	43	0.	18 FEB 0900	118	0.	21 FEB 1200	193	0.	24 FEB 1500	268	0.
15 FEB 0700	44	0.	18 FEB 1000	119	0.	21 FEB 1300	194	0.	24 FEB 1600	269	0.
15 FEB 0800	45	0.	18 FEB 1100	120	0.	21 FEB 1400	195	0.	24 FEB 1700	270	0.
15 FEB 0900	46	0.	18 FEB 1200	121	0.	21 FEB 1500	196	0.	24 FEB 1800	271	0.
15 FEB 1000	47	0.	18 FEB 1300	122	0.	21 FEB 1600	197	0.	24 FEB 1900	272	0.
15 FEB 1100	48	0.	18 FEB 1400	123	0.	21 FEB 1700	198	0.	24 FEB 2000	273	0.
15 FEB 1200	49	0.	18 FEB 1500	124	0.	21 FEB 1800	199	0.	24 FEB 2100	274	0.
15 FEB 1300	50	0.	18 FEB 1600	125	0.	21 FEB 1900	200	0.	24 FEB 2200	275	0.
15 FEB 1400	51	0.	18 FEB 1700	126	0.	21 FEB 2000	201	0.	24 FEB 2300	276	0.
15 FEB 1500	52	0.	18 FEB 1800	127	0.	21 FEB 2100	202	0.	25 FEB 0000	277	0.
15 FEB 1600	53	0.	18 FEB 1900	128	0.	21 FEB 2200	203	0.	25 FEB 0100	278	0.
15 FEB 1700	54	0.	18 FEB 2000	129	0.	21 FEB 2300	204	0.	25 FEB 0200	279	0.
15 FEB 1800	55	0.	18 FEB 2100	130	0.	22 FEB 0000	205	0.	25 FEB 0300	280	0.
15 FEB 1900	56	0.	18 FEB 2200	131	0.	22 FEB 0100	206	0.	25 FEB 0400	281	0.
15 FEB 2000	57	0.	18 FEB 2300	132	0.	22 FEB 0200	207	0.	25 FEB 0500	282	0.
15 FEB 2100	58	0.	19 FEB 0000	133	0.	22 FEB 0300	208	0.	25 FEB 0600	283	0.
15 FEB 2200	59	0.	19 FEB 0100	134	0.	22 FEB 0400	209	0.	25 FEB 0700	284	0.
15 FEB 2300	60	0.	19 FEB 0200	135	0.	22 FEB 0500	210	0.	25 FEB 0800	285	0.
16 FEB 0000	61	0.	19 FEB 0300	136	0.	22 FEB 0600	211	0.	25 FEB 0900	286	0.
16 FEB 0100	62	0.	19 FEB 0400	137	0.	22 FEB 0700	212	0.	25 FEB 1000	287	0.
16 FEB 0200	63	0.	19 FEB 0500	138	0.	22 FEB 0800	213	0.	25 FEB 1100	288	0.
16 FEB 0300	64	0.	19 FEB 0600	139	0.	22 FEB 0900	214	0.	25 FEB 1200	289	0.

16	FEB	0400	65	0.	*	19	FEB	0700	140	0.	*	22	FEB	1000	215	0.	*	25	FEB	1300	290	0.
16	FEB	0500	66	0.	*	19	FEB	0800	141	0.	*	22	FEB	1100	216	0.	*	25	FEB	1400	291	0.
16	FEB	0600	67	0.	*	19	FEB	0900	142	0.	*	22	FEB	1200	217	0.	*	25	FEB	1500	292	0.
16	FEB	0700	68	0.	*	19	FEB	1000	143	0.	*	22	FEB	1300	218	0.	*	25	FEB	1600	293	0.
16	FEB	0800	69	0.	*	19	FEB	1100	144	0.	*	22	FEB	1400	219	0.	*	25	FEB	1700	294	0.
16	FEB	0900	70	0.	*	19	FEB	1200	145	0.	*	22	FEB	1500	220	0.	*	25	FEB	1800	295	0.
16	FEB	1000	71	0.	*	19	FEB	1300	146	0.	*	22	FEB	1600	221	0.	*	25	FEB	1900	296	0.
16	FEB	1100	72	0.	*	19	FEB	1400	147	0.	*	22	FEB	1700	222	0.	*	25	FEB	2000	297	0.
16	FEB	1200	73	0.	*	19	FEB	1500	148	0.	*	22	FEB	1800	223	0.	*					
16	FEB	1300	74	0.	*	19	FEB	1600	149	0.	*	22	FEB	1900	224	0.	*					
16	FEB	1400	75	0.	*	19	FEB	1700	150	0.	*	22	FEB	2000	225	0.	*					

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	296.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 352.	1.00		128.	33.	11.	3.
		(INCHES)	4.807	4.996	4.996	4.996
		(AC-FT)	63.	66.	66.	66.

