DRAINAGE PLAN

HARRISON PARK 3RD ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

Baughman Company, P.A.

DRAINAGE PLAN
HARRISON PARK 3RD ADDITION
TO
WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

October 20, 1999

The proposed Stormwater Sewer System will discharge into an existing system located in the Webb Road right-of-way. The connection point will be an existing Type 1A curb inlet located on the east side of Webb Rd. approximately 57 ft. South of the Centerline of Lincoln. The proposed connection point is a bypass inlet with an opening length of 5 ft., street grade of 0.74%, and a 15" RCP discharge pipe. The intercepted flow into the bypass has been calculated assuming a flow depth of 0.5 ft. (curb height).

$$Q = 0.56 * \frac{Z}{n} * S_o^{\frac{1}{2}} * d^{\frac{8}{3}}$$

Q = flowrate
Z = reciprocal of street cross slope
n = Manning's coefficient
So = Street Grade
d = flow depth

Typical City of Wichita Street cross slope = 3/8" per foot

$$Z = \frac{1.0}{\frac{\frac{3}{8}}{12}} = 32$$

$$Q = 0.56 * \frac{32}{0.02} * (.0074)^{\frac{1}{2}} * (0.5)^{\frac{8}{3}}$$

$$Q = 12.1 \text{ cfs}$$

Flow Spread in street = Zd = 32*0.5 = 16 ft.

$$F_w = \frac{0.262}{n}\left[(Zd) * S_x\right]^{\frac{1}{6}} * S_o^{\frac{1}{2}}$$

$$F_w = \frac{0.262}{0.02}\left[16 * (.03125)\right]^{\frac{1}{6}} * (0.0074)^{\frac{1}{2}}$$

$$F_w = 1.00$$

$$L_1 = 2.49 * (S_x)^{0.3} * F_w * (Zd)$$

$$L_1 = 14.09$$

$$L_2 = 3.27 * (S_x)^{0.5} * F_w * (Zd)$$

$$L_2 = 9.25$$

$$L_3 = 1.65 * F_w * (Zd)$$

$$L_3 = 26.4$$

number. Interpolating the flowrate from the storage-outflow-elevation table, the flowrate from the detention facility is 8.5 cfs with an elevation of 178.15.

The amount of runoff through the weir opening is calculated at 0.15 ft.

$$Q = 0.45 * L * H^{\frac{3}{2}} * \sqrt{2 * g}$$

$$Q = 2.1 \text{ cf}$$

Total Flow – Weir Flow = Pipe Flow

$$8.5 - 2.1 = 6.4 \text{ cfs}$$

The routed pipe discharge from the detention facility is input into the HGL calculations using StormCad. The total system discharge is increased to 15.4 cfs. This increased discharge shows no adverse effects to the existing inlet or 15" RCP. The HGL does show minimal ponding over the inlet on Lot 2, with a HGL exceeding the inlet on Lot 1 due to the detention facility.

Existing 15" RCP
Worksheet for Pressure Pipe

Project Description	
Project File	untitled.fm2
Worksheet	Harrison Park 3rd Addition1
Flow Element	Pressure Pipe
Method	Manning's Formula
Solve For	Discharge

Input Data		
Pressure at 1	3.70	feet H20
Pressure at 2	1.17	feet H20
Elevation at 1	172.24	ft
Elevation at 2	172.50	ft
Length	53.00	ft
Mannings Coefficient	0.013	
Diameter	15.00	in

Results		
Discharge	13.3677	cfs
Headloss	2.27	ft
Energy Grade at 1	178.39	ft
Energy Grade at 2	176.12	ft
Hydraulic Grade at 1	175.94	ft
Hydraulic Grade at 2	173.67	ft
Flow Area	1.23	ft^2
Wetted Perimeter	3.93	ft
Velocity	10.89	ft/s
Velocity Head	1.84	ft
Friction Slope	0.042828	ft/ft

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE (HEC-1)  *
*         MAY  1991                 *
*        VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01 *
*     Codson & Associates, Inc.     *
*  RUN DATE  10/20/99  TIME  11:03:44 *
*                                   *
*************************************
```

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

```
X    X  XXXXXX  XXXX         X
X    X  X      X   X        XX
X    X  X      X            X
XXXXXX  XXX    X      XXXX  X
X    X  X      X            X
X    X  X      X   X        X
X    X  XXXXXX  XXXX        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


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

  1       ID  Harrison Park 3rd Addition
  2       IT       5 19Oct99    0000     300
  3       IO       3       0
          *DIAGRAM
          *

  4       KK   BASIN
  5       BA    .007
          *      0       0    0.86  1.8425    3.73    4.60    5.04    5.94
          *     10       0  0.6175   1.305    2.53    3.10    3.39    4.02
  6       PH     20       0  0.5441    1.14    2.15    2.66    2.91    3.42
          *     50       0  0.4616  0.9575    1.69    1.98    2.16    2.52
  7       UD    .15
  8       LS       0      94
          *

  9       KK    POND
 10       RS       1    ELEV  173.55
 11       SA       0   0.001    .005     .45     0.9
 12       SE  173.55   176.5   177.0   178.0     179
 13       SQ       0       5     6.8    37.9
 14       SE  173.55     178   178.1     179
          *
 15       ZZ
```

```
            SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  4       BASIN
              V
              V
  9       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  10/20/99  TIME  11:03:44   *
*****************************************
```

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

```
                   Harrison Park 3rd Addition

 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    19Oct99  STARTING DATE
                  ITIME       0000  STARTING TIME
                  NQ           300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE   20   99  ENDING DATE
                  NDTIME      0055  ENDING TIME
                  ICENT         19  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

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

          **************
          *            *
  4 KK    *   BASIN    *
          *            *
```

```
        **************

          SUBBASIN RUNOFF DATA

 5 BA       SUBBASIN CHARACTERISTICS
                 TAREA        0.01  SUBBASIN AREA

            PRECIPITATION DATA

 6 PH                          DEPTHS FOR  20-PERCENT HYPOTHETICAL STORM
            ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ..........
            5-MIN  15-MIN  60-MIN   2-HR   3-HR   6-HR  12-HR  24-HR  2-DAY  4-DAY  7-DAY 10-DAY
             0.54   1.14   2.15    2.66   2.91   3.42   0.00   0.00   0.00   0.00   0.00   0.00

                                         STORM AREA =     0.01

 8 LS       SCS LOSS RATE
                 STRTL        0.13  INITIAL ABSTRACTION
                CRVNBR       94.00  CURVE NUMBER
                 RTIMP        0.00  PERCENT IMPERVIOUS AREA

 7 UD       SCS DIMENSIONLESS UNITGRAPH
                  TLAG        0.15  LAG

                                                    ***

                                              UNIT HYDROGRAPH
                                         11 END-OF-PERIOD ORDINATES
            7.       17.      15.       8.       4.       2.       1.       0.       0.       0.
            0.

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

                HYDROGRAPH AT STATION     BASIN

  TOTAL RAINFALL =     3.28, TOTAL LOSS =     0.66, TOTAL EXCESS =     2.62

 PEAK FLOW     TIME                         MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     24.92-HR
+  (CFS)       (HR)
                         (CFS)
     16.       3.17                  2.          0.          0.          0.
                     (INCHES)    2.625       2.625       2.625       2.625
                      (AC-FT)       1.          1.          1.          1.