CUMULATIVE AREA = .25 SQ MI

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          **************
          *            *
 40 KK    *     STM2   *
          *            *
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41 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	5	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

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          **************
          *            *
 43 KK    *    TOTAL   *
          *            *
          **************
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44 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION TOTAL
SUM OF 2 HYDROGRAPHS
PLAN 1, RATIO = 5.90

DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW
13	FEB	1200	1	0.	*	16	FEB	1500	76	0.	*	19	FEB	1800	151	0.	*	22	FEB	2100	226	0.
13	FEB	1300	2	352.	*	16	FEB	1600	77	0.	*	19	FEB	1900	152	0.	*	22	FEB	2200	227	0.
13	FEB	1400	3	196.	*	16	FEB	1700	78	0.	*	19	FEB	2000	153	0.	*	22	FEB	2300	228	0.
13	FEB	1500	4	92.	*	16	FEB	1800	79	0.	*	19	FEB	2100	154	0.	*	23	FEB	0000	229	0.
13	FEB	1600	5	61.	*	16	FEB	1900	80	0.	*	19	FEB	2200	155	0.	*	23	FEB	0100	230	0.
13	FEB	1700	6	47.	*	16	FEB	2000	81	0.	*	19	FEB	2300	156	0.	*	23	FEB	0200	231	0.
13	FEB	1800	7	37.	*	16	FEB	2100	82	0.	*	20	FEB	0000	157	0.	*	23	FEB	0300	232	0.
13	FEB	1900	8	9.	*	16	FEB	2200	83	0.	*	20	FEB	0100	158	0.	*	23	FEB	0400	233	0.
13	FEB	2000	9	2.	*	16	FEB	2300	84	0.	*	20	FEB	0200	159	0.	*	23	FEB	0500	234	0.
13	FEB	2100	10	0.	*	17	FEB	0000	85	0.	*	20	FEB	0300	160	0.	*	23	FEB	0600	235	0.
13	FEB	2200	11	0.	*	17	FEB	0100	86	0.	*	20	FEB	0400	161	0.	*	23	FEB	0700	236	0.
13	FEB	2300	12	0.	*	17	FEB	0200	87	0.	*	20	FEB	0500	162	0.	*	23	FEB	0800	237	0.
14	FEB	0000	13	0.	*	17	FEB	0300	88	0.	*	20	FEB	0600	163	0.	*	23	FEB	0900	238	0.

Outflow Hydrograph (Do Not Use for Inflow Values)