                  CUMULATIVE AREA =     0.01 SQ MI


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

        **************
        *            *
 9 KK   *     POND   *
        *            *
        **************

          HYDROGRAPH ROUTING DATA

 10 RS      STORAGE ROUTING
                 NSTPS            1  NUMBER OF SUBREACHES
```

ITYP ELEV TYPE OF INITIAL CONDITION
RSVRIC 173.55 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

11 SA	AREA	0.0	0.0	0.0	0.4	0.9
12 SE	ELEVATION	173.55	176.50	177.00	178.00	179.00
13 SQ	DISCHARGE	0.	5.	7.	38.	
14 SE	ELEVATION	173.55	178.00	178.10	179.00	

***

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.00	0.00	0.17	0.83	
ELEVATION	173.55	176.50	177.00	178.00	179.00	

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.00	0.00	0.17	0.22	0.83
OUTFLOW	0.00	3.31	3.88	5.00	6.80	37.90
ELEVATION	173.55	176.50	177.00	178.00	178.10	179.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 4.
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 PEACH.)

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

HYDROGRAPH AT STATION POND

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
(CFS)	(HR)					
		(CFS)				
9.	3.42		2.	0.	0.	0.
		(INCHES)	2.635	2.635	2.635	2.635
		(AC-FT)	1.	1.	1.	1.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
0.	3.42		0.	0.	0.	0.

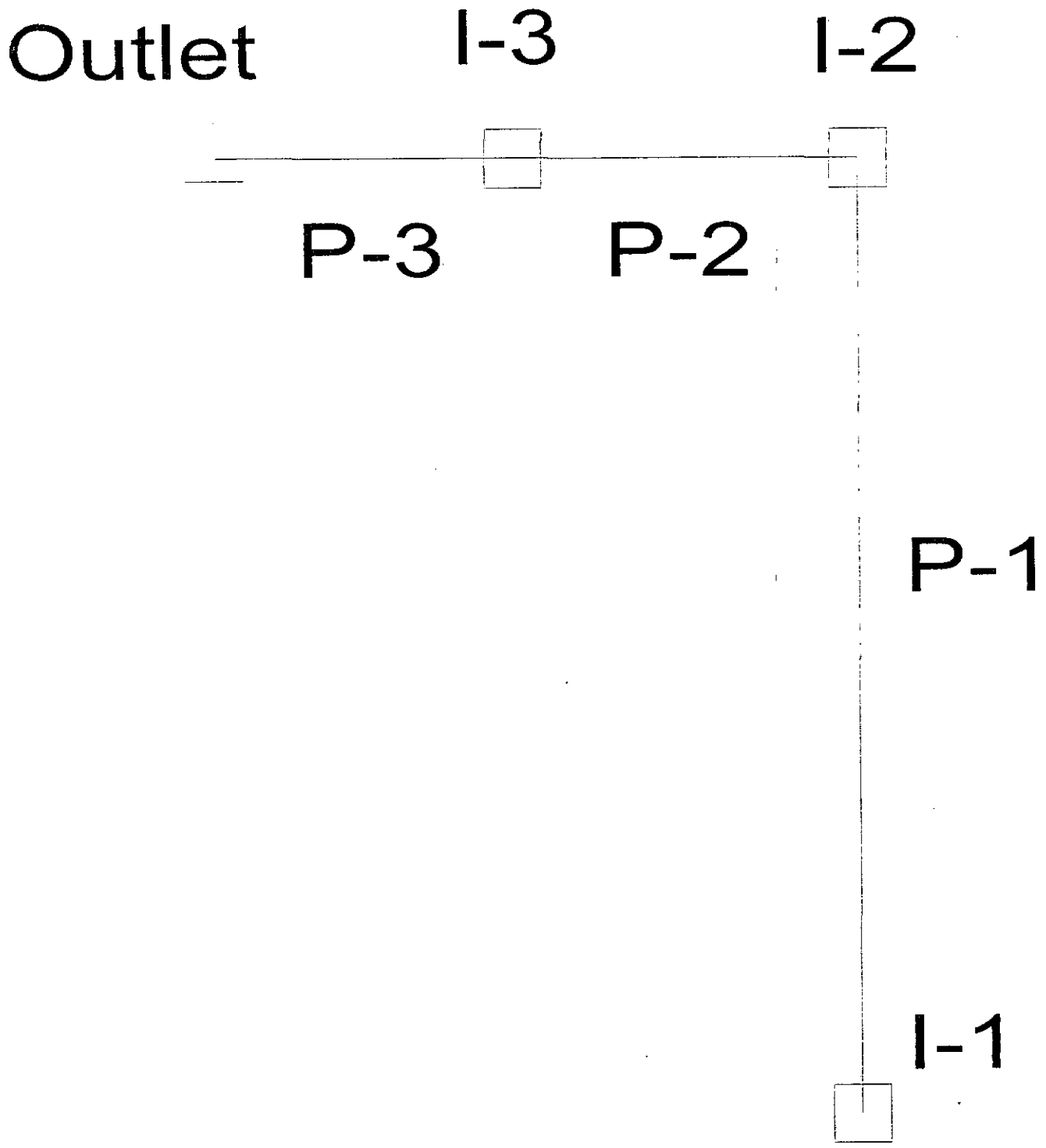
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
(FEET)	(HR)					
178.15	3.42		175.13	173.95	173.93	173.93

CUMULATIVE AREA = 0.01 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	BASIN	16.	3.17	2.	0.	0.	0.01		
ROUTED TO	POND	9.	3.42	2.	0.	0.	0.01	176.15	3.42