14 FEB 0100	14	0.	*	17 FEB 0400	89	0.	*	20 FEB 0700	164	0.	*	23 FEB 1000	239	0.			
14 FEB 0200	15	0.	*	17 FEB 0500	90	0.	*	20 FEB 0800	165	0.	*	23 FEB 1100	240	0.			
14 FEB 0300	16	0.	*	17 FEB 0600	91	0.	*	20 FEB 0900	166	0.	*	23 FEB 1200	241	0.			
14 FEB 0400	17	0.	*	17 FEB 0700	92	0.	*	20 FEB 1000	167	0.	*	23 FEB 1300	242	0.			
14 FEB 0500	18	0.	*	17 FEB 0800	93	0.	*	20 FEB 1100	168	0.	*	23 FEB 1400	243	0.			
14 FEB 0600	19	0.	*	17 FEB 0900	94	0.	*	20 FEB 1200	169	0.	*	23 FEB 1500	244	0.			
14 FEB 0700	20	0.	*	17 FEB 1000	95	0.	*	20 FEB 1300	170	0.	*	23 FEB 1600	245	0.			
14 FEB 0800	21	0.	*	17 FEB 1100	96	0.	*	20 FEB 1400	171	0.	*	23 FEB 1700	246	0.			
14 FEB 0900	22	0.	*	17 FEB 1200	97	0.	*	20 FEB 1500	172	0.	*	23 FEB 1800	247	0.			
14 FEB 1000	23	0.	*	17 FEB 1300	98	352.	*	20 FEB 1600	173	0.	*	23 FEB 1900	248	0.			
14 FEB 1100	24	0.	*	17 FEB 1400	99	196.	*	20 FEB 1700	174	0.	*	23 FEB 2000	249	0.			
14 FEB 1200	25	0.	*	17 FEB 1500	100	92.	*	20 FEB 1800	175	0.	*	23 FEB 2100	250	0.			
14 FEB 1300	26	0.	*	17 FEB 1600	101	61.	*	20 FEB 1900	176	0.	*	23 FEB 2200	251	0.			
14 FEB 1400	27	0.	*	17 FEB 1700	102	47.	*	20 FEB 2000	177	0.	*	23 FEB 2300	252	0.			
14 FEB 1500	28	0.	*	17 FEB 1800	103	37.	*	20 FEB 2100	178	0.	*	24 FEB 0000	253	0.			
14 FEB 1600	29	0.	*	17 FEB 1900	104	9.	*	20 FEB 2200	179	0.	*	24 FEB 0100	254	0.			
14 FEB 1700	30	0.	*	17 FEB 2000	105	2.	*	20 FEB 2300	180	0.	*	24 FEB 0200	255	0.			
14 FEB 1800	31	0.	*	17 FEB 2100	106	0.	*	21 FEB 0000	181	0.	*	24 FEB 0300	256	0.			
14 FEB 1900	32	0.	*	17 FEB 2200	107	0.	*	21 FEB 0100	182	0.	*	24 FEB 0400	257	0.			
14 FEB 2000	33	0.	*	17 FEB 2300	108	0.	*	21 FEB 0200	183	0.	*	24 FEB 0500	258	0.			
14 FEB 2100	34	0.	*	18 FEB 0000	109	0.	*	21 FEB 0300	184	0.	*	24 FEB 0600	259	0.			
14 FEB 2200	35	0.	*	18 FEB 0100	110	0.	*	21 FEB 0400	185	0.	*	24 FEB 0700	260	0.			
14 FEB 2300	36	0.	*	18 FEB 0200	111	0.	*	21 FEB 0500	186	0.	*	24 FEB 0800	261	0.			
15 FEB 0000	37	0.	*	18 FEB 0300	112	0.	*	21 FEB 0600	187	0.	*	24 FEB 0900	262	0.			
15 FEB 0100	38	0.	*	18 FEB 0400	113	0.	*	21 FEB 0700	188	0.	*	24 FEB 1000	263	0.			
15 FEB 0200	39	0.	*	18 FEB 0500	114	0.	*	21 FEB 0800	189	0.	*	24 FEB 1100	264	0.			
15 FEB 0300	40	0.	*	18 FEB 0600	115	0.	*	21 FEB 0900	190	0.	*	24 FEB 1200	265	0.			
15 FEB 0400	41	0.	*	18 FEB 0700	116	0.	*	21 FEB 1000	191	0.	*	24 FEB 1300	266	0.			
15 FEB 0500	42	0.	*	18 FEB 0800	117	0.	*	21 FEB 1100	192	0.	*	24 FEB 1400	267	0.			
15 FEB 0600	43	0.	*	18 FEB 0900	118	0.	*	21 FEB 1200	193	0.	*	24 FEB 1500	268	0.			
15 FEB 0700	44	0.	*	18 FEB 1000	119	0.	*	21 FEB 1300	194	0.	*	24 FEB 1600	269	0.			
15 FEB 0800	45	0.	*	18 FEB 1100	120	0.	*	21 FEB 1400	195	0.	*	24 FEB 1700	270	0.			
15 FEB 0900	46	0.	*	18 FEB 1200	121	0.	*	21 FEB 1500	196	0.	*	24 FEB 1800	271	0.			
15 FEB 1000	47	0.	*	18 FEB 1300	122	0.	*	21 FEB 1600	197	0.	*	24 FEB 1900	272	0.			
15 FEB 1100	48	0.	*	18 FEB 1400	123	0.	*	21 FEB 1700	198	0.	*	24 FEB 2000	273	0.			
15 FEB 1200	49	0.	*	18 FEB 1500	124	0.	*	21 FEB 1800	199	0.	*	24 FEB 2100	274	0.			
15 FEB 1300	50	0.	*	18 FEB 1600	125	0.	*	21 FEB 1900	200	0.	*	24 FEB 2200	275	0.			
15 FEB 1400	51	0.	*	18 FEB 1700	126	0.	*	21 FEB 2000	201	0.	*	24 FEB 2300	276	0.			
15 FEB 1500	52	0.	*	18 FEB 1800	127	0.	*	21 FEB 2100	202	0.	*	25 FEB 0000	277	0.			
15 FEB 1600	53	0.	*	18 FEB 1900	128	0.	*	21 FEB 2200	203	0.	*	25 FEB 0100	278	0.			
15 FEB 1700	54	0.	*	18 FEB 2000	129	0.	*	21 FEB 2300	204	0.	*	25 FEB 0200	279	0.			
15 FEB 1800	55	0.	*	18 FEB 2100	130	0.	*	22 FEB 0000	205	0.	*	25 FEB 0300	280	0.			
15 FEB 1900	56	0.	*	18 FEB 2200	131	0.	*	22 FEB 0100	206	0.	*	25 FEB 0400	281	0.			
15 FEB 2000	57	0.	*	18 FEB 2300	132	0.	*	22 FEB 0200	207	0.	*	25 FEB 0500	282	0.			
15 FEB 2100	58	0.	*	19 FEB 0000	133	0.	*	22 FEB 0300	208	0.	*	25 FEB 0600	283	0.			
15 FEB 2200	59	0.	*	19 FEB 0100	134	0.	*	22 FEB 0400	209	0.	*	25 FEB 0700	284	0.			
15 FEB 2300	60	0.	*	19 FEB 0200	135	0.	*	22 FEB 0500	210	0.	*	25 FEB 0800	285	0.			
16 FEB 0000	61	0.	*	19 FEB 0300	136	0.	*	22 FEB 0600	211	0.	*	25 FEB 0900	286	0.			
16 FEB 0100	62	0.	*	19 FEB 0400	137	0.	*	22 FEB 0700	212	0.	*	25 FEB 1000	287	0.			
16 FEB 0200	63	0.	*	19 FEB 0500	138	0.	*	22 FEB 0800	213	0.	*	25 FEB 1100	288	0.			
16 FEB 0300	64	0.	*	19 FEB 0600	139	0.	*	22 FEB 0900	214	0.	*	25 FEB 1200	289	0.			
16 FEB 0400	65	0.	*	19 FEB 0700	140	0.	*	22 FEB 1000	215	0.	*	25 FEB 1300	290	0.			
16 FEB 0500	66	0.	*	19 FEB 0800	141	0.	*	22 FEB 1100	216	0.	*	25 FEB 1400	291	0.			
16 FEB 0600	67	0.	*	19 FEB 0900	142	0.	*	22 FEB 1200	217	0.	*	25 FEB 1500	292	0.			
16 FEB 0700	68	0.	*	19 FEB 1000	143	0.	*	22 FEB 1300	218	0.	*	25 FEB 1600	293	0.			
16 FEB 0800	69	0.	*	19 FEB 1100	144	0.	*	22 FEB 1400	219	0.	*	25 FEB 1700	294	0.			
16 FEB 0900	70	0.	*	19 FEB 1200	145	0.	*	22 FEB 1500	220	0.	*	25 FEB 1800	295	0.			
16 FEB 1000	71	0.	*	19 FEB 1300	146	0.	*	22 FEB 1600	221	0.	*	25 FEB 1900	296	0.			
16 FEB 1100	72	0.	*	19 FEB 1400	147	0.	*	22 FEB 1700	222	0.	*	25 FEB 2000	297	0.			
16 FEB 1200	73	0.	*	19 FEB 1500	148	0.	*	22 FEB 1800	223	0.	*						
16 FEB 1300	74	0.	*	19 FEB 1600	149	0.	*	22 FEB 1900	224	0.	*						
16 FEB 1400	75	0.	*	19 FEB 1700	150	0.	*	22 FEB 2000	225	0.	*						
			*				*				*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	296.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 352.	1.00		128.	33.	11.	5.
		(INCHES)	2.404	2.498	2.498	4.996
		(AC-FT)	63.	66.	66.	132.