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



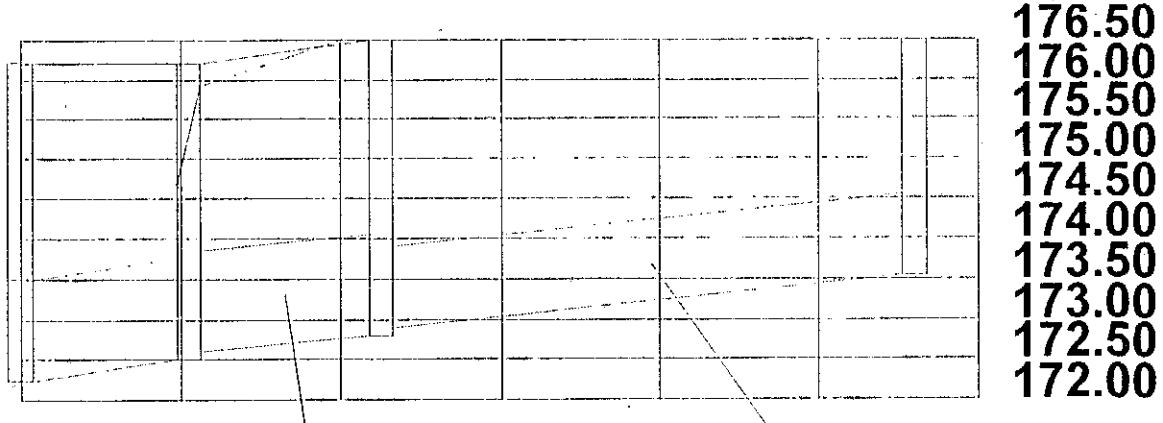
Baughman Company, P.A.
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Inlet: I-3
Rim: 176.20 ft
Sump: 172.50 ft

Inlet: I-1
Rim: 176.50 ft
Sump: 173.55 ft

Outlet: Outlet
Rim: 176.20 ft
Sump: 172.24 ft

Inlet: I-2
Rim: 176.50 ft
Sump: 172.80 ft



Pipe: P-3
Up Invert: 172.50 ft
Dn Invert: 172.24 ft
Length: 21.00 ft
Size: 15 inch

Pipe: P-2
Up Invert: 172.80 ft
Dn Invert: 172.60 ft
Length: 24.00 ft
Size: 15 inch

Pipe: P-1
Up Invert: 173.55 ft
Dn Invert: 172.90 ft
Length: 67.00 ft
Size: 12 inch

Node Report

Node	Inlet Area (acres)	Weighted Roughness Coefficient	Total CA (acres)	Inlet TC (min)	System Flow Time (min)	System Intensity (in/hr)	Total Watershed (CIA) (cfs)	Additional Flow (cfs)	Known Flow (cfs)	Discharge (cfs)	Ground Elevation (ft)	HGL In (ft)	HGL Out (ft)	Inlet Intensity (in/hr)
I-1	0.00	0.00	0.00	15.00	15.00	4.56	0.00	6.40	0.00	6.40	176.50	176.50	176.50	4.56
I-2	0.00	0.00	0.00	15.00	15.14	4.54	0.00	4.70	0.00	11.10	176.50	176.50	176.50	4.56
I-3	0.00	0.00	0.00	15.00	15.18	4.54	0.00	4.30	0.00	15.40	176.20	175.91	174.68	4.56
Outlet	N/A	N/A	0.00	N/A	15.21	4.53	0.00	N/A	N/A	N/A	176.20	173.49	173.49	N/A

 Baughman Company, P.A.
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

LETTER OF TRANSMITTAL

DATE: 11/3/99
JOB NO.
ATTENTION: Vicky Huang
RE: Rev. Drainage Plan

TO: Vicky Huang, P.E.
City Hall - 7th Floor
455 N. Main
Wichita, KS 67202

WE ARE SENDING YOU ☒ *Attached* ☐ *Under separate cover via the following items:*

☐ *Plans* ☒ *Prints* ☐ *Shop drawings* ☐ *Samples* ☐ *Copy of letter*

☐ *Specifications* ☐ *Change order* ☐ *Computer disk* ☐ *Other*