CUMULATIVE AREA = .49 SQ MI

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REC

Outflow Hydrograph (Do Not Use for Inflow Values)

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              **************
              *            *
   45 KK      *    POND    *
              *            *
              **************

                HYDROGRAPH ROUTING DATA

   46 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC     158.50  INITIAL CONDITION
                          X        .00  WORKING R AND D COEFFICIENT

   47 SA                AREA      14.0      15.6      15.6

   48 SE           ELEVATION    158.50    162.00    170.00

   51 SQ           DISCHARGE        0.        6.        6.        7.        1.        2.        3.        4.        5.        6.
                                    7.        8.        9.       10.       12.       14.       16.       18.       20.

   53 SE           ELEVATION    158.50    158.60    161.50    161.94    162.00    162.14    162.31    162.48    162.63    162.77
                                162.90    163.06    163.23    163.41    163.83    164.33    164.88    165.50    166.20

                                                 ***

                                        COMPUTED STORAGE-ELEVATION DATA

         STORAGE        .00     51.76    176.24
       ELEVATION     158.50    162.00    170.00

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

         STORAGE        .00      1.41     44.04     50.83     51.76     53.94     56.58     59.23     61.56     63.74
         OUTFLOW        .00      5.60      5.60      6.60      1.00      2.00      3.00      4.00      5.00      6.00
       ELEVATION     158.50    158.60    161.50    161.94    162.00    162.14    162.31    162.48    162.63    162.77

         STORAGE      65.76     68.25     70.90     73.70     80.23     88.01     96.57    106.22    117.11    176.24
         OUTFLOW       7.00      8.00      9.00     10.00     12.00     14.00     16.00     18.00     20.00     30.86
       ELEVATION     162.90    163.06    163.23    163.41    163.83    164.33    164.88    165.50    166.20    170.00
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HYDROGRAPH AT STATION POND
PLAN 1, RATIO = 5.90

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
13	FEB	1200	1	0.	.0	158.5	*	17	FEB	1500	100	12.	81.4	163.9	*	21	FEB	1800	199	6.	47.8	161.7
13	FEB	1300	2	6.	14.3	159.5	*	17	FEB	1600	101	14.	86.6	164.2	*	21	FEB	1900	200	6.	47.3	161.7
13	FEB	1400	3	6.	36.5	161.0	*	17	FEB	1700	102	14.	89.9	164.5	*	21	FEB	2000	201	6.	46.8	161.7
13	FEB	1500	4	6.	47.9	161.8	*	17	FEB	1800	103	15.	92.2	164.6	*	21	FEB	2100	202	6.	46.3	161.6
13	FEB	1600	5	2.	53.9	162.1	*	17	FEB	1900	104	15.	92.9	164.6	*	21	FEB	2200	203	6.	45.9	161.6
13	FEB	1700	6	4.	58.1	162.4	*	17	FEB	2000	105	15.	92.1	164.6	*	21	FEB	2300	204	6.	45.4	161.6
13	FEB	1800	7	5.	61.2	162.6	*	17	FEB	2100	106	15.	90.9	164.5	*	22	FEB	0000	205	6.	44.9	161.6
13	FEB	1900	8	6.	62.7	162.7	*	17	FEB	2200	107	14.	89.7	164.4	*	22	FEB	0100	206	6.	44.4	161.5
13	FEB	2000	9	6.	62.7	162.7	*	17	FEB	2300	108	14.	88.6	164.4	*	22	FEB	0200	207	6.	44.0	161.5
13	FEB	2100	10	5.	62.4	162.7	*	18	FEB	0000	109	14.	87.4	164.3	*	22	FEB	0300	208	6.	43.5	161.5
13	FEB	2200	11	5.	61.9	162.7	*	18	FEB	0100	110	14.	86.3	164.2	*	22	FEB	0400	209	6.	43.0	161.4
13	FEB	2300	12	5.	61.5	162.6	*	18	FEB	0200	111	13.	85.2	164.1	*	22	FEB	0500	210	6.	42.6	161.4
14	FEB	0000	13	5.	61.1	162.6	*	18	FEB	0300	112	13.	84.1	164.1	*	22	FEB	0600	211	6.	42.1	161.4
14	FEB	0100	14	5.	60.7	162.6	*	18	FEB	0400	113	13.	83.0	164.0	*	22	FEB	0700	212	6.	41.6	161.3
14	FEB	0200	15	4.	60.4	162.6	*	18	FEB	0500	114	12.	82.0	163.9	*	22	FEB	0800	213	6.	41.2	161.3
14	FEB	0300	16	4.	60.0	162.5	*	18	FEB	0600	115	12.	81.0	163.9	*	22	FEB	0900	214	6.	40.7	161.3
14	FEB	0400	17	4.	59.6	162.5	*	18	FEB	0700	116	12.	80.0	163.8	*	22	FEB	1000	215	6.	40.3	161.2
14	FEB	0500	18	4.	59.3	162.5	*	18	FEB	0800	117	12.	79.0	163.8	*	22	FEB	1100	216	6.	39.8	161.2
14	FEB	0600	19	4.	59.0	162.5	*	18	FEB	0900	118	11.	78.0	163.7	*	22	FEB	1200	217	6.	39.3	161.2
14	FEB	0700	20	4.	58.7	162.4	*	18	FEB	1000	119	11.	77.1	163.6	*	22	FEB	1300	218	6.	38.9	161.1
14	FEB	0800	21	4.	58.3	162.4	*	18	FEB	1100	120	11.	76.2	163.6	*	22	FEB	1400	219	6.	38.4	161.1
14	FEB	0900	22	4.	58.0	162.4	*	18	FEB	1200	121	11.	75.3	163.5	*	22	FEB	1500	220	6.	37.9	161.1
14	FEB	1000	23	3.	57.8	162.4	*	18	FEB	1300	122	10.	74.5	163.5	*	22	FEB	1600	221	6.	37.5	161.1
14	FEB	1100	24	3.	57.5	162.4	*	18	FEB	1400	123	10.	73.6	163.4	*	22	FEB	1700	222	6.	37.0	161.0
14	FEB	1200	25	3.	57.2	162.4	*	18	FEB	1500	124	10.	72.8	163.4	*	22	FEB	1800	223	6.	36.6	161.0
14	FEB	1300	26	3.	56.9	162.3	*	18	FEB	1600	125	9.	72.0	163.3	*	22	FEB	1900	224	6.	36.1	161.0
14	FEB	1400	27	3.	56.7	162.3	*	18	FEB	1700	126	9.	71.3	163.3	*	22	FEB	2000	225	6.	35.6	160.9
14	FEB	1500	28	3.	56.4	162.3	*	18	FEB	1800	127	9.	70.5	163.2	*	22	FEB	2100	226	6.	35.2	160.9

Outflow Hydrograph (Do Not Use for Inflow Values)