COPIES	DATE	DESCRIPTION
2		Harrison Park 3rd Addition

THESE ARE TRANSMITTED as checked below:

☐ *For approval* ☐ *Approved as submitted* ☒ *For review and comment*

☐ *For your use & information* ☐ *Approved as noted* ☐ *FOR BIDS DUE*

☐ *As requested* ☐ *Return for corrections* ☐

REMARKS: *Please call with any questions*

COPY TO: *file*

RECEIVED
NOV - 3 1999
CITY - ENGINEERING

SIGNED: Brian L. Glenn 11/3/99

Brian L. Glenn, E.I. *Date*

Revised Detention Calculations

HARRISON PARK 3RD ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

November 3, 1999

Revised Detention Calculations

HARRISON PARK 3RD ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

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*                                   *
*  FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*           MAY  1991               *
*         VERSION 4.0.1E            *
*    Lahey F77L-EM/32 version 5.01  *
*      Dodson & Associates, Inc.    *
* RUN DATE  11/03/99  TIME  13:55:07 *
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*                                   *
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*       609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616     *
*         (916) 551-1748            *
*                                   *
*************************************
```

```
X    X XXXXXX  XXXX         X
X    X X      X    X       XX
X    X X      X            X
XXXXXX XXX    X      XXXX  X
X    X X      X            X
X    X X      X    X       X
X    X XXXXXX  XXXX        XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1EB, 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