14 FEB 1600	29	3.	56.2	162.3 * 18 FEB 1900	128	9.	69.8	163.2 * 22 FEB 2200	227	6.	34.7	160.9
14 FEB 1700	30	3.	56.0	162.3 * 18 FEB 2000	129	8.	69.1	163.1 * 22 FEB 2300	228	6.	34.2	160.8
14 FEB 1800	31	3.	55.7	162.3 * 18 FEB 2100	130	8.	68.4	163.1 * 23 FEB 0000	229	6.	33.8	160.8
14 FEB 1900	32	3.	55.5	162.2 * 18 FEB 2200	131	8.	67.8	163.0 * 23 FEB 0100	230	6.	33.3	160.8
14 FEB 2000	33	3.	55.3	162.2 * 18 FEB 2300	132	8.	67.1	163.0 * 23 FEB 0200	231	6.	32.9	160.7
14 FEB 2100	34	2.	55.1	162.2 * 19 FEB 0000	133	7.	66.5	162.9 * 23 FEB 0300	232	6.	32.4	160.7
14 FEB 2200	35	2.	54.9	162.2 * 19 FEB 0100	134	7.	65.9	162.9 * 23 FEB 0400	233	6.	31.9	160.7
14 FEB 2300	36	2.	54.7	162.2 * 19 FEB 0200	135	7.	65.4	162.9 * 23 FEB 0500	234	6.	31.5	160.6
15 FEB 0000	37	2.	54.5	162.2 * 19 FEB 0300	136	7.	64.8	162.8 * 23 FEB 0600	235	6.	31.0	160.6
15 FEB 0100	38	2.	54.3	162.2 * 19 FEB 0400	137	6.	64.3	162.8 * 23 FEB 0700	236	6.	30.5	160.6
15 FEB 0200	39	2.	54.2	162.2 * 19 FEB 0500	138	6.	63.8	162.8 * 23 FEB 0800	237	6.	30.1	160.6
15 FEB 0300	40	2.	54.0	162.1 * 19 FEB 0600	139	6.	63.3	162.7 * 23 FEB 0900	238	6.	29.6	160.5
15 FEB 0400	41	2.	53.8	162.1 * 19 FEB 0700	140	6.	62.8	162.7 * 23 FEB 1000	239	6.	29.2	160.5
15 FEB 0500	42	2.	53.7	162.1 * 19 FEB 0800	141	5.	62.4	162.7 * 23 FEB 1100	240	6.	28.7	160.5
15 FEB 0600	43	2.	53.5	162.1 * 19 FEB 0900	142	5.	61.9	162.7 * 23 FEB 1200	241	6.	28.2	160.4
15 FEB 0700	44	2.	53.4	162.1 * 19 FEB 1000	143	5.	61.5	162.6 * 23 FEB 1300	242	6.	27.8	160.4
15 FEB 0800	45	2.	53.2	162.1 * 19 FEB 1100	144	5.	61.1	162.6 * 23 FEB 1400	243	6.	27.3	160.4
15 FEB 0900	46	2.	53.1	162.1 * 19 FEB 1200	145	5.	60.7	162.6 * 23 FEB 1500	244	6.	26.8	160.3
15 FEB 1000	47	2.	53.0	162.1 * 19 FEB 1300	146	4.	60.3	162.6 * 23 FEB 1600	245	6.	26.4	160.3
15 FEB 1100	48	1.	52.8	162.1 * 19 FEB 1400	147	4.	60.0	162.5 * 23 FEB 1700	246	6.	25.9	160.3
15 FEB 1200	49	1.	52.7	162.1 * 19 FEB 1500	148	4.	59.6	162.5 * 23 FEB 1800	247	6.	25.5	160.2
15 FEB 1300	50	1.	52.6	162.1 * 19 FEB 1600	149	4.	59.3	162.5 * 23 FEB 1900	248	6.	25.0	160.2
15 FEB 1400	51	1.	52.5	162.0 * 19 FEB 1700	150	4.	59.0	162.5 * 23 FEB 2000	249	6.	24.5	160.2
15 FEB 1500	52	1.	52.4	162.0 * 19 FEB 1800	151	4.	58.6	162.4 * 23 FEB 2100	250	6.	24.1	160.1
15 FEB 1600	53	1.	52.3	162.0 * 19 FEB 1900	152	4.	58.3	162.4 * 23 FEB 2200	251	6.	23.6	160.1
15 FEB 1700	54	1.	52.2	162.0 * 19 FEB 2000	153	4.	58.0	162.4 * 23 FEB 2300	252	6.	23.1	160.1
15 FEB 1800	55	1.	52.1	162.0 * 19 FEB 2100	154	3.	57.7	162.4 * 24 FEB 0000	253	6.	22.7	160.0
15 FEB 1900	56	1.	52.0	162.0 * 19 FEB 2200	155	3.	57.5	162.4 * 24 FEB 0100	254	6.	22.2	160.0
15 FEB 2000	57	1.	51.9	162.0 * 19 FEB 2300	156	3.	57.2	162.3 * 24 FEB 0200	255	6.	21.7	160.0
15 FEB 2100	58	1.	51.8	162.0 * 20 FEB 0000	157	3.	56.9	162.3 * 24 FEB 0300	256	6.	21.3	160.0
15 FEB 2200	59	1.	51.7	162.0 * 20 FEB 0100	158	3.	56.7	162.3 * 24 FEB 0400	257	6.	20.8	159.9
15 FEB 2300	60	2.	51.6	162.0 * 20 FEB 0200	159	3.	56.4	162.3 * 24 FEB 0500	258	6.	20.4	159.9
16 FEB 0000	61	3.	51.4	162.0 * 20 FEB 0300	160	3.	56.2	162.3 * 24 FEB 0600	259	6.	19.9	159.9
16 FEB 0100	62	6.	51.0	162.0 * 20 FEB 0400	161	3.	56.0	162.3 * 24 FEB 0700	260	6.	19.4	159.8
16 FEB 0200	63	7.	50.5	161.9 * 20 FEB 0500	162	3.	55.7	162.3 * 24 FEB 0800	261	6.	19.0	159.8
16 FEB 0300	64	6.	50.0	161.9 * 20 FEB 0600	163	3.	55.5	162.2 * 24 FEB 0900	262	6.	18.5	159.8
16 FEB 0400	65	6.	49.4	161.8 * 20 FEB 0700	164	3.	55.3	162.2 * 24 FEB 1000	263	6.	18.0	159.7
16 FEB 0500	66	6.	48.9	161.8 * 20 FEB 0800	165	2.	55.1	162.2 * 24 FEB 1100	264	6.	17.6	159.7
16 FEB 0600	67	6.	48.4	161.8 * 20 FEB 0900	166	2.	54.9	162.2 * 24 FEB 1200	265	6.	17.1	159.7
16 FEB 0700	68	6.	47.9	161.7 * 20 FEB 1000	167	2.	54.7	162.2 * 24 FEB 1300	266	6.	16.7	159.6
16 FEB 0800	69	6.	47.4	161.7 * 20 FEB 1100	168	2.	54.5	162.2 * 24 FEB 1400	267	6.	16.2	159.6
16 FEB 0900	70	6.	46.9	161.7 * 20 FEB 1200	169	2.	54.3	162.2 * 24 FEB 1500	268	6.	15.7	159.6
16 FEB 1000	71	6.	46.4	161.7 * 20 FEB 1300	170	2.	54.2	162.2 * 24 FEB 1600	269	6.	15.3	159.5
16 FEB 1100	72	6.	45.9	161.6 * 20 FEB 1400	171	2.	54.0	162.1 * 24 FEB 1700	270	6.	14.8	159.5
16 FEB 1200	73	6.	45.4	161.6 * 20 FEB 1500	172	2.	53.8	162.1 * 24 FEB 1800	271	6.	14.3	159.5
16 FEB 1300	74	6.	44.9	161.6 * 20 FEB 1600	173	2.	53.7	162.1 * 24 FEB 1900	272	6.	13.9	159.4
16 FEB 1400	75	6.	44.4	161.5 * 20 FEB 1700	174	2.	53.5	162.1 * 24 FEB 2000	273	6.	13.4	159.4
16 FEB 1500	76	6.	44.0	161.5 * 20 FEB 1800	175	2.	53.4	162.1 * 24 FEB 2100	274	6.	13.0	159.4
16 FEB 1600	77	6.	43.5	161.5 * 20 FEB 1900	176	2.	53.2	162.1 * 24 FEB 2200	275	6.	12.5	159.4
16 FEB 1700	78	6.	43.1	161.4 * 20 FEB 2000	177	2.	53.1	162.1 * 24 FEB 2300	276	6.	12.0	159.3
16 FEB 1800	79	6.	42.6	161.4 * 20 FEB 2100	178	2.	53.0	162.1 * 25 FEB 0000	277	6.	11.6	159.3
16 FEB 1900	80	6.	42.1	161.4 * 20 FEB 2200	179	1.	52.8	162.1 * 25 FEB 0100	278	6.	11.1	159.3
16 FEB 2000	81	6.	41.7	161.3 * 20 FEB 2300	180	1.	52.7	162.1 * 25 FEB 0200	279	6.	10.6	159.2
16 FEB 2100	82	6.	41.2	161.3 * 21 FEB 0000	181	1.	52.6	162.1 * 25 FEB 0300	280	6.	10.2	159.2
16 FEB 2200	83	6.	40.7	161.3 * 21 FEB 0100	182	1.	52.5	162.0 * 25 FEB 0400	281	6.	9.7	159.2
16 FEB 2300	84	6.	40.3	161.2 * 21 FEB 0200	183	1.	52.4	162.0 * 25 FEB 0500	282	6.	9.3	159.1
17 FEB 0000	85	6.	39.8	161.2 * 21 FEB 0300	184	1.	52.3	162.0 * 25 FEB 0600	283	6.	8.8	159.1
17 FEB 0100	86	6.	39.4	161.2 * 21 FEB 0400	185	1.	52.2	162.0 * 25 FEB 0700	284	6.	8.3	159.1
17 FEB 0200	87	6.	38.9	161.2 * 21 FEB 0500	186	1.	52.1	162.0 * 25 FEB 0800	285	6.	7.9	159.0
17 FEB 0300	88	6.	38.4	161.1 * 21 FEB 0600	187	1.	52.0	162.0 * 25 FEB 0900	286	6.	7.4	159.0
17 FEB 0400	89	6.	38.0	161.1 * 21 FEB 0700	188	1.	51.9	162.0 * 25 FEB 1000	287	6.	6.9	159.0
17 FEB 0500	90	6.	37.5	161.1 * 21 FEB 0800	189	1.	51.8	162.0 * 25 FEB 1100	288	6.	6.5	158.9
17 FEB 0600	91	6.	37.0	161.0 * 21 FEB 0900	190	1.	51.7	162.0 * 25 FEB 1200	289	6.	6.0	158.9
17 FEB 0700	92	6.	36.6	161.0 * 21 FEB 1000	191	2.	51.6	162.0 * 25 FEB 1300	290	6.	5.5	158.9
17 FEB 0800	93	6.	36.1	161.0 * 21 FEB 1100	192	1.	51.4	162.0 * 25 FEB 1400	291	6.	5.1	158.9
17 FEB 0900	94	6.	35.7	160.9 * 21 FEB 1200	193	6.	51.0	161.9 * 25 FEB 1500	292	6.	4.6	158.8
17 FEB 1000	95	6.	35.2	160.9 * 21 FEB 1300	194	7.	50.5	161.9 * 25 FEB 1600	293	6.	4.2	158.8
17 FEB 1100	96	6.	34.7	160.9 * 21 FEB 1400	195	6.	49.9	161.9 * 25 FEB 1700	294	6.	3.7	158.8
17 FEB 1200	97	6.	34.3	160.8 * 21 FEB 1500	196	6.	49.4	161.8 * 25 FEB 1800	295	6.	3.2	158.7
17 FEB 1300	98	6.	48.3	161.8 * 21 FEB 1600	197	6.	48.9	161.8 * 25 FEB 1900	296	6.	2.8	158.7
17 FEB 1400	99	9.	70.3	163.2 * 21 FEB 1700	198	6.	48.4	161.8 * 25 FEB 2000	297	6.	2.3	158.7