```
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  1       ID  Harrison Park 3rd Addition
  2       IT       5 19Oct99    0000     300
  3       IO       3       0
          *DIAGRAM
          *

  4       KK  BASIN
  5       BA    .007
  6       PH       0       0    0.86  1.8425    3.73    4.60    5.04    5.94
          *       10       0  0.6175   1.305    2.53    3.10    3.39    4.02
          *       20       0  0.5441    1.14    2.15    2.66    2.91    3.42
          *       50       0  0.4616  0.9575    1.69    1.98    2.16    2.52
  7       UD    .15
  8       LS       0      94
          *

  9       KK   POND
 10       RS        1   ELEV  173.55
 11       SA        0    .002     .01       .9     1.8
 12       SE   173.55   176.5   177.0    178.0     179
 13       SQ        0       5     6.8     37.9
 14       SE   173.55     178   178.1      179
          *
 15       ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

NO. (.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

```
   4      BASIN
            V
            V
   9       POND
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************                 ****************************************
 *                                      *                 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                 *  U.S. ARMY CORPS OF ENGINEERS        *
 *              MAY  1991               *                 *  HYDROLOGIC ENGINEERING CENTER       *
 *            VERSION 4.0.1E            *                 *        609 SECOND STREET             *
 *    Lahey F77L-EM/32 version 5.01     *                 *     DAVIS, CALIFORNIA 95616          *
 *       Dodson & Associates, Inc.      *                 *        (916) 551-1748                *
 * RUN DATE  11/03/99  TIME  13:55:07   *                 *                                      *
 ****************************************                 ****************************************
```

```
                          Harrison Park 3rd Addition

  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    19Oct99  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE   20    99  ENDING DATE
                   NDTIME       0055  ENDING TIME
                    ICENT         19  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

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
              *************
              *           *
   4 KK       *   BASIN   *
              *           *
              *************

                SUBBASIN RUNOFF DATA

   5 BA         SUBBASIN CHARACTERISTICS
                     TAREA        0.01  SUBBASIN AREA

                PRECIPITATION DATA

   6 PH                            DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ..........
                5-MIN 15-MIN 60-MIN   2-HR    3-HR    6-HR   12-HR  24-HR  2-DAY  4-DAY  7-DAY  10-DAY
                 0.86   1.84   3.73   4.60    5.04    5.94    0.00   0.00   0.00   0.00   0.00   0.00

                                              STORM AREA =     0.01

   8 LS         SCS LOSS RATE
                     STRTL        0.13  INITIAL ABSTRACTION
                     CRVNBR      94.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

   7 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG         0.15  LAG

                                                       ***

                                                  UNIT HYDROGRAPH
                                              11 END-OF-PERIOD ORDINATES
                7.      17.      15.      8.      4.      2.      1.      0.      0.      0.
                0.

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

                    HYDROGRAPH AT STATION     BASIN

     TOTAL RAINFALL =    5.94, TOTAL LOSS =    0.70, TOTAL EXCESS =    5.24

   PEAK FLOW    TIME                      MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR      72-HR     24.92-HR
 +   (CFS)      (HR)
                          (CFS)
 +     29.      3.17                 4.          1.         1.          1.
                        (INCHES)  5.237       5.237      5.237       5.237
                         (AC-FT)     2.          2.         2.          2.

                        CUMULATIVE AREA =     0.01 SQ MI
```

*** ***

```
          **************
          *            *
 9 KK     *     POND   *
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

10 RS	STORAGE ROUTING						
	NSTPS	1	NUMBER OF SUBREACHES				
	ITYP	ELEV	TYPE OF INITIAL CONDITION				
	RSVRIC	173.55	INITIAL CONDITION				
	X	0.00	WORKING R AND D COEFFICIENT				
11 SA	AREA	0.0	0.0	0.0	0.9	1.8	
12 SE	ELEVATION	173.55	176.50	177.00	178.00	179.00	
13 SQ	DISCHARGE	0.	5.	7.	38.		
14 SE	ELEVATION	173.55	178.00	178.10	179.00		

***

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.00	0.00	0.34	1.66	
ELEVATION	173.55	176.50	177.00	178.00	179.00	

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.00	0.00	0.34	0.43	1.66
OUTFLOW	0.00	3.31	3.88	5.00	6.80	37.90
ELEVATION	173.55	176.50	177.00	178.00	178.10	179.00

*** 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

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 13.	3.50		4.	1.	1.	1.
		(INCHES)	5.241	5.241	5.241	5.241
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
1.	3.50		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)					
178.28	3.50		176.23	174.22	174.20	174.20

CUMULATIVE AREA = 0.01 SQ MI

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+					6-HOUR	24-HOUR	72-HOUR			
	HYDROGRAPH AT									
+		BASIN	29.	3.17	4.	1.	1.	0.01		
	ROUTED TO									
+		POND	13.	3.50	4.	1.	1.	0.01		
+									178.28	3.50

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