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	296.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 15.	103.00		15.	13.	9.	5.
		(INCHES)	.277	.961	1.934	4.909

Outflow Hydrograph (Do Not Use for Inflow Values)

	(AC-FT)	7.	25.	51.	129.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	296.00-HR
93.	103.00	91.	84.	69.	46.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	296.00-HR
164.64	103.00	164.53	164.04	163.09	161.63

CUMULATIVE AREA = .49 SQ MI

Outflow Hydrograph (Do Not Use for Inflow Values)

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
					5.90
HYDROGRAPH AT					
+	A	.10	1	FLOW	107.
				TIME	1.00
HYDROGRAPH AT					
+	B	.15	1	FLOW	244.
				TIME	1.00
2 COMBINED AT					
+	STM1	.25	1	FLOW	352.
				TIME	1.00
HYDROGRAPH AT					
+	A	.10	1	FLOW	107.
				TIME	1.00
HYDROGRAPH AT					
+	B	.15	1	FLOW	244.
				TIME	1.00
2 COMBINED AT					
+	COMB1	.25	1	FLOW	352.
				TIME	1.00
ROUTED TO					
+	STM2	.25	1	FLOW	352.
				TIME	97.00
2 COMBINED AT					
+	TOTAL	.49	1	FLOW	352.
				TIME	1.00
ROUTED TO					
+	POND	.49	1	FLOW	15.
				TIME	103.00

** PEAK STAGES IN FEET **

1	STAGE	164.64
	TIME	103.00

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

SEDGWICK COUNTY, KANSAS
DIVISION OF INFORMATION & OPERATIONS
Kathleen B. Sexton, Assistant County Manager & CIO

FACILITY PROJECT SERVICES
Stephanie Knebel, Manager

510 North Main, Suite 602 ~ Wichita, KS 67203
Phone: 316-660-9865 Fax: 316-383-7696
Email: sknebel@sedgwick.gov
www.sedgwickcounty.org

April 5, 2004

Mr. Michael Schomaker, Principal
Professional Engineering Consultants
303 S. Topeka
Wichita, KS 67202

Dear Mr. Schomaker:

Enclosed please find two copies of the "Spillway Channel Design Memorandum" a report produced in response to the County's initial question of "how much will it cost to fix the spillway?" As I indicated to you during our April 1st phone call, the County is requesting your assistance to understand your fee for providing a cost/benefit analysis for this project.

I very much appreciate you taking time from your busy schedule to assist me in identifying this cost. As you work through this report, please call me at any time if you need any further assistance.

I'm looking forward to working with you on the initial stages of this project.

Sincerely,

Stephanie Knebel, Manager
Facility Project Services

Enclosures